DATA BOOK 1990/91

GENERAL INSTRUMENT
POWER SEMICONDUCTOR DIVISION

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INTRODUCTION

General Instrument Corporation is a major multinational company manufacturing a wide range of products from data systems, broadband communications, and components to semiconductor products. The corporation, which has been in existence over 50 years, has manufacturing and sales locations throughout the world serving all major electronic markets.

The Power Semiconductor Division has manufacturing facilities in the United States and the Far East and is one of the leading producers of discrete semiconductor devices. These devices include low and medium power rectifiers from standard thru ultrafast recovery, bridge assemblies and transient voltage suppressors. We offer the widest selection of rectifier package types and junction structures including plastic encapsulated, glass passivated, superectifier, and surface mounted. Advanced junction technologies include double diffusion, double diffused fast recovery, narrow base epitaxial, PAR and Schottky.

Particular emphasis has been focused on the superectifier product family including our new super surface mounted devices. The superectifier, when introduced ten years ago increased rectifier reliability by several orders of magnitude. Today it still remains unmatched as the cost performance leader in axial leaded rectifiers. Now the superectifier features of metallurgically bonded junction, glass passivation, and flame retardant encapsulation are available in our line of super surface mounted rectifiers. For the ultimate in surface mounted rectifier reliability it's super surface mount.

The information contained in this data book is intended to provide the necessary technical and support data to assist the design engineer. It is our policy to maintain high standards of product manufacturing. The General Instrument logo (GI), printed on every component, ensures that it reaches the highest level of quality and reliability. In the complex and competitive semiconductor industry, high standards of quality using the latest methods of statistical quality control are of the utmost importance since they constitute, for our customer the assurance of reliable product performance.

Not every application problem can be solved using a standard device, in this case we often develop special products to meet the customer requirements. If in doubt, call your local Sales Office or our Application Engineering Laboratory for further information.

SYMBOLS

C_J	Junction Capacitance	T_J	Junction Temperature
I_F	Forward Current	T_L	Maximum Lead Temperature
$I_{(AV)}$	Average Forward Rectifier Current	t_r	Rise Time
I_{FSM}	Peak Forward Surge Current	t_{rr}	Reverse Recovery Time
I_o	Mean Forward Current	V_{BR}	Breakdown Voltage
I_R	Reverse Current	V_F	Forward Voltage
Irr	Reverse Recovery Current	V_{FR}	Forward Recovery Voltage
I_{RSM}	Maximum Non-Repetitive Peak Current	V_R	Reverse Voltage
I_T	On-State Test Current	V_{RM}	Maximum Recurrent Peak Reverse Volta
I^2t	Rating for Fusing	V_{RMS}	RMS Input Voltage
P_D	Steady State Power Dissipation	V_{RRM}	Repetitive Peak Reverse Voltage
P_{PK}	Peak Power Dissipation	V_{RSM}	Maximum Reverse Voltage (Clamping Voltage) at I_{RSM}
$R\Theta JA$	Thermal Resistance (Junction to ambient)		
$R\Theta JC$	Thermal Resistance(Junctiono to case)	V_{RWM}	Working Peak Reverse Voltage (Stand-off Voltage)
$R\Theta JL$	Thermal Resistance (Junction to Lead)		
T_A	Ambient Temperature	V_z	Zener Voltage
T_C	Case Temperature	Z_k	Dynamic Impedance

DRAWINGS

All dimensions in inches and (millimeters.)
Figures not to scale.

TEMPERATURES

Ratings at 25° C ambient temperature unless otherwise specified.

The General Instrument data book is not a document for official acceptance tests. Relevant is only the detailed data sheet, which is available on request.
The Manufacturer reserves the right to change the contained data at any time in order to improve performance and supply the best product possible.

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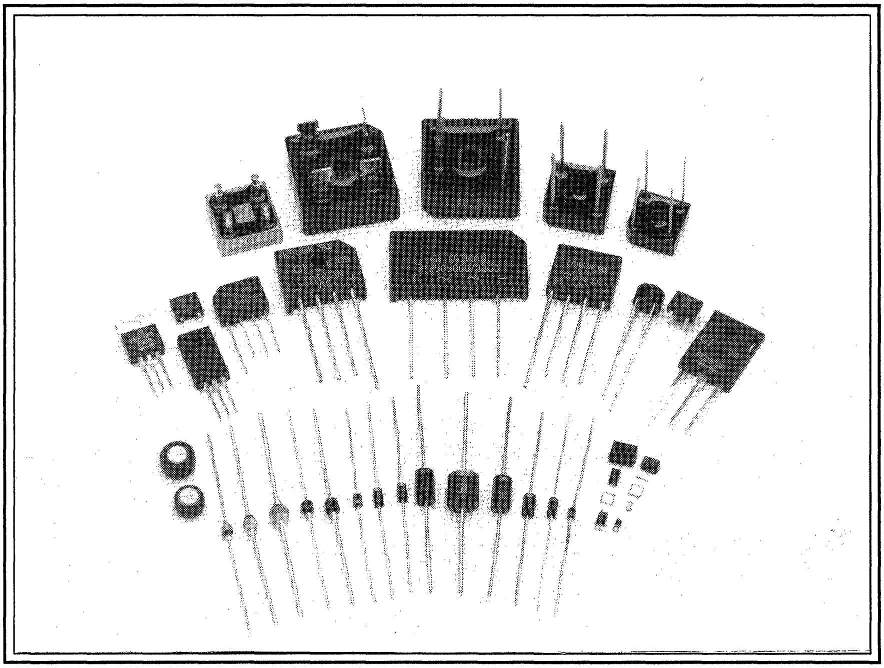


GENERAL INSTRUMENT

GENERAL INSTRUMENT

QUALITY ASSURANCE

GENERAL INSTRUMENT

QUALITY ASSURANCE

CUSTOMER INFORMATION

INTRODUCTION

Quality and Reliability of the Power Semiconductor Division extends its services to the areas of materials and product analysis, statistical quality control, reliability evaluation, quality inspection and development of new test methods.

Headquartered in New York, it assumes the responsibility for the development, implementation and administration of the Quality Assurance and statistical quality control programs for all operations of the Division, both domestic and foreign.

At our manufacturing plants, rigid and extensive in-process statistical quality controls are utilized such that the quality and reliability of our products are consistent and repeatable. The laboratories of our facilities are equipped with the latest high-level instrumentation and staffed with skilled technicians and engineers.

Professional expertise and the most modern scientific equipment maintains our position of excellence and leadership as the foremost producer of semiconductor devices, and assures that the quality levels of our products, from inspection and test of raw materials to final approval of completed devices, meet the highest standards of the industry.

We offer...

- *Top-flight specialists and modern facilities.*
- *Experienced Test and Reliability Engineers.*
- *Statistical Quality Control.*
- *Fully equipped laboratories able to perform all types of scientific investigation.*

SERVICES OF THE MATERIALS AND DEVICE ANALYSIS SECTION

- *Testing, inspection and evaluation of materials utilizing the facilities of the electrical, mechanical, high-reliability and chemical analysis departments of our laboratories.*
- *Research and development of testing methods.*
- *Inspection of materials to ensure compliance by suppliers and contractors to specifications.*
- *Failure analysis to determine the cause of breakdown in materials or components.*
- *Qualification testing of military devices in accordance with applicable military specifications. The laboratories are qualified to perform testing to MIL-S-19500, MIL-STD-750, MIL-STD-202, and also are qualified to MIL-STD-883 tests under MIL-M-38510. Qualification approvals (QPL listing) were awarded by the United States, Canadian and West German Departments of Defense.*
- *A continuing program of military reliability (JAN-TX) also is progress to assure conformance to the requirements for aerospace and the military.*

TEST CONDITIONS

OPERATING LIFE
Conditions: Rated voltage, rated current, for 1000 hours at 25° C.

DC BLOCKING
Conditions: Rated voltage for 1000 hours at 100° C in inert environment.

STORAGE LIFE
Conditions: 100° C for 1000 hours in inert environment.

LEAD PULL
Conditions: Axial pull to destruction.

LEAD FATIGUE
Conditions: number of 90-degree bends with 0.5 kg weight attached to lead.

MOISTURE RESISTANCE
Conditions: 85 °C, 85% Relative Humidity for 10 days.

SOLDERABILITY
Conditions: 95% coverage within 1.2 mm of device body.

TEMPERATURE CYCLING
Conditions: - 65° C to +175 °C.

SHOCK
Conditions: 5 blows of 1500g's.

VIBRATION (CONSTANT)
Conditions 20 g's at 60 Hz ± 20 Hz.

ACCELERATION
Conditions: 20,000 g's.

SALT ATMOSPHERE
Conditions: 5% solution for 24 hours at 35 °C.

FLAMMABILITY
Conditions: Encapsulating compound, General Instrument's proprietary formulas, GI-4B or GI-5A is self-extinguishing, recognized and registered by Underwriters' Laboratories, U.S.

MOISTURE CAPABILITIES OF DIODES, RECTIFIERS, AND BRIDGES

Conditions: *T = 25° C to 85° C in Operating Mode Suitability Tested by Reverse Leakage Current at Rated Voltage*

	Yearly Average				
Device	⩾ 95% RH	⩾ 85% RH	100% RH 30 Days Continuous	95% RH 30 Days Continuous	Balance Occasional 100% RH
GPD	■		■		■
GPR	■		■		■
GP10		■	■		■
GP15		■	■		■
GP20	■		■		■
GP30	■		■		■
DO41		■		■	■
WO Series	■		■		■
KBP Series	■			■	■
KBPC Series	■		■		■
KBU Series	■			■	■

HIGH RELIABILITY - TEST CAPABILITIES

- ***Barometric Pressure:*** *This equipment simulates low atmospheric pressure encountered in non-pressurized environments up to 200,000 feet.*
- ***Humidity:*** *This equipment evaluates units in an accelerated manner, and monitors the effects of their resistance to high humidity and heat conditions. Typical RH of 90 to 98% is achieved.*
- ***Salt (Spray) and Salt Atmosphere:*** *The equipment provides an accelerated laboratory corrosion test simulating the effects of seacoast atmospheres. Salt concentration and velocity per day can be maintained between 10,000 and 50,000 mgm/m2/day. Salt Atmosphere - Salt spray 5% - 20% salt solution.*
- ***Thermal Shock Temp.-Cycling:*** *This test determines the resistance of devices to exposure at extremely high and low temperatures. Chamber limits - 74 °C to 250 °C.*
- ***Mass Spectrometer Leak Detector (Fine Leak):*** *To determine the effectiveness (or the hermeticity) of the seal on devices with internal cavities which are evacuated on contain air or gas. Machine limits 1 - 10^{-9} to 10 - 10^{-6}atm.*
- ***Gross Leak:*** *Determine seal leak greater than 10 - 10^{-6}ATM cc/Sec.*
- ***Constant Acceleration:*** *Determines the effects of a centrifugal force on devices up to 700,000g under space environment (refrigerated vacuum).*
- ***Shock:*** *Subjects the devices to conditions resulting from sudden applied forces or abrupt changes in motion produced by rough handing, transportation or field operation from 10 to 4,500g.*
- ***Vibration Fatigue:*** *Tests the effects of vibration within the frequency range of 60 Hz at 0-70g.*
- ***Vibration Noise:*** *Measures the amount of electrical noise produced by the devices under vibration from 9-5kHz and 0-70g.*
- ***Non-Operating Life:*** *To determine the effects on devices at elevated temperatures. Temperature ranges up to 300 °C.*
- ***Operating Life Test:*** *To operate the devices under intended condition to screen and eliminate marginal devices and eliminate mortality.*
    - *Steady State Operating Life*
    - *Reverse Bias Operating Life*
    - *Intermittent Operating Life*
- ***Solderability - Lead Integrity (Lead Tension):***
  Determine the solderability on all devices from 0 to 400° C. Lead Tension - Designed to check the capabilities of the devices to withstand straight pulls.
- ***Lead Integrity (bending stress):***
  Check the quality of leads, welds and seals of the devices to withstand bends under specific weights.
- ***Lead Integrity (lead torque):***
  Check the devices, leads and seals for resistance to twisting motion. Equipment limits from .5 cmkg to 100 mkg.
- ***Hi-Power Microscopic Inspection:***
  Examine internal and external construction of our devices up to 600 times.
- ***Bond Strength:*** *This determines strength of lead bonding between the active area of the device and connecting packaging lead.*

MILITARY APPROVED RECTIFIERS

0.2 AMPERE TO 10 AMPERES

GENERAL INSTRUMENT

GENERAL INSTRUMENT

1 IN PRICE, # 1 IN SERVICE, # 1 IN MILITARY

General Instrument Power Semiconductor Division , is the world's largest manufacturer of rectifiers and bridges, supplying over 2 billion annually. We're proud to be number one in ***quality and reliability*** as we are in being number one in ***price and service.*** And no one beats our delivery. Think bigger and better. Design-in General Instrument JAN, JANTX and JANTXV rectifiers and bridges, and see why we're The Decisive Factor in military rectifiers.

DELIVERY

As you well know, ensuring on time delivery, for those hard-to-get parts, is one of the most important and frustrating aspects of a purchasing agent's many responsibilities. We remove that stumbling block for all the JAN, JANTX, JANTXV devices we produce. As the world's largest rectifier manufacturer, you can ALWAYS count on JAN parts from stock. In addition, we have *MORE BURN-IN CAPACITY THAN ANYONE,* which guarantees shorter JANTX lead times. That's why you can count on General Instrument Power Semiconductor Division to be the Decisive Factor in your military project.

PRICING

WE ARE NOW , AND WILL ALWAYS BE, THE PRICE LEADER IN JAN, JANTX AND JANTXV MILITARY RECTIFIERS AND BRIDGES!

TECHNICAL ASSISTANCE

You'll find that buying from General Instrument Power Semiconductor Division makes a lot of sense . Consider the potential headaches we head off or eliminate with our technical assistance and support. Every one of our components is supplied with concise product data sheets that give engineers and designers complete details on electrical parameters, mechanical data, and maximum ratings as well as other vital information.

Equally important is our accessability. When questions arise with initial design, redesign, or current application, just pick up the telephone and call our applications engineering department at (516) 933-3164. We're extremely well staffed with experienced professionals to clearly and accurately answer every question.

AVAILABILITY

The following is intended as a quick guide and reference to the types of components General Instrument Power Semiconductor Division supplies:

JAN COMPONENTS

The most economical Hi-Rel device, JAN components are MIL qualified and subjected to environmental and life sample tests to assure quality conformance. JAN devices are 100 % tested, lot traceable and must pass a number of other tests (see comparison chart.) Aside from military circuits they are frequently used in commercial applications requiring superior potential life cycle performance that can not be guaranteed with standard commercial components.

JANTX AND JANTXV COMPONENTS

In addition to JAN processing, JANTX and JANTXV devices are subjected to extra environmental and electrical test as outlined in MIL-S-19500. (See comparison chart.) These screening procedures eliminate the possibility of infant mortality failures that might occur in the early stages of component system use.

PDA (percent defects allowable) requirements are applied to every lot, thereby assuring continuous quality and reliability . This effectively restricts the probability of shipping defective lots. The selection of TX and TXV components assures both ***maximum component reliability and standardized reliability testing procedures.***

SPECIFICATION CONTROL DRAWINGS

Additional reliability testing, electrical screenings, or special markings are often required. General Instrument Power Semiconductor Division will guarantee that all those standards are met. We can guarantee this thanks to our state- of - the - art testing facility which provides the capability to screen devices to an equivalent "JANS" level.

HIGH RELIABILITY SCREENING SEQUENCE

GROUP A Testing - Group A testing is performed on each lot which consists of visual inspection mechanical inspections and specified electrical parametric testing

Group B Testing - Group B Testing is performed on each lot and consists of reliability testing.

Group C Testing - Group C Testing is performed on a 6 month periodic basis, and consists of long term realiability and environmental testing.

Microscopic Inspection - 100% microscopic inspection is performed on all TXV device.

Traceability - Traceability is maintained per the applicable specification and MIL-S-19500.

JAN, JANTX, JANTXV

High Temperature Storage *(Non-operating)* - Devices are stored in high temperatures ranging from 150°C to 200°C for stabilization.

Temperature Cycling - Devices are cycled for temperatures ranging from -65°C to +175°C to weed out structural weakness, i.e. welds, glass to metal seals and molecular lattice structure.

Shock- Specified devices are subjected to a mechanical shock test.

Acceleration - Specified devices are subjected to centrifuge.

Seal Leak *(Fine)* - Devices are tested with a helium mass spectrometer to locate any leaks down to $1x10^{-8}$ CC's per second leak rate.
Seal Leak (Gross) - Devices are checked for leaks too large for detection by tracer gases.

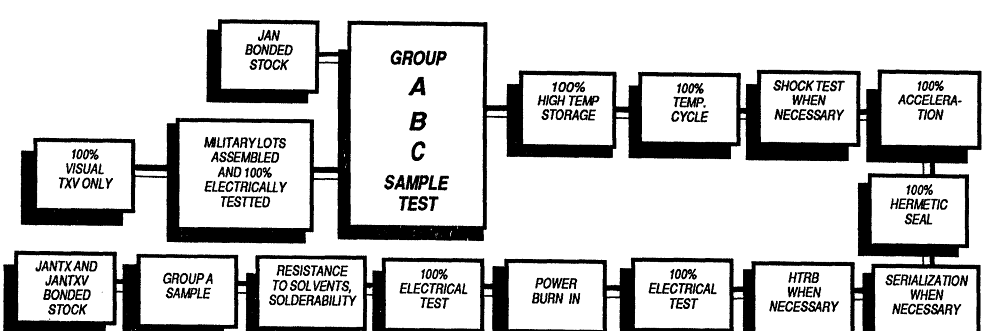
100% Electrical Test - Devices are subjected to all parameters of the applicable specification.
High Temperature Reverse Bias - Devices are subject to reverse bias for fourty eight hours under elevated temperature.

Power -Burn In - Devices are subjected to ninety six hours of burn-in to the conditions in the applicable specifications.

100% Delta Electrical Test - Devices are subjected to all parameters of the applicable specification and delta calculations are determined. Those devices not meeting the requirements are rejected.
Resistance to Solvents - Devices are exposed to various solvents to ensure marking permanency.
Solderability - Testing is performed to determine the degree of solder coverage on the leads.

HIGH-RELIABILITY COMPARISON CHART

	JAN	*JANTX*	*JANTXV*
Microscopic Inspection (Internal Visual)	No	No	Yes
Tracebility (Lot)	Yes	Yes	Yes
100% Electrical Test	Yes	Yes	Yes
High Temp Storage (Non-Operating)	Yes	Yes	Yes
Temperature Cycling	No	Yes	Yes
Acceleration (When Applicable)	No	Yes	Yes
Seal Leak (Fine)	No	Yes	Yes
Seal Leak (Gross)	No	Yes	Yes
High Temp Reverse Bias (When Applicable)	No	Yes	Yes
Electrical Test (Read & Record)	No	Yes	Yes
Power Age (Burn-in)	No	Yes	Yes
Electrical Test (Read & Record) (with Delta Limits)	No	Yes	Yes
Group A Inspection per MIL-S-19500	Yes	Yes	Yes
Group B Inspection per MIL-S-19500	Yes	Yes	Yes
Group C Inspection per MIL-S-19500	Yes	Yes	Yes
PDA (Max. Pct. Def Allow.) thru Power Burn-in	No	Yes	Yes



QUALIFIED PRODUCTS LIST

PRODUCT'S QUALIFIED UNDER MILITARY SPECIFICATION MIL-S-19500

GOVERNMENT DESIGNATION	DETAIL SPEC
	DIODES
JAN, JANTX, 1N483B	/118
JAN, JANTX, 1N485B	/118
JAN, JANTX, 1N486B	/118
JAN, JANTX, 1N645	/240
JAN, JANTX, 1N647	/240
JAN, JANTX, 1N649	/240
JAN, JANTX, 1N645-1	/240
JAN, JANTX, 1N647-1	/240
JAN, JANTX, 1N649-1	/240
	RECTIFIERS
JAN, JANTX, 1N3611	/228
JAN, JANTX, 1N3612	/228
JAN, JANTX, 1N3613	/228
JAN, JANTX, 1N3614	/228
JAN, JANTX, 1N3957	/228
JAN, JANTX , 1N4245	/286
JAN, JANTX, 1N4246	/286
JAN, JANTX, 1N4247	/286
JAN, JANTX, 1N4248	/286
JAN, JANTX, 1N4249	/286
JAN, JANTX, 1N4942	/359
JAN, JANTX, 1N4944	/359
JAN, JANTX, 1N4946	/359
JAN, JANTX, 1N4947	/359
JAN, JANTX, 1N4948	/359
JAN, JANTX, 1N5415	/411
JAN, JANTX, 1N5416	/411
JAN, JANTX, 1N5417	/411
JAN, JANTX, 1N5418	/411
JAN, JANTX, 1N5419	/411
JAN, JANTX , 1N5420	/411
JAN, JANTX, 1N5550	/420
JAN, JANTX, 1N5551	/420
JAN, JANTX, 1N5552	/420
JAN, JANTX, 1N5553	/420
JAN, JANTX, 1N5554	/420
JAN, JANTX, 1N5614	/427
JAN, JANTX, 1N5616	/427
JAN, JANTX, 1N5618	/427
JAN, JANTX, 1N5620	/427
JAN, JANTX, 1N5622	/427

GOVERNMENT DESIGNATION	DETAIL SPEC
	RECTIFIERS (continued)
JAN, JANTX, 1N5624	/432
JAN, JANTX, 1N5625	/432
JAN, JANTX, 1N5626	/432
JAN, JANTX, 1N5627	/432
JAN, JANTX, JANTXV, 1N5802	/477
JAN, JANTX, JANTXV, 1N5804	/477
JAN, JANTX, JANTXV, 1N5806	/477
JAN, JANTX, JANTXV, 1N5907	/477
JAN, JANTX, JANTXV, 1N5809	/477
JAN, JANTX, JANTXV, 1N5811	/477
	BRIDGES
JAN, JANTX, M19500/469-01	/469
JAN, JANTX, M19500/469-02	/469
JAN, JANTX, M19500/469-03	/469
JAN, JANTX, M19500/469-04	/469
	TRANSIENT VOLTAGE SUPPRESSORS
JAN, JANTX, 1N6113,A	/516
JAN, JANTX, 1N6114,A	/516
JAN, JANTX, 1N6115,A	/516
JAN, JANTX, 1N6116,A	/516
JAN, JANTX, 1N6117,A	/516
JAN, JANTX, 1N6118,A	/516
JAN, JANTX, 1N6119,A	/516
JAN, JANTX, 1N6120,A	/516
JAN, JANTX,1N6121,A	/516
JAN, JANTX, 1N6122,A	/516
JAN, JANTX, 1N6123,A	/516
JAN, JANTX, 1N6124,A	/516
JAN, JANTX, 1N6125,A	/516
JAN, JANTX, 1N6126,A	/516
JAN, JANTX, 1N6127,A	/516
JAN, JANTX, 1N6128,A	/516
JAN, JANTX, 1N6129,A	/516
JAN, JANTX, 1N6130,A	/516

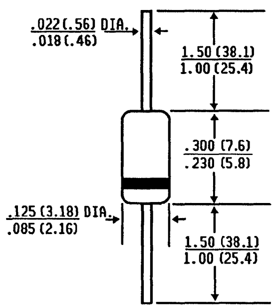
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N483B THRU 1N486B

LOW POWER MINIATURE GLASS PASSIVATED SILICON DIODES

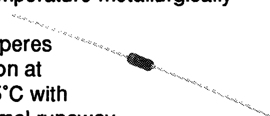
***VOLTAGE** - 70 to 225 Volts* ***CURRENT** - 200 Milliamperes*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/118C
- High temperature metallurgically bonded
- 0.2 amperes operation at T_A = 25°C with no thermal runaway
- Hermetically sealed package
- Ideally suited for miniaturized equipment
- Glass passivated cavity-free junction
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, herrmetically sealed
Terminal: Plated Axial leads, solderable per MI-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	JAN1N483B	JAN1N485B	JAN1N486B	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	70	180	225	Volts
Maximum RMS Voltage	V_{RMS}	50	127	159	Volts
Maximum DC Blocking Voltage	V_{DC}	70	180	225	Volts
Minimum Reverse Breakdown Voltage at 100µA	V_{BR}	80	200	250	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_A =25°C / T_A = 150°C	$I_{(AV)}$		200 50.0		Milliamps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 150°C	I_{FSM}		2.0		Amps
Maximum Instantaneous Forward Voltage at 100mA	V_F		1.0		Volts
Maximum DC Reverse Current T_A = 25°C	I_R	25	25	25	nA
at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0	5.0	5.0	µA
Typical Junction Capacitance (Note 1)	C_J		15.0		pf
Typical Thermal Resistance (Note 2)	$R_{\Theta JA}$		80.0		°C/W
Operating and Storage Temperature Range	T_J, T_{STG}		-65 to +200		°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

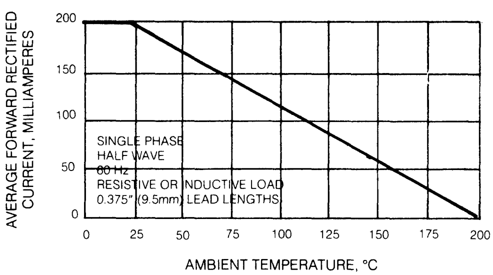


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

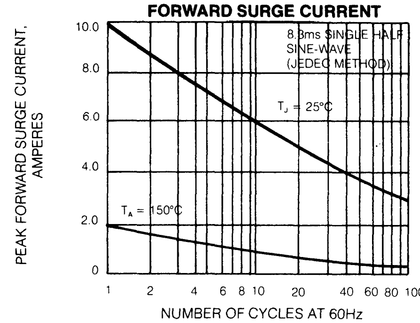


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

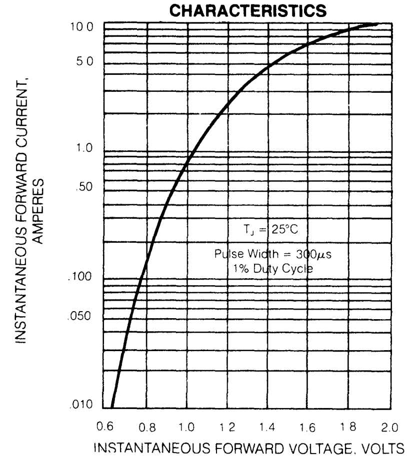


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

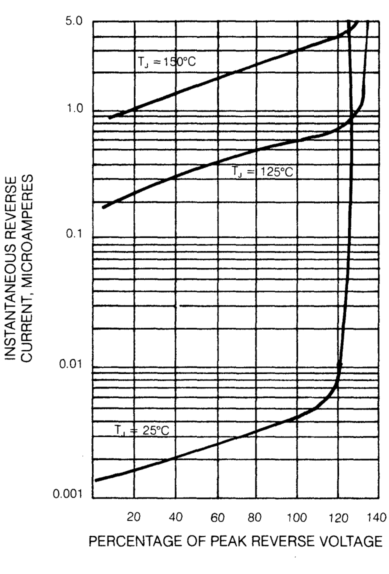
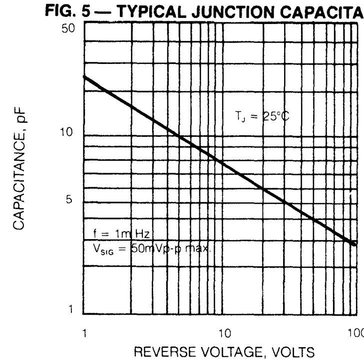


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

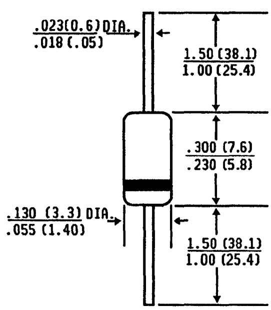
GENERAL INSTRUMENT

POWER
SEMICONDUCTOR
DIVISION

JAN AND JANTX 1N645 THRU 1N649
JAN AND JANTX 1N645-1 THRU 1N649-1

MINIATURE GLASS PASSIVATED SILICON DIODES

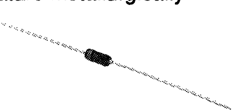
***VOLTAGE-** 225 to 600 Volts* ***CURRENT** - 400 Milliamperes*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/ 240E
- Glass passivated cavity-free junction
- 0.4 amperes operation at T_A = 25°C with no thermal runaway
- High temperature metallurgically bonded
- Ideally suited for miniaturized equipment



- Hermetically sealed package
- High temperature soldering guaranteed:350°C/10seconds/.375".(9.5mm) lead length/5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	JAN 1N645	JAN 1N645-1	JAN 1N647	JAN 1N647-1	JAN 1N649	JAN 1N649-1	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	225	225	400	400	600	600	Volts
Maximum RMS Voltage	V_{RMS}	156	156	280	280	420	420	Volts
Maximum DC Blocking Voltage	V_{DC}	225	225	400	400	600	600	Volts
Minimum Reverse Breakdown Voltage at 100µA 50 µA	V_{BR}	270 -	- 270	480 -	- 480	720 -	 720	Volts
Maximum Average Forward Recitified Current, .375" (9.5mm) Lead Length at T_A=25°C T_A = 150°C	$I_{(AV)}$	400 150						milli-Amps
Peak Forward Surge Current, 8.3.ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 150°C	I_{FSM}	5.0						Amps
Maximum Instantaneous Forward Voltage at 400 mA T_A = 150°C T_A = 25°C T_A = -55°C	V_F	0.95 1.0 1.20						Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	25 15	50 25	25 15	50 25	50 25	50 25	nA µA
Maximum Average Reverse Current at Peak Reverse Voltage, Io=150 mA T_A=150°C at .375" 9.5mm Lead Lengths	$I_{R(AV)}$	100						µA
Maximum Junction Capacitance (Note 1)	C_J	20.0						pf
Typical Thermal Resistance (Note 2)	$R\Theta JA$	80.0						°C/W
Operating Junction Temperature Range	T_J	-65 to +175						°C
Storage Ambient Temperature Range	T_{STG}	-65 to +200						°C

NOTES : 1. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Thermal Resistance from Junciton to Ambient at .375", (9.5mm)lead lengths, P.C. Board mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

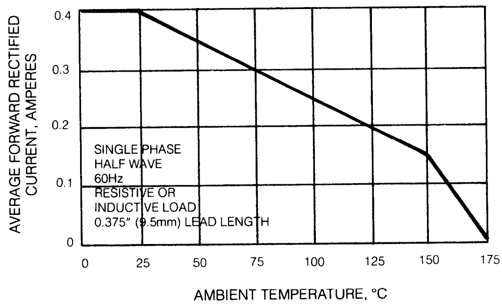


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

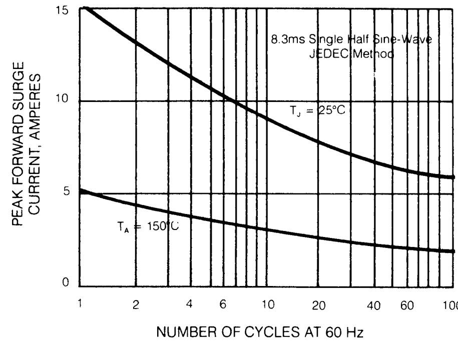


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

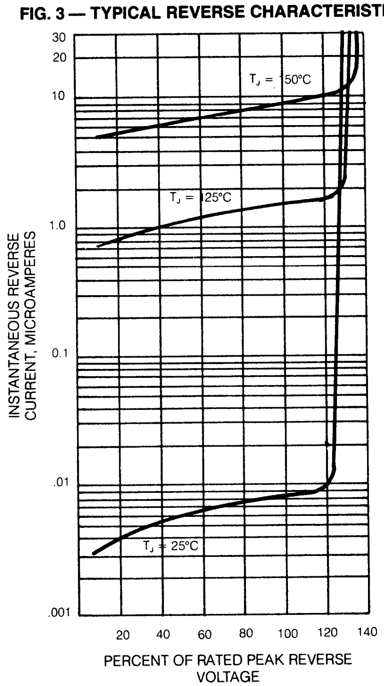


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

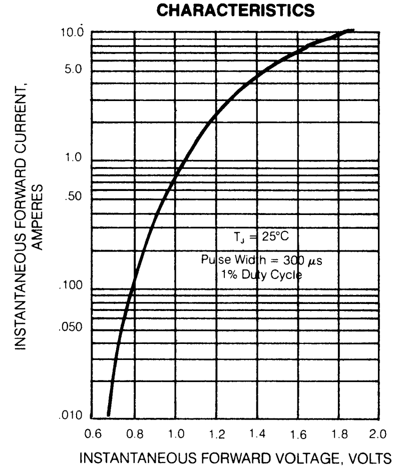
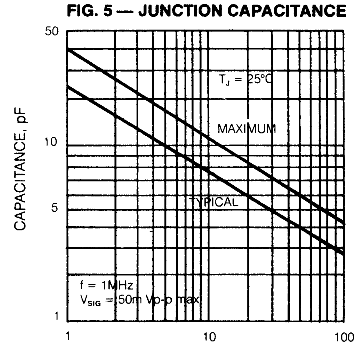


FIG. 5 — JUNCTION CAPACITANCE



GENERAL INSTRUMENT

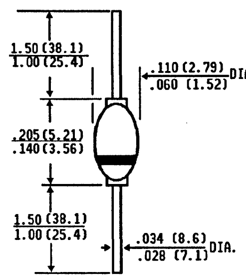
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N3611 THRU 1N3614 AND 1N3957

MINIATURE GLASS PASSIVATED JUNCTION SILICON RECTIFIER

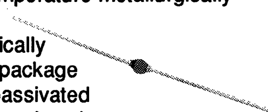
VOLTAGE* - *200 to 1000 Volts*   *CURRENT* - *1.0 Ampere



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/228E
- High temperature metallurgically bonded
- Hermetically sealed package
- Glass passivated cavity-free junction
- 1.0 ampere operation at $T_A = 100°C$ with no thermal runaway
- Typical I_R less than 0.1 µA
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at/5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.02 ounce, 0.56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	JAN 1N3611	JAN 1N3612	JAN 1N3613	JAN 1N3614	JAN 1N3957	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
Minimum Reverse Breakdown Voltage at 100µA	V_{BR}	240	480	720	920	1150	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at $T_A = 100°C$	$I_{(AV)}$			1.0			Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at $T_A = 150°C$	I_{FSM}			30			Amps
Maximum Instantaneous Forward Voltage at 1.0A $T_A = 25°C$ / $T_A = -65°C$	V_F			1.1 / 1.5			Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage $T_A = 25°C$ / $T_A = 150°C$	I_R			1.0 / 300			µA
Typical Reverse Recovery Time (Note 1)	T_{RR}			2.0			µs
Typical Junction Capacitance (Note 2)	C_J			10.0			pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$			50.0			°C/W
Operating Junction Temperature Range	T_J			-65 to +175			°C
Storage Ambient Temperature Range	T_{STG}			-65 to +200			°C

NOTES:
1. Reverse Recovery Conditions: $I_F = 0.5A$, $I_R = 1.0A$, $I_{rr} = 0.25A$.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths P.C. Board mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

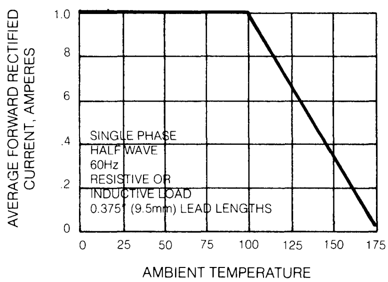


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

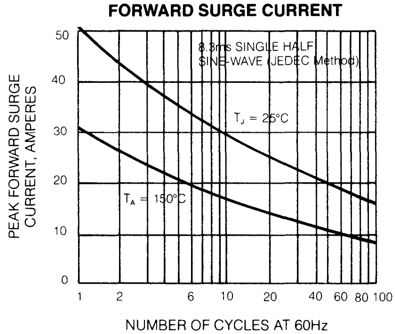


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

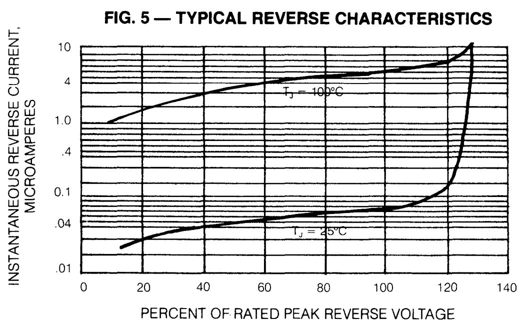


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

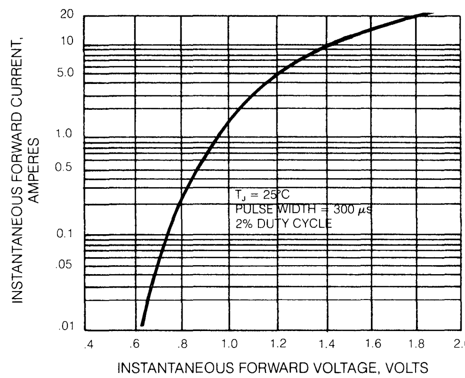
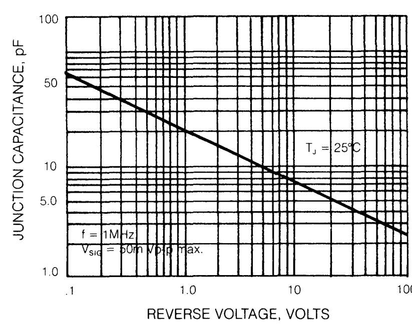


FIG. 4 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

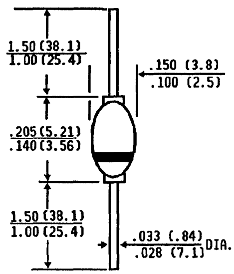
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N4245 THRU 1N4249

GLASS PASSIVATED JUNCTION MEDIUM SWITCHING RECTIFIERS

***VOLTAGE** - 200 to 1000 Volts* ***CURRENT** - 1.0 Ampere*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/286C
- High temperature metallurgically bonded
- Glass passivated cavity-free junction
- 1.0 Ampere operation at T_A = 100°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Hermetically sealed package
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	JAN 1N4245	JAN 1N4246	JAN 1N4247	JAN 1N4248	JAN 1N4249	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
Minimum Reverse Breakdown Voltage at 100µA	V_{BR}	240	480	720	960	1150	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_A = 100°C	$I_{(AV)}$			1.0			Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 100°C	I_{FSM}			25.0			Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F			1.3			Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R			1.0 150			µA
Maximum Thermal Resistance (Note 3)	$R\Theta JA$			50.0			°C/W
Typical Junction Capacitance (Note 1)	C_J			15			pf
Maximum Reverse Recovery Time (Note 2)	T_{RR}			5.0			µs
Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			°C

NOTES: 1. Measured at 1MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths P.C. Board mounted.

FIG. 1 — FORWARD DERATING CURVE

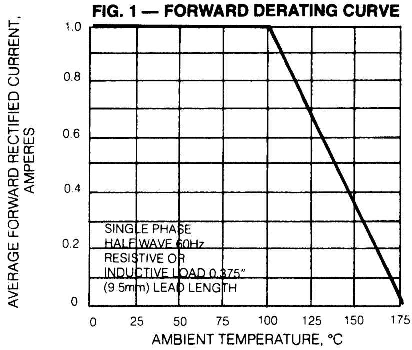


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

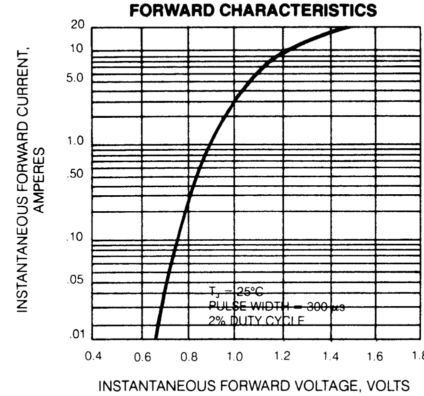


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

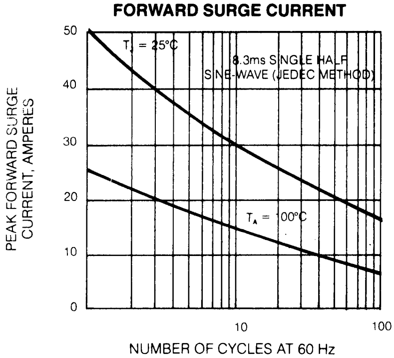


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

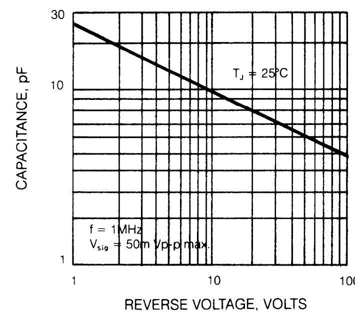
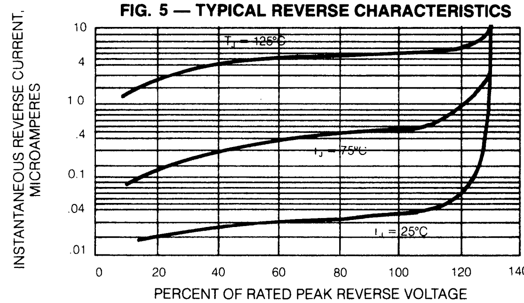


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

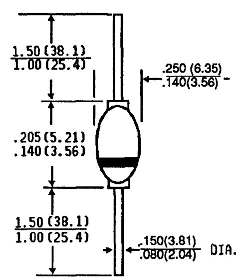
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N4942 THRU 1N4948

GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***VOLTAGE** - 200 to 1000 Volts* ***CURRENT** - 1.0 Ampere*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/359B High temperature metallurgically bonded
- Glass passivated cavity-free junction
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Hermetically sealed package
- Typical temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denoted cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
For capacitive load, derate current by 20%.

	SYMBOLS	*JAN 1N4942*	*JAN 1N4944*	*JAN 1N4946*	*JAN 1N4947*	*JAN 1N4948*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
Minimum Reverse Breakdown Voltage at 100μA	V_{BR}	220	440	660	880	1100	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_A = 55°C	$I_{(AV)}$			1.0			Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A =100°C	I_{FSM}			15.0			Amps
Maximum Instantaneous Forward Voltage at 1.0A T_A = 25°C T_A = -65°C	V_F			1.3 1.5			Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C T_A = 150°C	I_R			1.0 200			μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	150		250		500	ns
Maximum Junction Capacitance (Note 2)	C_J	45	35	25	20	15	pf
Typical Thermal Resistance (Note 3)	$R\theta JA$			50.0			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			C

NOTES:

1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 25A
2. Measured at 1 MHz and appliede reverse voltage of 12 volts.
3. Thermal resistance from Junction to Ambient at .375"(9.5mm) lead lengths P.C.Board mounted.

FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

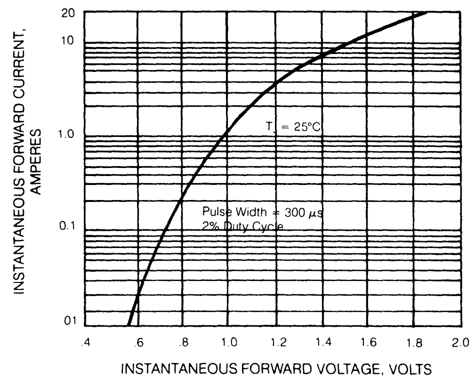


FIG. 1 — FORWARD CURRENT DERATING CURVE

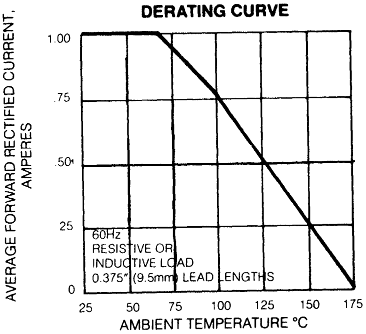


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

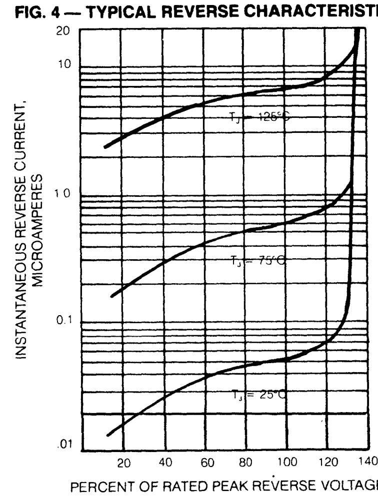


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

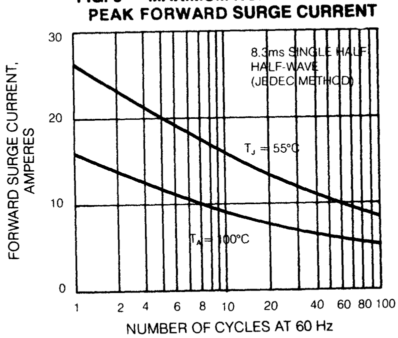


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

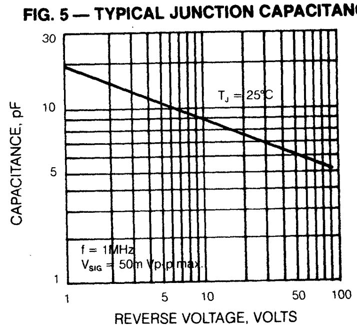
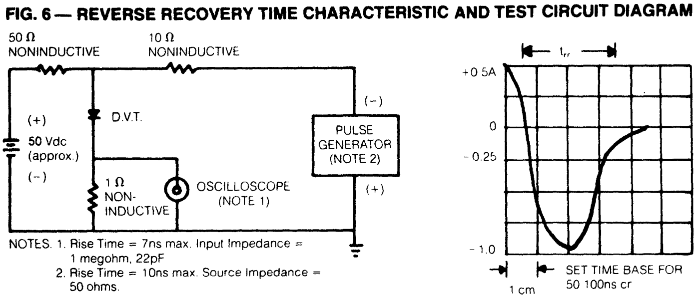


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



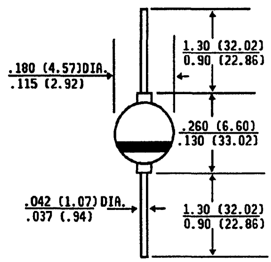
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N5415 THRU 1N5420

GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

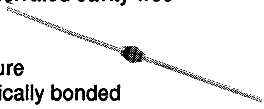
VOLTAGE - *50 to 600 Volts* *CURRENT*- *3.0 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- ◆ Qualified to MIL-S-19500/411D
- ◆ Glass passivated cavity-free junction
- ◆ High temperature metallurgically bonded
- ◆ Fast switching for high efficiency
- ◆ 3.0 Ampere operation at $T_A = 55°C$ with no thermal runaway
- ◆ Hermetically sealed package
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375" (9.5mm) lead length/5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position : Any
Weight: .037 ounce, 1.04 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	JAN 1N5415	JAN 1N5416	JAN 1N5417	JAN1 1N5418	JAN 1N5419	JAN 1N5420	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	500	600	Volts
Minimum Reverse Breakdown Voltage at 100μA	V_{BR}	55	110	220	440	550	660	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_A = 55°C	$I_{(AV)}$	3.0						Amps
Peak Forward Surge Current, 8.3.ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 100°C	I_{FSM}	80.0						Amps
Minimum Peak Reverse Power at 20 μs pw	P_{RM}	1000						Watts
Maximum Instantaneous Forward Voltage at 1.5A T_A = 25°C 9.0A T_A = 25°C 0.5A T_A = -55°C	V_F	1.2 1.5 1.3						Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	1.0 20.0						μA
Maximum Junction Capacitance (Note 1)	C_J	550	430	250	165	140	120	pf
Maximum Reverse Recovery Time (Note 2)	T_{RR}	150	150	150	150	250	400	ns
Maximum Thermal Resistance (Note 3)	$R_{\Theta JL}$	20.0						°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +200						°C

NOTES :

1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions: I_F = 1.0A, I_R = 1.0A, Irr =.25A.
3. Thermal Resistance from Junction to Lead at .375",(9.5mm)lead lengths with both leads atached to heat sink.

FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

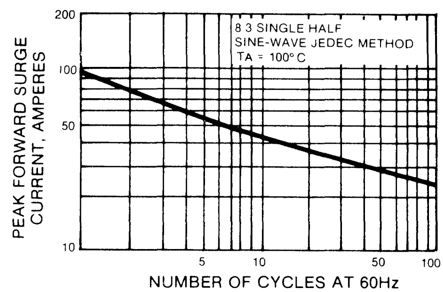


FIG. 1 — FORWARD CURRENT DERATING CURVE

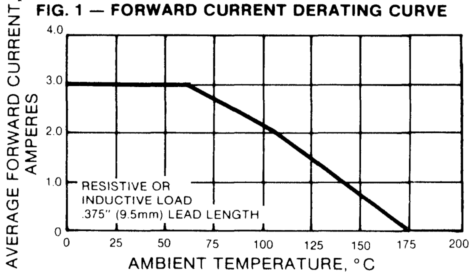


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

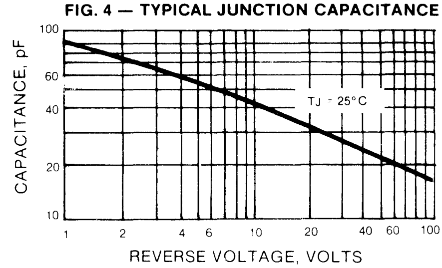


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

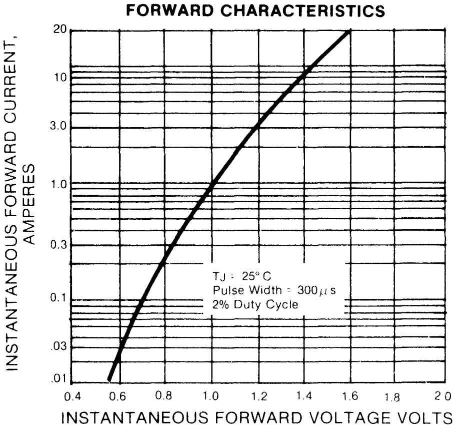


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

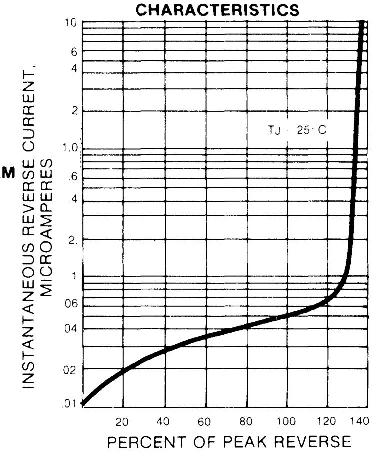
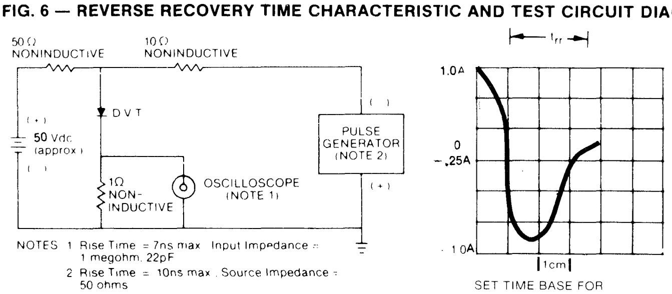


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



GENERAL INSTRUMENT

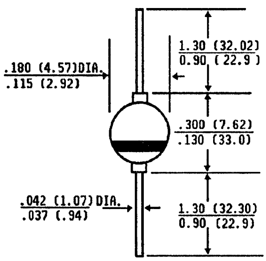
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N5550 THRU 1N5554

GLASS PASSIVATED JUNCTION MEDIUM SWITCHING RECTIFIER

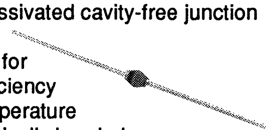
***VOLTAGE** - 200 to 1000 Volts* ***CURRENT** - 3.0 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/ 420A
- Glass passivated cavity-free junction
- Medium swiching for good efficiency



- High temperature metallurgically bonded
- 3.0 Ampere operation at T_A = 55°C with no thermal runaway
- Hermetically sealed package
- High temperature soldering guaranteed: 350°C/10seconds/.375".(9.5mm) lead length/5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .037 ounce, 1.04 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	JAN 1N5550	JAN 1N5551	JAN 1N5552	JAN 1N5553	JAN 1N5554	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
Minimum Reverse Breakdown Voltage at 50µA	V_{BR}	240	480	660	880	1100	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_A = 55°C / T_L =55°C	$I_{(AV)}$			3.0 / 5.0			Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 55°C	I_{FSM}			100			Amps
Maximum Instantaneous Forward Voltage at 9.0A T_A = 25°C	V_F	1.2	1.2	1.2	1.3	1.3	Volts
Maximum Instantaneous Forward Voltage at 9.0A T_A = -55°C	V_F			1.5			Volts
Maximum Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 100°C	I_R			1.0 / 75.0			µA
Maximum Reverse Recovery Time (Note 1)	T_{RR}			2.0			µS
Maximum Thermal Resistance (Note 2)	$R_{\Theta J\text{-}L}$			22.0			°C/W
Operating Junction Temperature Range	T_J			-65 to +175			°C
Storage Ambient Temperature Range	T_{STG}			-65 to +200			°C

NOTES:
1. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
2. Thermal Resistance from Junction to Lead at .375", (9.5mm) lead lengths with both leads attached to heat sink.

FIG. 1 — FORWARD CURRENT DERATING CURVE

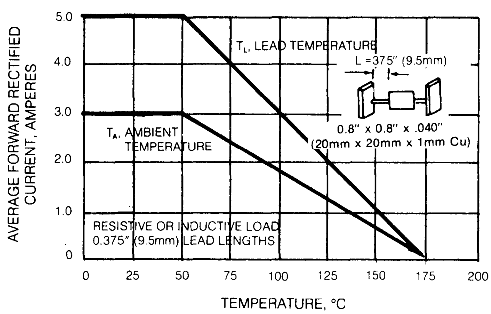


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

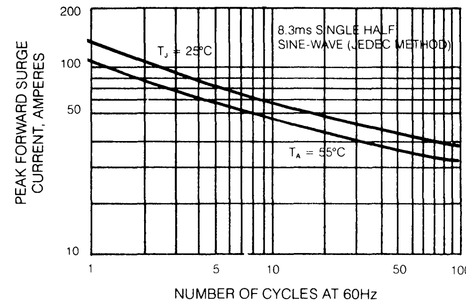


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

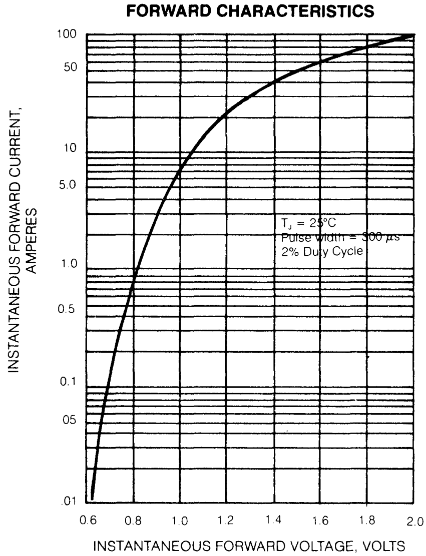


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

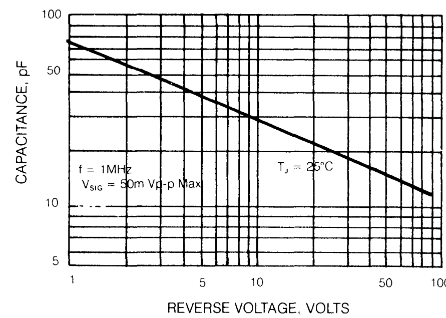
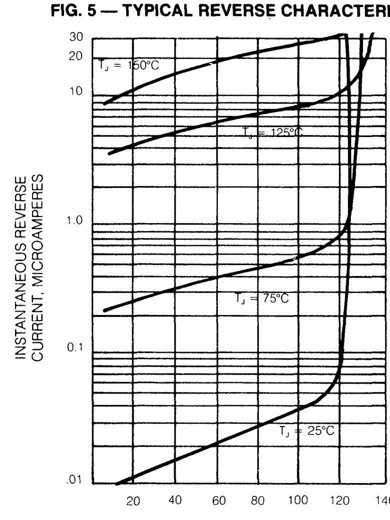


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

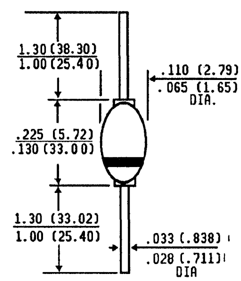
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N5615 THRU 1N5623

GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***VOLTAGE** - 200 to 1000 Volts* ***CURRENT** - 1.0 Ampere*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/429C
- High temperature metallurgically bonded
- Hermetically sealed package
- Glass passivated cavity-free junction
- 1.0 ampere operation at $T_A = 55°C$ with no thermal runaway
- Typical I_R less than 0.1 µA
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at/5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Colorband denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	JAN 1N5615	JAN 1N5617	JAN 1N5619	JAN 1N5621	JAN 1N5623	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
Minimum Reverse Breakdown Voltage at 50µA	V_{BR}	220	440	660	880	1100	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at $T_A = 55°C$	$I_{(AV)}$			1.0			Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at $T_A = 100°C$	I_{FSM}			25.0			Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F			1.6			Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 100°C$	I_R			0.5 25.0			µA
Maximum Reverse Recovery Time(Note 1) $T_J = 25°C$	T_{RR}	150	150	250	300	500	Ns
Maximum Junction Capacitance (Note 2)	C_J	45	35	25	20	15	pf
Maximum Thermal Resistance (Note 3)	$R_{\Theta JL}$			38.0			°C/W
Operating JunctionTemperature Range	T_J			-65 to +175			°C
Storage Ambient Temperature Range	T_{STG}			-65 to +200			°C

NOTES:
1. Reverse Recovery Test Conditions: $I_F = 0.5$ A, $I_R = 1.0$A, Irr = 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 12 Volts.
3. Thermal Resistance from Junction to lead at .375" (9.5mm) lead lengths P.C. Board mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

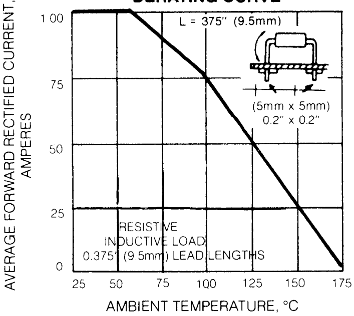


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

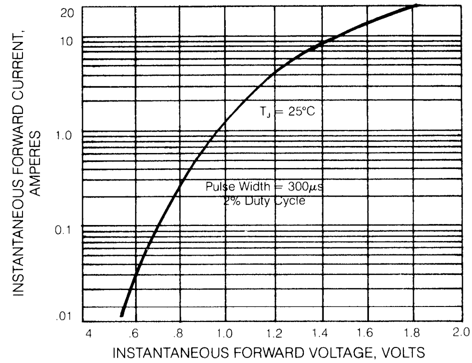


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

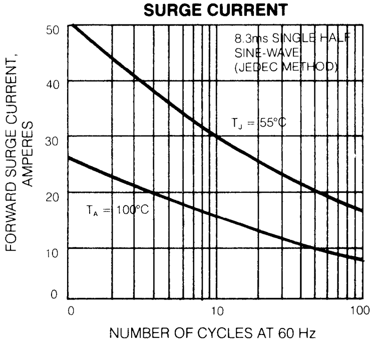


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

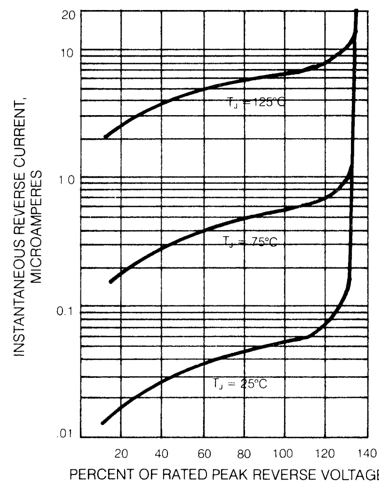


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

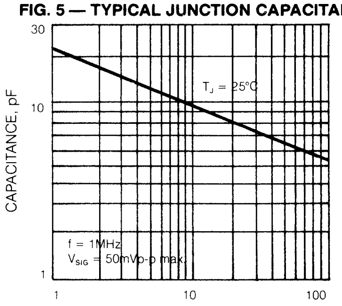
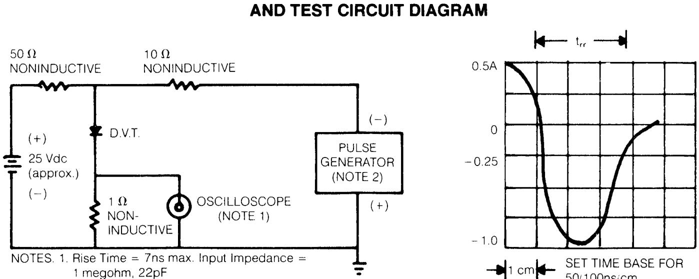


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES. 1. Rise Time = 7ns max. Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max. Source Impedance = 50 ohms.

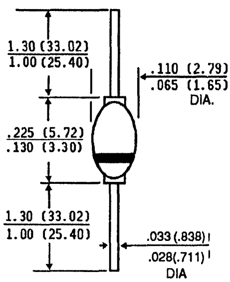
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N5614 THRU 1N5622

GLASS PASSIVATED JUNCTION MEDIUM- SWITCHING RECTIFIER

***VOLTAGE** - 200 to 1000 Volts* ***CURRENT** - 1.0 Ampere*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/427C
- High temperature metallurgically bonded
- Hermetically sealed package
- Glass passivated cavity-free junction
- 1.0 ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μA
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at/5 lbs., (2.3kg) tension

MECHANICAL DATA

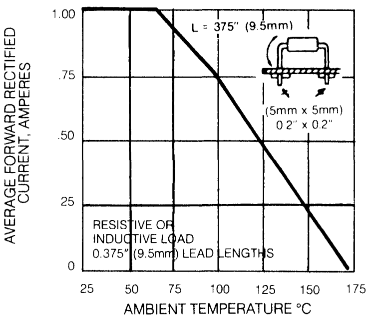
Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

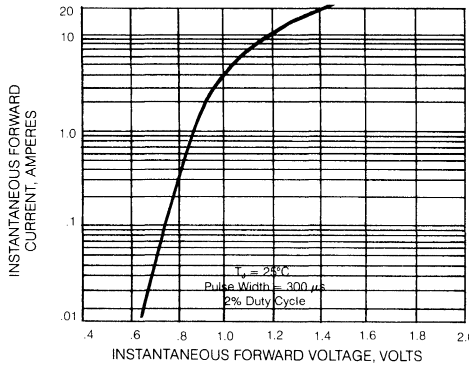
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

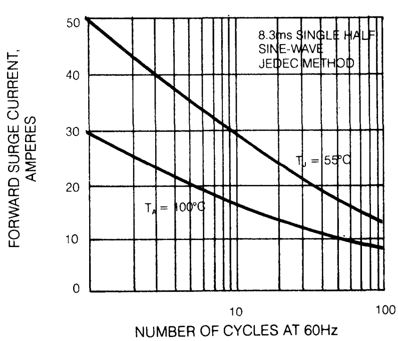
Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%.

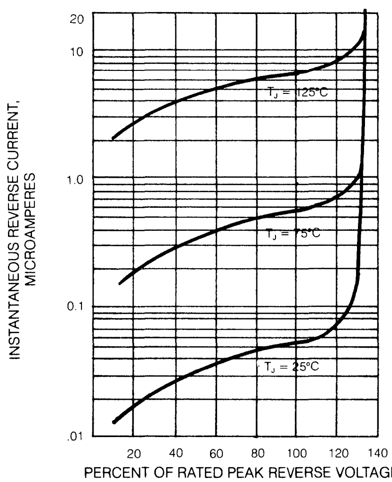
	SYMBOLS	*JAN 1N5614*	*JAN 1N5616*	*JAN 1N5618*	*JAN 1N5620*	*JAN 1N5622*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
Minimum Reverse Breakdown Voltage at 50μA	V_{BR}	220	440	660	880	1100	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_A = 55°C	$I_{(AV)}$			1.0			Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 100°C	I_{FSM}			30.0			Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F			1.3			Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R			0.5 25.0			μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}			2.0			μs
Typical Junction Capacitance (Note 2)	C_J			15			pf
Maximum Thermal Resistance (Note 3)	$R\Theta JL$			38.0			°C/W
Operating Junction Temperature Range	T_J			-65 to +175			°C
Storage Ambient Temperature Range	T_{STG}			-65 to +200			°C

NOTES:
1. Reverse Recovery Test Conditions: I_F = 0.5 A, I_R = 1.0A, Irr = 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to lead at .375" (9.5mm) lead lengths P.C. Board mounted.









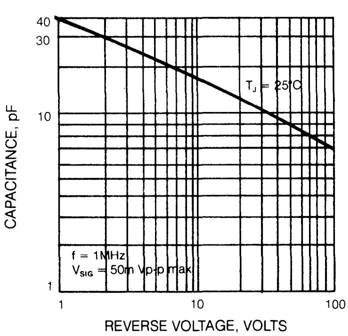
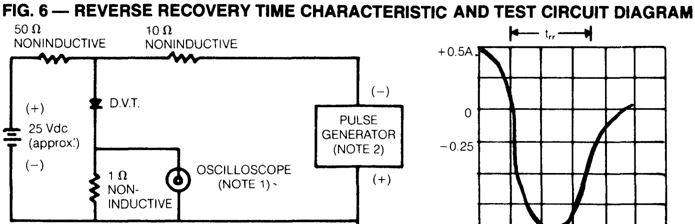


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max. Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max. Source Impedance = 50 ohms.

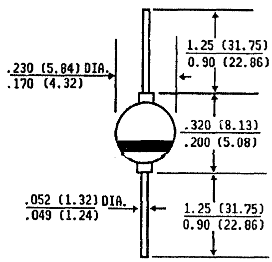
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N5624 THRU 1N5627

PASSIVATED JUNCTION SILICON RECTIFIER

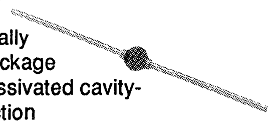
VOLTAGE - 50 to 800 Volts CURRENT - 3.5 Amperes



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/432
- High temperature metallurgically bonded
- Hermetically sealed package
- Glass passivated cavity-free junction
- 3.5 ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 µA
- High temperature soldering guarnateed 350°C/10 seconds/.375", (9.5mm) lead length at/5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Colorband denotes cathode
Mounting Position: Any
Weight: .037 ounce,1.04 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	JAN 1N5624	JAN 1N5625	JAN 1N5626	JAN 1N5627	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
Minimum Reverse Breakdown Voltage at 50µA	V_{BR}	240	460	660	880	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_A = 55°C	$I_{(AV)}$	3.5				Amps
Peak Forward Surge Current, 8.3.ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 100°C	I_{FSM}	125				Amps
Maximum Instantaneous Forward Voltage at 3.5A T_A = 25°C / T_A = -65°C	V_F	1.0 / 1.5				Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 150°C	I_R	1.0 / 100				µA
Typical Junction Capacitance (Note 1)	C_J	40.0				pf
Maximum Reverse Recovery Time (Note 2) T_J=25°C	T_{RR}	5.0				µs
Maximum Thermal Resistance (Note 3)	RΘJL	18.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +200				°C

NOTES:
1 Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
3. Thermal Resistance from Junction to Lead at .375", 9.5mm lead lengths, with both leads attached to heat sink.

FIG. 1 — FORWARD CURRENT DERATING CURVE

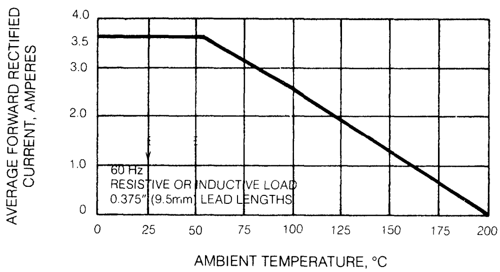


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

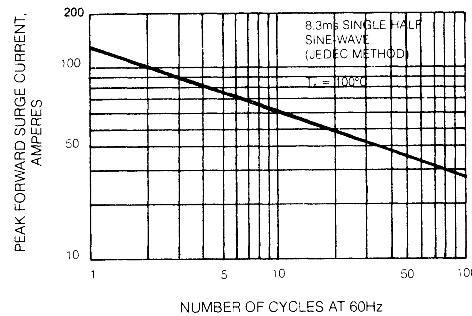


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

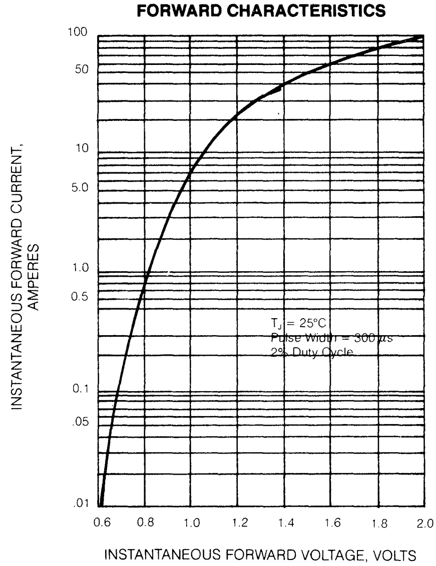


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

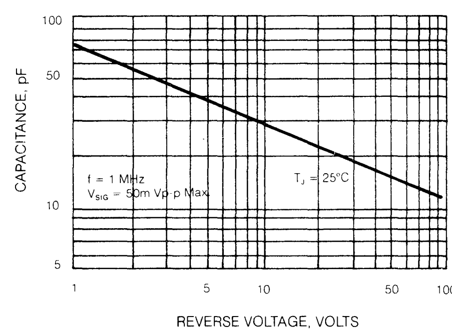
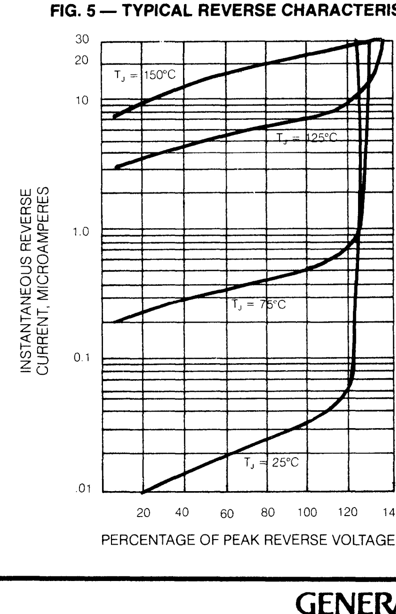


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

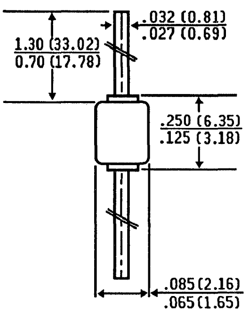
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN, JANTX AND JANTXV 1N5802 THRU 1N5806

MINIATURE GLASS PASSIVATED FAST EFFICIENT SILICON RECTIFIER

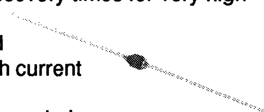
***VOLTAGE RANGE** - 50 to 150 Volts* ***CURRENT**- 1.0 Ampere*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-STD-19500/477
- Glass passivated cavity free junction
- Superfast recovery times for very high efficiency
- Low forward voltage, high current capability
- Hermetically sealed package
- High forward surge capability
- High temperature metallurgically bonded
- High temperature soldering guaranteed: 350°C, .375",(9.5mm), from case for 10 seconds at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass hermetically sealed
Terminals: Plated Axial leads, solderable to MIL-STD-202, Method 208
Polarity: Color band denotes cathode end
Mounting Position: Any
Wieght: 0.012 ounce, 0.34

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	*JAN1N5802*	*JAN1N5804*	*JAN1N5806*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	Volts
Minimum Reverse Breakdown Voltage at 100µA	V_{BR}	60	110	160	Volts
Maximum Average Forward Recitified Current T_A = 55°C .375" (9.5mm) Lead Length at T_L = 75°C	$I_{(AV)}$		1.0 2.5		Amps
Peak Forward Surge Current, 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 55°C	I_{FSM}		35.0		Amps
Maximum Instantaneous Forward Voltage at 1.0A T_A = 25°C 2.5A T_A = 25°C 1.0A T_A = 100°C 1.0A T_A = -65°C	V_{FM}		0.875 0.975 0.800 1.075		Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R I_R		1.0 50.0		µA µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}		25.0		ns
Maximum Forward Recovery Time at 250 mA	T_{FR}		15.0		ns
Maximum Forward Voltage Recovery at 250 mA	V_{FR}		2.2		Volts
Maximum Junction Capacitance (Note 2)	C_J		25.0		pf
Maximum Thermal Resistance (Note 3)	RΘJL		36.0		°C/W
Operating Junction Temperature Range	T_J		-65 to +175		°C
Storage Ambient Temperature Range	T_{STG}		-65 to +200		°C

NOTES:
1. Reverse Recovery Test Condition: I_F = 0.5A, I_R = 0.5A, I_{RR} = 0.05A, di/dt = 65 A/µs.
2., Measured at 1 MHz and applied reverse voltage of 10 volts.
3. Thermal Resistance from Junction to Lead at .375", (9.5mm) lead lengths, P.C. Board mounted.

FIG. 1
FORWARD CURRENT DERATING CURVE

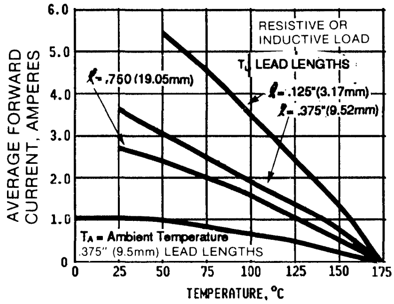


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

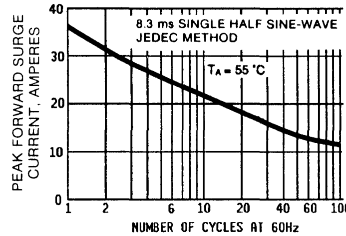


FIG. 3
TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

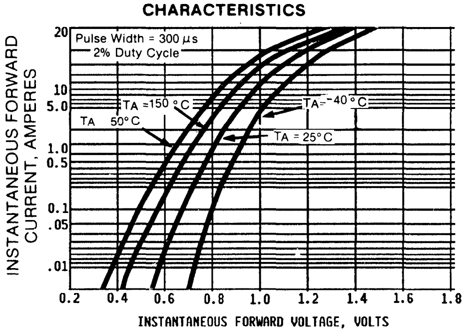


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

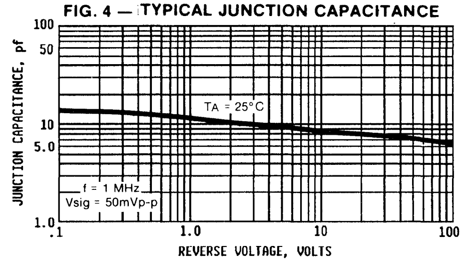


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

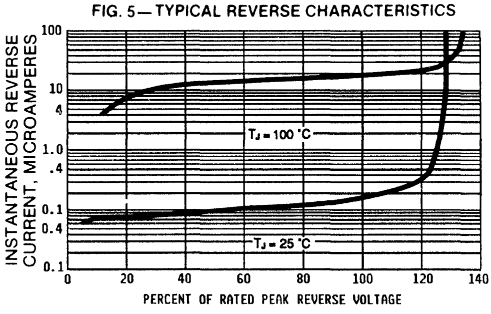
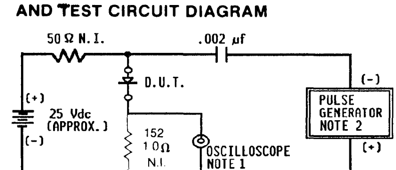
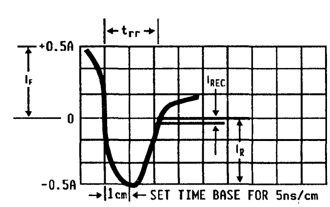


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES:
1. RISE TIME = 3ns MAX. INPUT IMPEDANCE = 50 OHM MIN.
2. RISE TIME = 8ns MAX. SOURCE IMPEDANCE = 50 OHM MAX.



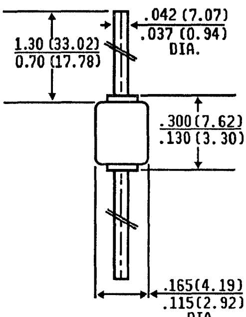
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN, JANTX AND JANTXV 1N5807 THRU 1N5811

GLASS PASSIVATED FAST EFFICIENT SILICON RECTIFIERS

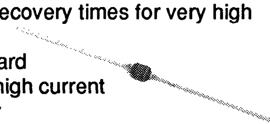
***VOLTAGE RANGE-** 50 to 150 Volts* ***CURRENT-** 6.0 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-STD-19500/477
- Glass passivated cavity free junction
- Superfast recovery times for very high efficiency
- Low forward voltage, high current capability
- Hermetically sealed package
- High forward surge capability
- High temperature metallurgically bonded
- High temperature soldering guaraneed:350°C,.375",(9.5mm), from case for 10seconds at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass hermetically sealed
Terminals: Axial leads, solderable to MIL-STD-202 Method 208
Polarity: Colorband denotes cathode end
Mounting Position: Any
Wieght: 0.037 ounce, 1.04 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOL	JAN 1N5807	JAN 1N5809	JAN 1N5811	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	Volts
Maximum DC Blocking Voltage	V_{DC}	50	70	150	Volts
Minimum Reverse Breakdown Voltage at 100µA	V_{BR}	60	110	160	Volts
Maximum Average Forward Recitified Current T_A = 55°C .375" (9.5mm) Lead Length at T_L = 75°C	$I_{(AV)}$		3.0 6.0		Amps
Peak Forward Surge Current, 8.3.ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 55°C	I_{FSM}		125		Amps
Maximum Instantaneous Forward 4.0A T_A = 25°C Voltage at 6.0A T_A = 25°C 4.0A T_A = 100°C 4.0A T_A = -65°C	V_F		0.875 0.925 0.800 1.075		Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R		5.0 150		µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}		30.0		ns
Maximum Forward Recovery Time at 500 mA	T_{FR}		15.0		ns
Maximum Forward Voltage Recovery at 500 mA	V_{FR}		2.2		Volts
Maximum Junction Capacitance (Note 2)	C_J		60.0		pf
Maximum Thermal Resistance (Note 3)	$R\Theta JL$		22.0		°C/W
Operating Junction Temperature Range	T_J		-65 to +175		°C
Storage Ambient Temperature Range	T_{STG}		-65 to +200		°C

NOTES:
1. Reverse Recovery Test Condition: I_F = 1.0A, I_R = 1.0A, I_{RR} = 0.1A, di/dt = 100 A/µs.
2., Measured at 1 MHz and applied reverse voltage of 10 volts.
3. Thermal Resistance from Junction to Lead at .375", (9.5mm)lead lengths with both leads attached to heat sink..

FIG. 1 — FORWARD CURRENT DERATING CURVE

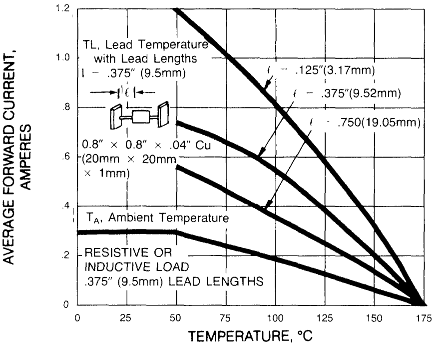


FIG. 3 — TYPICAL FORWARD CHARACTERISTICS

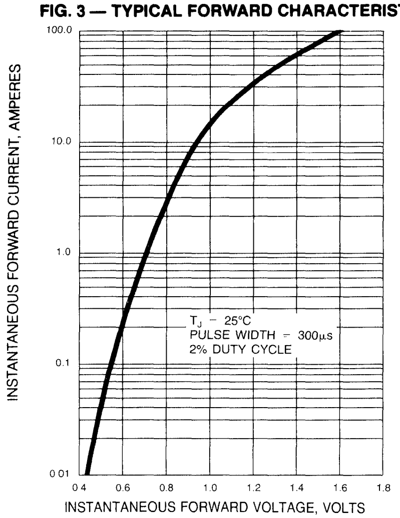


FIG. 2 — MAXIMUM NON-REPETITIVE SURGE CURRENT

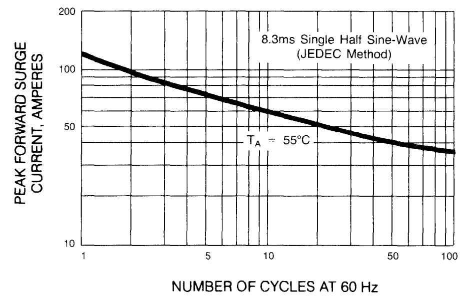


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

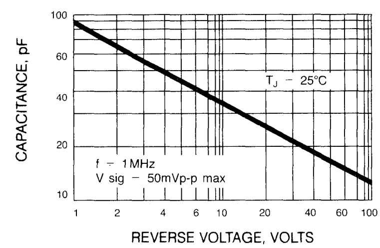


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

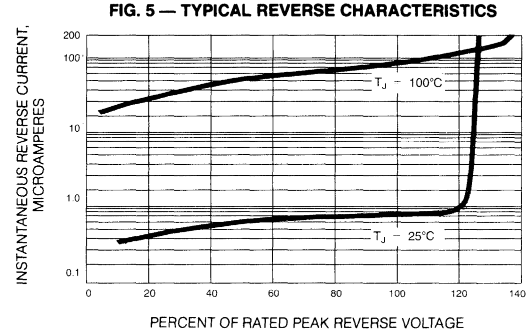
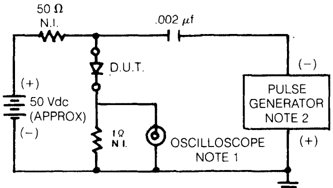
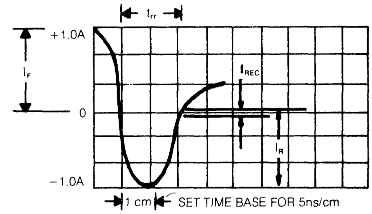


FIG. 6 — TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS





NOTES:
1. RISE TIME = 3ns MAX. INPUT IMPEDANCE = 50 OHM MIN.
2. RISE TIME = 8ns MAX. SOURCE IMPEDANCE = 50 OHM MAX.

GENERAL INSTRUMENT

GENERAL INSTRUMENT

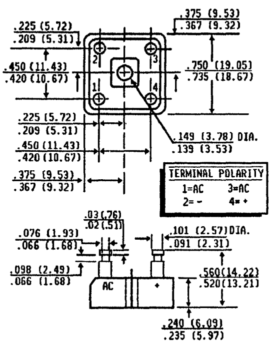
MILITARY RECTIFIERS

POWER
SEMICONDUCTOR
DIVISION

JAN AND JANTX M19500 /469-01 THRU /469-04

HIGH POWER SINGLE PHASE SILICON BRIDGE RECTIFIER

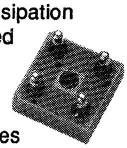
***VOLTAGE** - 200 to 800 Volts* ***CURRENT** - 10 Amperes*



Dimensions in inches (millimeters)

FEATURES

- Qualified to MIL-S-19500/469
- Electrically isolated metal case for maximum heat dissipation
- Hermetically sealed internal diodes
- Low forward voltage drop
- All external surfaces corrosion resistant
- Typical I_R less that 0.1 μ A
- High temperature soldering guaranteed 250°C/10 seconds at 5lbs.,(2.3kg) tension



MECHANICAL DATA

Terminals: Tinned plated, solderable per MIL-STD-202, Method 208

Case: Metal, electrically isolated

Mounting Position: Any

Weight: 1.0 ounce, 28.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz,resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*JAN 469-01*	*JAN 469-02*	*JAN 469-03*	*JAN 469-04*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
Minimum Reverse Breakdown Voltage at 50µA	V_{BR}	240	460	660	880	Volts
Maximum Average Forward Recitified Current .375" (9.5mm) Lead Length at T_C = 55°C	$I_{(AV)}$	10.0				Amps
Peak Forward Surge Current, 8.3.ms single sine-wave superimposed on rated load (JEDEC Method) at T_C = 55°C per leg	I_{FSM}	100				Amps
Maximum Instantaneous Forward Voltage at 15.7A per leg T_C = 25°C / T_C = -65°C	V_F	1.35 / 1.50				Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage T_C = 25°C / T_C = 100°C	I_R	2.0 / 125				µA
Typical Junction Capacitance (Note 1)	C_J	60				pf
Maximum Reverse Recovery Time(Note 2)T_J=25°C	T_{RR}	2.0				µs
Dielectric With stand voltage (Note 3)		2800				Volts
Maximum Junction Temperature T_J	T_J	+175				°C
Operating and Storage Temperature Range	T_C,T_{STG}	-65 to +150				°C

NOTES: 1 Measured at 1.0 MHz and applioed reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
3. Measured between metal case to terminal with a 10 µ A maximum leakage limit.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

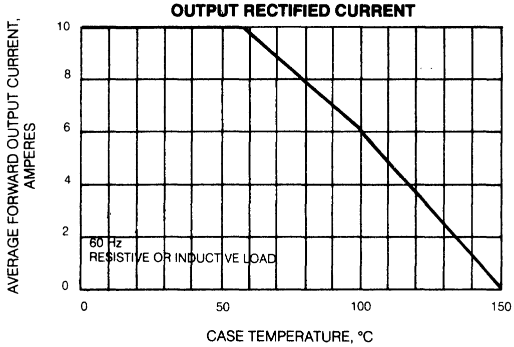


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER BRIDGE ELEMENT

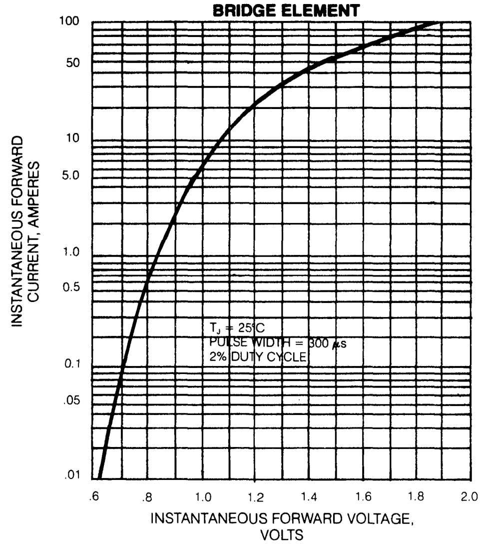


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER BRIDGE ELEMENT

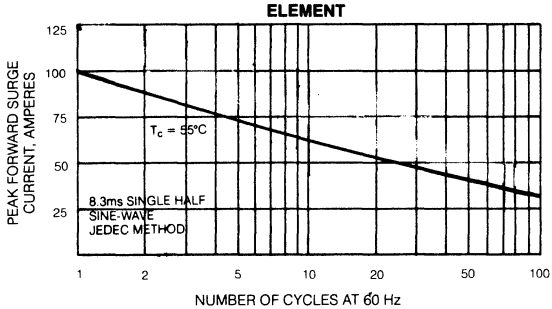


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS PER BRIDGE ELEMENT

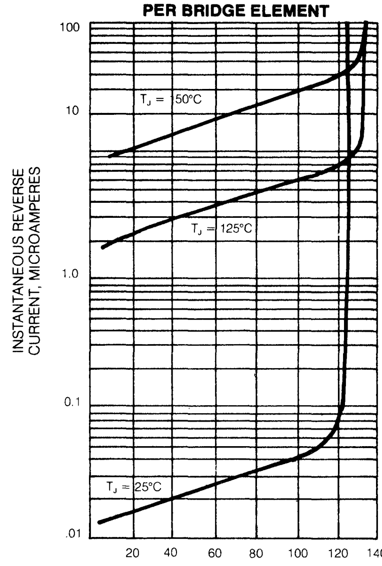
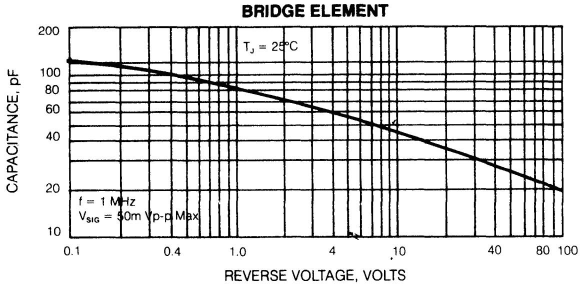


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT



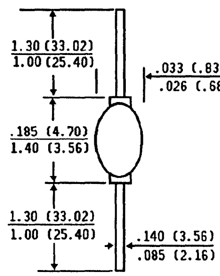
GENERAL INSTRUMENT

POWER SEMICONDUCTOR DIVISION

JAN AND JANTX 1N6113 THRU 1N6130

BI-DIRECTIONAL TRANSIENT VOLTAGE SUPPRESSORS

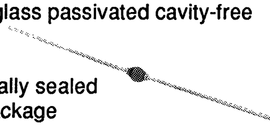
VOLTAGE - 20 to 100   POWER - 500 Watts Peak



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/516A
- High temperature metallurgically bonded-glass passivated cavity-free junction
- Voidless hermetically sealed glass package
- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 volts to BV min.
- Excellent clamping capability
- High temperature soldering guaranteed 350°C/10seconds/.375" (9.5mm) lead length/5lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: No marking with bi-directional devices
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave 60 Hz, resistive or inductive load.

OPERATING AND STORAGE TEMPERATATURE -65 to +175°C

Type	Breakdown Voltage @It Min (Note 1)	Max DC Power Dissipation TL = 75°C (Note 2)	Test Current	Maximum Peak Surge Voltage @1ms	Maximum Peak Surge Current @1ms (Note 3)	Maximum Leakage current @TA=			Maximum Tempuature Coefficient of V_{BR}	Maximum Peak surge at 1ms
						25°C		150°C		
	V_{BR}	PD	It	V_{SM}	I_{SM}	I_R	V_R	I_R		P_{SM}
	Volts	WATTS	mA	V_{PK}	A_{PK}	µA	Volts	µA	%/°C	WATTS
J and JTX, JV1N6113	18.0	3.0	65	29.0	17.2	1.0	15.2	100	.085	500
J and JTX, JV1N6114	19.8	3.0	50	31.9	15.7	1.0	16.7	100	.085	500
J and JTX, JV1N6115	21.6	3.0	50	34.8	14.4	1.0	18.2	100	.090	500
J and JTX, JV1N6116	24.3	3.0	50	39.2	12.8	1.0	20.6	100	.090	500
J and JTX, JV1N6117	27.0	3.0	40	43.6	11.5	1.0	22.8	100	.090	500
J and JTX, JV1N6118	29.7	3.0	40	47.9	10.4	1.0	25.1	100	.095	500
J and JTX, JV1N6119	32.4	3.0	30	52.3	9.6	1.0	27.4	100	.095	500
J and JTX, JV1N6120	35.1	3.0	30	56.2	8.9	1.0	29.7	100	.095	500
J and JTX, JV1N6121	38.7	3.0	30	62.0	8.1	1.0	32.7	100	.095	500
J and JTX, JV1N6122	42.3	3.0	25	67.7	7.4	1.0	35.8	100	.095	500
J and JTX, JV1N6123	45.9	3.0	25	73.5	6.8	1.0	38.8	100	.095	500
J and JTX, JV1N6124	50.4	3.0	20	80.7	6.2	1.0	42.6	100	.095	500
J and JTX, JV1N6125	55.8	3.0	20	89.3	5.6	1.0	47.1	100	100	500
J and JTX, JV1N6126	61.2	3.0	20	98.0	5.1	1.0	51.7	100	100	500
J and JTX, JV1N6127	67.5	3.0	20	108.1	4.6	1.0	56.0	100	100	500
J and JTX, JV1N6128	73.8	3.0	15	118.1	4.2	1.0	62.2	100	100	500
J and JTX, JV1N6129	81.9	3.0	15	131.1	3.8	1.0	69.2	100	100	500
J and JTX, JV1N6130	90.0	3.0	12	144.1	3.5	1.0	76.0	100	100	500

NOTES:
1. Breakdown Voltage Tolerance with no Suffix is + / -10%.
2. Lead Lengths of .375" (9.5mm).
3. Surge Current waveform per Figure 3 and Derate per figure 2.

FIGURE 1 — PULSE RATING CURVE

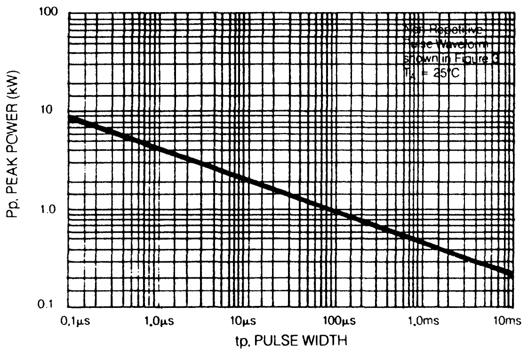


FIGURE 2 — PULSE DERATING CURVE

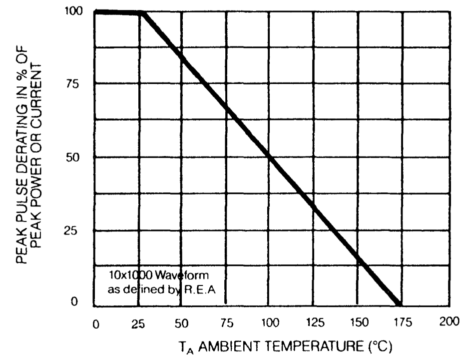


FIGURE 3 — PULSE WAVEFORM

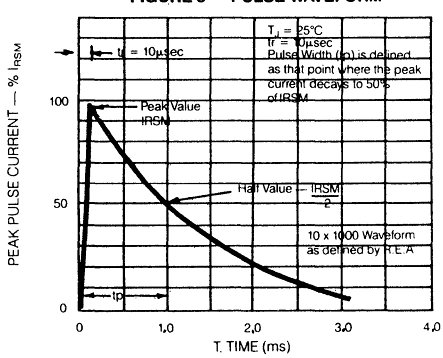


FIGURE 4 — MAXIMUM CONTINUOUS POWER DISSIPATIOI

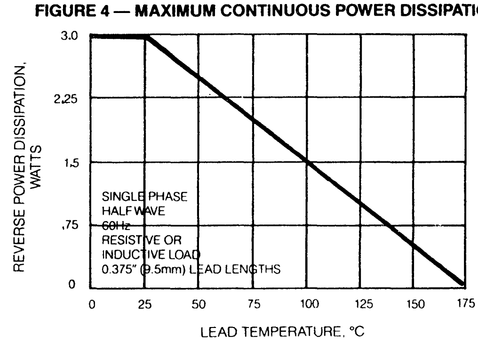
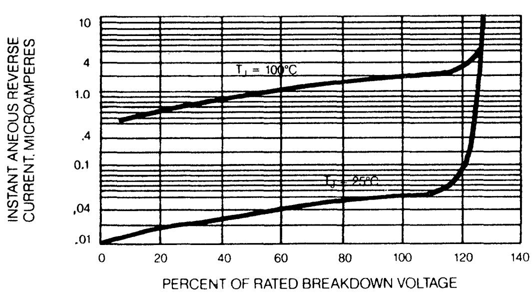


FIGURE 5 — TYPICAL REVERSE CHARACTERISTICS



GENERAL
INSTRUMENT

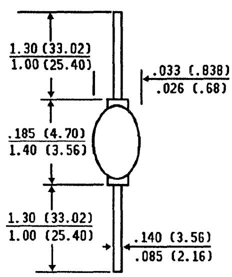
GENERAL INSTRUMENT

POWER
SEMICONDUCTOR
DIVISION

JAN AND JANTX 1N6113A THRU 1N6130A

BI-DIRECTIONAL TRANSIENT VOLTAGE SUPPRESSORS

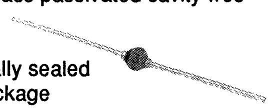
VOLTAGE - 20 to 100 POWER - 500 Watts Peak



Dimensions in inches and (millimeters)

FEATURES

- Qualified to MIL-S-19500/516A
- High temperature metallurgically bonded-glass passivated cavity-free junction
- Voidless hermetically sealed glass package



- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 volts to BV min.
- Excellent clamping capability
- High temperature soldering guaranteed 350°C/10seconds/.375" (9.5mm) lead length/5lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: No marking with bi-directional devices
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave 60 Hz, resistive or inductive load.

OPERATING AND STORAGE TEMPERATATURE -65 to +175°C

Type	Breakdown Voltage @It Min (Note 1)	Max DC Power Dissipation TL = 75°C (Note 2)	Test Current	Maximum Peak Surge Voltage @1ms	Maximum Peak Surge Current @1ms (Note 3)	Maximum Leakage current @T_A=			Maximum Temperature Coefficient of VBR	Maximum Peak surge at 1ms
						25°C		150°C		
	V_{BR}	PD	It	V_{SM}	I_{SM}	I_R	V_R	I_R		P_{SM}
	Volts	WATTS	mA	V_{PK}	A_{PK}	μA	Volts	μA	%/°C	WATTS
J and JTX, JV1N6113A	19.0	3.0	65	27.7	18.0	1.0	15.2	100	.085	500
J and JTX, JV1N6114A	20.9	3.0	50	30.5	16.4	1.0	16.7	100	.085	500
J and JTX, JV1N6115A	22.8	3.0	50	33.3	15.0	1.0	18.2	100	.090	500
J and JTX, JV1N6116A	25.7	3.o	50	37.4	13.4	1.0	20.6	100	.090	500
J and JTX, JV1N6117A	28.5	3.0	40	41.6	12.0	1.0	22.8	100	.090	500
J and JTX, JV1N6118A	31.4	3.0	40	45.7	10.9	1.0	25.1	100	.095	500
J and JTX, JV1N6119A	34.2	3.0	30	49.9	10.0	1.0	27.4	100	.095	500
J and JTX, JV1N6120A	37.1	3.0	30	53.6	9.3	1.0	29.7	100	.095	500
J and JTX, JV1N6121A	40.9	3.0	30	59.1	8.5	1.0	32.7	100	.095	500
J and JTX, JV1N6122A	44.7	3.0	25	64.6	7.7	1.0	35.8	100	.095	500
J and JTX, JV1N6123A	48.5	3.0	25	70.1	7.1	1.0	38.8	100	.095	500
J and JTX, JV1N6124A	53.2	3.0	20	77.0	6.5	1.0	42.6	100	.095	500
J and JTX, JV1N6125A	58.9	3.0	20	85.3	5.9	1.0	47.1	100	100	500
J and JTX, JV1N6126A	64.6	3.0	20	97.1	5.1	1.0	51.7	100	100	500
J and JTX, JV1N6127A	71.3	3.0	20	103.1	4.8	1.0	56.0	100	100	500
J and JTX, JV1N6128A	77.9	3.0	15	112.8	4.4	1.0	62.2	100	100	500
J and JTX, JV1N6129A	86.5	3.0	15	125.1	4.0	1.0	69.2	100	100	500
J and JTX, JV1N6130A	95.0	3.0	12	137.6	3.6	1.0	76.0	100	100	500

NOTES:
1. Breakdown Voltage Tolerance with Suffix A is + / -5%.
2. Lead Lengths of .375" (9.5mm).
3. Surge Current waveform per Figure 3 and Derate per figure 2.

FIGURE 1 — PULSE RATING CURVE

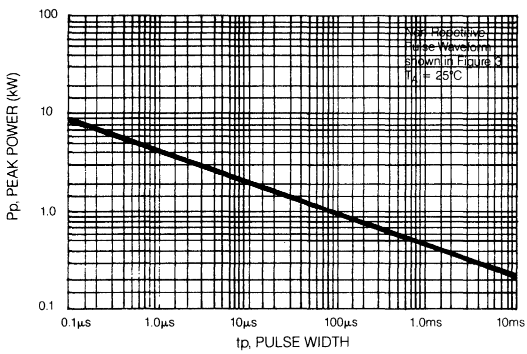


FIGURE 2 — PULSE DERATING CURVE

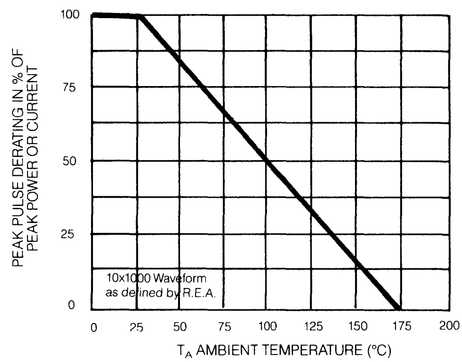


FIGURE 3 — PULSE WAVEFORM

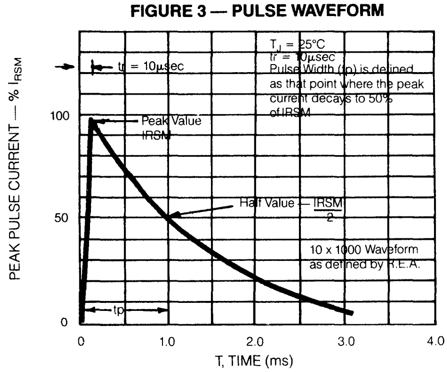


FIGURE 4 — MAXIMUM CONTINUOUS POWER DISSIPATIOI

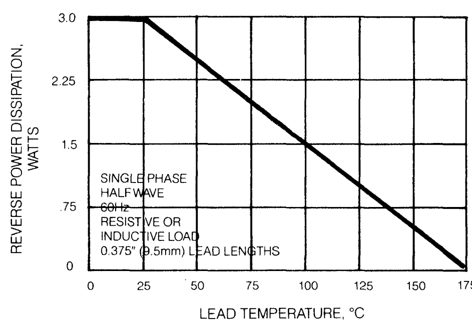
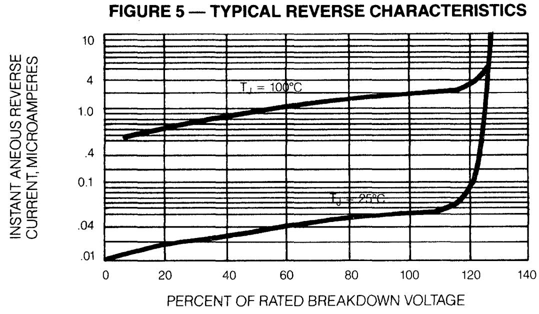


FIGURE 5 — TYPICAL REVERSE CHARACTERISTICS



SCHOTTKY RECTIFIERS

0.6 TO 40 AMPERES

GENERAL INSTRUMENT

LOW CURRENT AXIAL SCHOTTKY RECTIFIERS

TYPE	SB020 thru SB040	SB120 thru SB1100	1N5817 thru 1N5819	SB320 thru SB3100	1N5820 1N5822	SB520 thru SB5100
PACKAGE	MPG06	DO-41	DO-41	DO-201AD	DO-201AD	DO-201AD
IO(A)	0.6	1.0	1.0	3.0	3.0	5.0
VR=20(V)	SB020	SB120	1N5817	SB320	1N5820	SB520
VR-30(V)	SB030	SB130	1N5818	SB330	1N5821	SB530
VR-40(V)	SB040	SB140	1N5819	SB340	1N5822	SB540
VR=50(V)		SB150		SB350		SB550
VR=60(V)		SB160		SB360		SB560
VR=90(V)		SB190		SB390		SB590
VR=100(V)		SB1100		SB3100		SB5100

MEDIUM CURRENT SCHOTTKY RECTIFIERS

SINGLE RECTIFERS

TYPE	SBLF530 thru SBLF540	SBL530 thru SBL540	MBRF735 thru MBRF760	MBR735 thru MBR760	SBLF1030 thru SBLF1040	SBL1030 thru SBL1040	MBRF1035 thru MBRF10100	MBR1035 thru MBR10100	MBRF1635 thru MBRF1660	MBR1635 thru MBR1660
PACKAGE	ITO-220	TO-220	ITO-220	TO-220	ITO-220	TO-220	ITO-220	TO-220	ITO-220	TO-220
BARRIER HEIGHT	LOW	LOW	HIGH	HIGH	LOW	LOW	HIGH	HIGH	HIGH	HIGH
IO(A)	5.0	5.0	7.5	7.5	10.0	10.0	10.0	10.0	16.0	16.0
VR=30(V)	SBLF530	SBL530			SBLF1030	SBL1030				
VR=35(V)			MBRF735	MBR735			MBRF1035	MBR1035	MBRF1635	MBR1635
VR=40(V)	SBLF540	SBL540			SBLF1040	SBL1040				
VR=45(V)			MBRF745	MBR745			MBRF1045	MBR1045	MBRF1645	MBR1645
VR=(50(V)			MBRF750	MBR750			MBRF1050	MBR1050	MBRF1650	MBR1650
VR-60(V)			MBRF760	MBR760			MBRF1060	MBR1060	MBRF1660	MBR1660
VR=90(V)							MBRF1090	MBR1090		
VR=100(V)							MBRF10100	MBR10100		

MEDIUM CURRENT SCHOTTKY RECTIFIERS

DUAL RECTIFIERS

TYPE	*SBLF530CT thru SBLF540CT*	*SBLF1030CT thru SBLF1040CT*	*SBL1030CT thru SBL1040CT*	*MBRF1535CT thru MBRF1560CT*	*MBR1535CT thru MBR1560CT*	*SBLF1630CT thru SBLF1640CT*	*SBL1630 thru SBL1640CT*	*MBRF2035CT thru MBRF20100CT*	*MBR2035CT thru MBR20100CT*	*MBRF2535CT thru MBRF2560CT*	*MBR2535CT thru MBR2560CT*
PACKAGE	ITO-220CT	ITO-220CT	TO-220CT	ITO-220CT	TO-220CT	ITO-220CT	TO-220CT	ITO-220CT	TO-220CT	ITO-220CT	TO-220CT
BARRIER HEIGHT	LOW	LOW	LOW	HIGH	HIGH	LOW	LOW	HIGH	HIGH	HIGH	HIGH
IO(A)	5.0	10.0	10.0	15.0	15.0	16.0	16.0	20.0	20.0	30.0	30.0
VR=30(V)	SBLF530CT	SBLF1030CT	SBL1030CT			SBLF1630CT	SBL1630				
VR=35(V)				MBRF1535CT	MBR1535CT			MBRF2035CT	MBR2035CT	MBRF2535CT	MBR2535CT
VR=40(V)	SBLF540CT	SBF1040CT	SBL1040CT			SBLF1640CT	SBL1640CT				
VR=45(V)				MBRF1545CT	MBR1545CT			MBRF2045CT	MBR2045CT	MBRF2545CT	MBR2545CT
VR=50(V)				MBRF1550CT	MBR1550CT			MBRF2050CT	MBR2050CT	MBRF2550CT	MBR2550CT
VR=60(V)				MBRF1560CT	MBR1560CT			MBRF2060CT	MBR2060CT	MBRF2560	MBR2560CT
VR=90(V)								MBRF2090CT	MBR2090CT		
VR=100(V)								MBRF20100CT	MBR20100CT		

MEDIUM CURRENT SCHOTTKY RECTIFIERS

DUAL RECTIFIERS CONT.

TYPE	*SBLF2030PT thru SBLF2040PT*	*SBL2030PT thru SBL2040PT*	*SBLF3030PT thru SBLF3040PT*	*SBL3030PT thru SBL3040PT*	*MBRF3035PT thru MBRF3060PT*	*MBR3035PT thru MBR3060PT*	*SD241P*	*MBRF4035PT thru MBRF4060PT*	*MBR4035PT thru MBR4060PT*
PACKAGE	ITO-3P	TO-3P	ITO-3P	TO-3P	ITO-3P	TO-3P	TO-3P	ITO-3P	TO-3P
BARRIER HEIGHT	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH
IO(A)	20.0	20.0	30.0	30.0	30.0	30.0	30.0	40.0	40.0
VR=30(V)	SBLF2030PT	SBL2030PT	SBLF3030PT	SBL3030PT					
VR=35(V)					MBRF3035PT	MBR3035PT		MBRF4035PT	MBR4035PT
VR=40(V)	SBLF2040PT	SBL2040PT	SBLF3040PT	SBL3040PT					
VR=45V)					MBRF3045PT	MBR3045PT	SD241P	MBRF4045PT	MBR4045PT
VR=50(V)					MBRF3050PT	MBR3050PT		MBRF4050PT	MBR4050PT
VR=60(V)					MBRF3060PT	MBR3060PT		MBRF4060PT	MBR4060PT

AXIAL PLASTIC SCHOTTKY RECTIFIERS

.6 TO 5.0 AMPERES

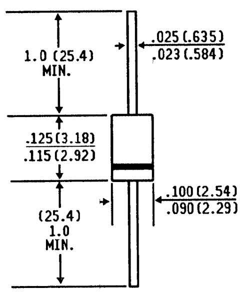
GENERAL INSTRUMENT

SB020 THRU SB040

MINIATURE SCHOTTKY BARRIER RECTIFIERS

VOLTAGE - 20 -40 Volts CURRENT - 0.6 Amperes

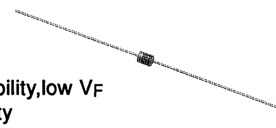
MPG06



Dimensions in inches and millimeters

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classificaiton 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability,low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications.
- High temperature soldering guaraneed: 250 °C/10 seconds/.375" (9.5 mm) lead lengths at 5 lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Molded Plastic
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Band denotes cathode
Mounting Position: Any
Weight: 0.0064 ounces, .181 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	SB020	SB030	SB040	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	20	30	40	Volts
Maximum RMS Voltage	V_{RMS}	14	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	20	30	40	Volts
Maximum Average Forward Rectified Current .375", 9.5mm Lead Length T_A = 60°C	$I_{(AV)}$		0.6		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_L = 70°C	I_{FSM}		20		Amps
Maximum Forward Voltage at .6A	V_F		.55		Volts
Maximum Average Reverse Current at Peak Reverse Voltage T_A = 25°C	I_R		0.5		mA
T_A = 100°C	I_R		10		mA
Typical Thermal Resistance (Note 1)	$R_{\Theta JA}$		65.0		°C/W
Storage and Operating Temperature Range	T_J, T_{STG}		-65 to +125		°C

NOTES:
1. Thermal Resistance Junction to Ambient Vertical PC Board Mounting, 0.5", 1.27mm Lead Length.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.

RATINGS AND CHARACTERISTIC CURVES SB020 THRU SB040

FIG. 1 — FORWARD CURRENT DERATING CURVE

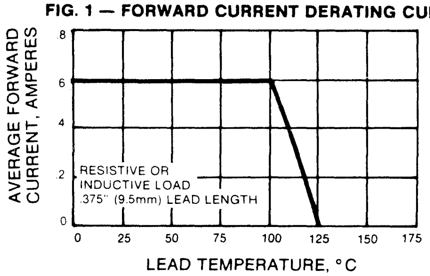


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

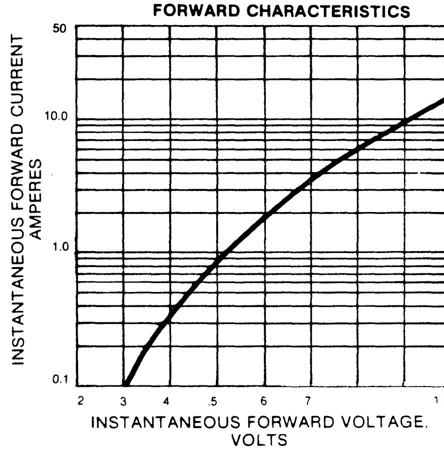


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

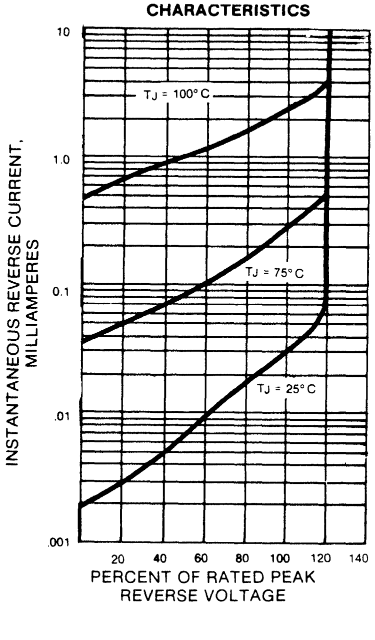


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

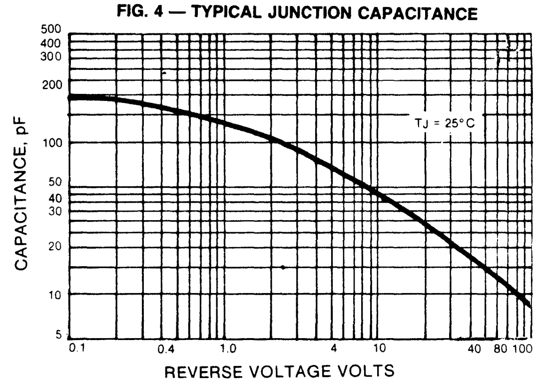
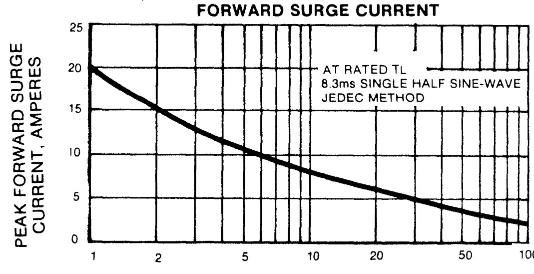


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



GENERAL INSTRUMENT

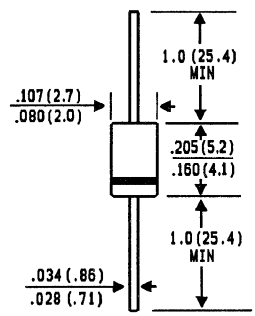
1N5817 THRU 1N5819

HIGH CURRENT SCHOTTKY BARRIER RECTIFIERS

***VOLTAGE** - 20 -40 Volts* ***CURRENT** - 1.0 Amperes*

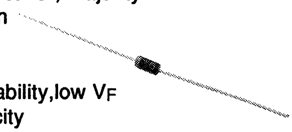
FEATURES

DO-41



Dimensions in inches and millimeters

- Low cost
- Plastic package has Underwriters Laboratory Flammability Classificaiton 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability,low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications.
- High temperature soldering guaranteed: 250 °C/10 seconds/.375" (9.5 mm) lead lengths at 5 lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Molded Plastic
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounces, .34 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*1N5817*	*1N5818*	*1N5819*	*UNITS*
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	20	30	40	Volts
Maximum RMS Voltage	V_{RMS}	14	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	20	30	40	Volts
*Maximum Average Forward Rectified Current .375", 9.5mm Lead Length T_L = 90°C	$I_{(AV)}$		1.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_L = 70°C	I_{FSM}		25		Amps
Maximum Forward Voltage at 1.0A	V_F	.45	.55	.60	Volts
Maximum Forward Voltage at 3.1A	V_F	.75	.875	90	Volts
*Maximum Average Reverse Current at Peak Reverse Voltage T_A = 25°C	I_R		1.0		mA
T_A = 100°C	I_R		10		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JA}$		80		°C/W
Typical Junction Capacitance (Note 2)	C_J		110		pf
*Storage and Operating Temperature Range	T_J, T_{STG}		-65 to +125		°C

NOTES:
1. Thermal Resistance Junction to Ambient Vertical PC Board Mounting, 0.5", 1.27mm Lead Length.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.

*JEDEC registered values

FIG. 1 — FORWARD CURRENT DERATING CURVE

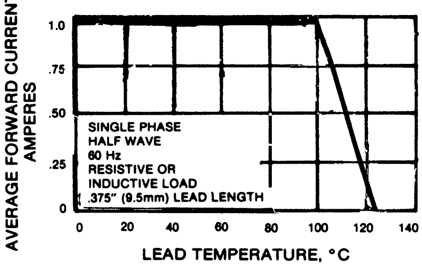


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

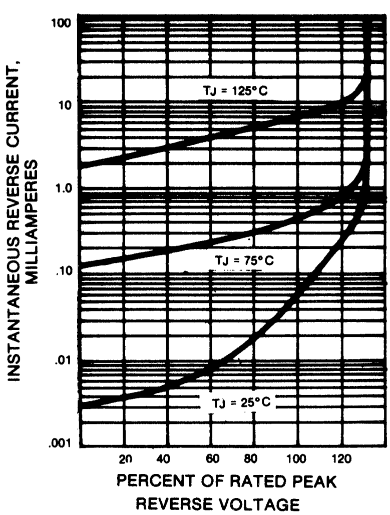


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

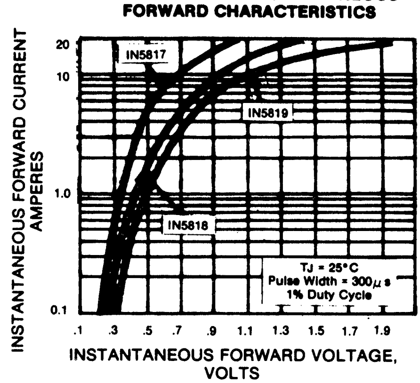


FIG. 4 — MAXIMUM NON-REPETITIVE SURGE CURRENT

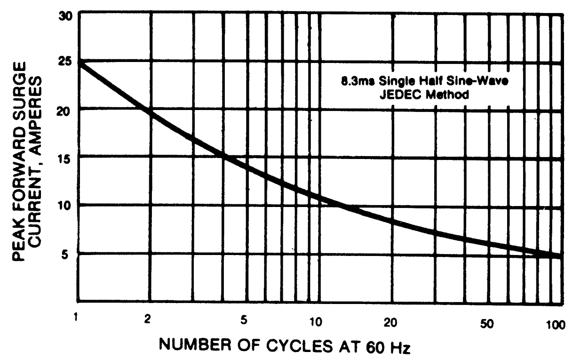
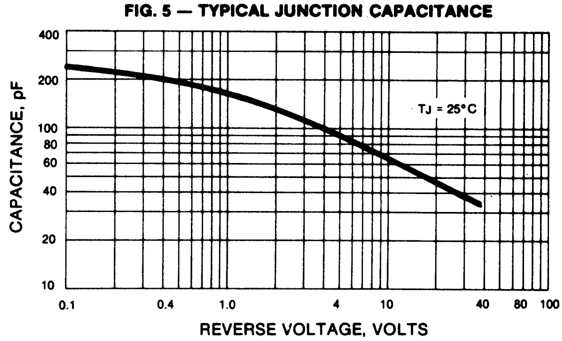


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



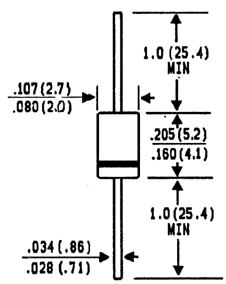
SB120 THRU SB160

MINIATURE SCHOTTKY BARRIER RECTIFIER

***VOLTAGE RANGE** - 20 to 60 Volts* ***CURRENT** - 1.0 Ampere*

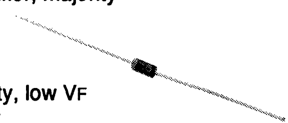
FEATURES

DO-41



Dimensions in inches and (millimeters)

- Low cost
- Plastic material used carries Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.375" (9.5mm) lead lengths/5lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded Plastic
Terminals: Axial leads, solderable per MIL-STD- 202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounces, .34 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*SB120*	*SB130*	*SB140*	*SB150*	*SB160*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	20	30	40	50	60	Volts
Maximum RMS Voltage	V_{RMS}	14	21	28	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	20	30	40	50	60	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Length See Fig. 1	$I_{(AV)}$	1.0					Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	40.0					Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	.50			.70		Volts
Maximum Average Reverse Current at Rated DC Blocking Voltage T_J= 25°C	I_R	0.5					mA
T_J = 100°C	I_R	10.0				5.0	mA
Maximum Thermal Resistance (Note 1)	$R_{\theta JL}$	15					°C/W
Operating Temperature Range	T_J	-65 to +125			-65 to +150		°C
Storage Temperature Range	T_{STG}	-65 to +150					°C

NOTES:
1. Thermal Resistance Junction to Lead Vertical PC Board Mounting .375" (9.5 mm) Lead Lengths.

FIG. 1 — FORWARD CURRENT DERATING CURVE

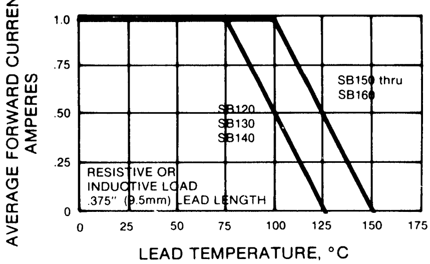


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

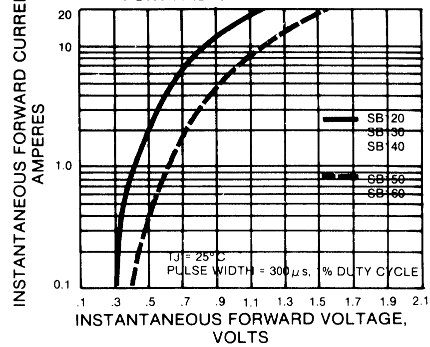


FIG. 3A — TYPICAL REVERSE CHARACTERISTICS

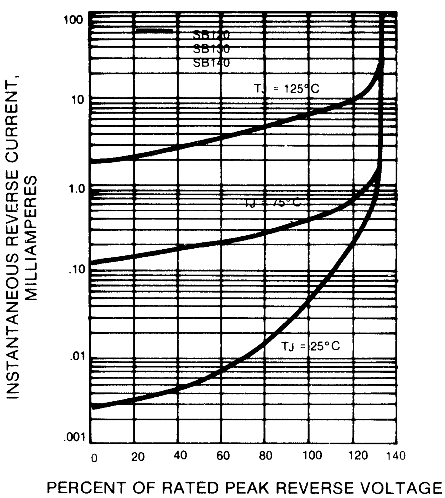


FIG. 3B — TYPICAL REVERSE CHARACTERISTICS

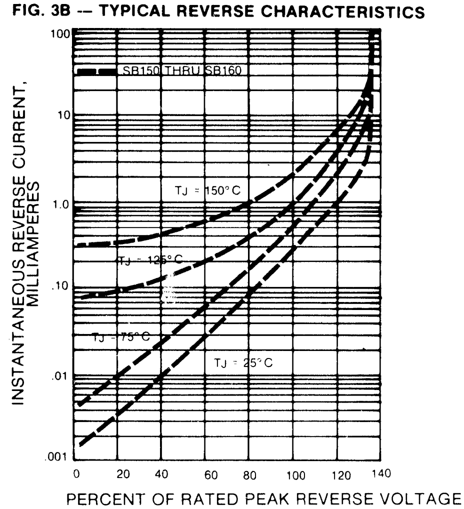


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

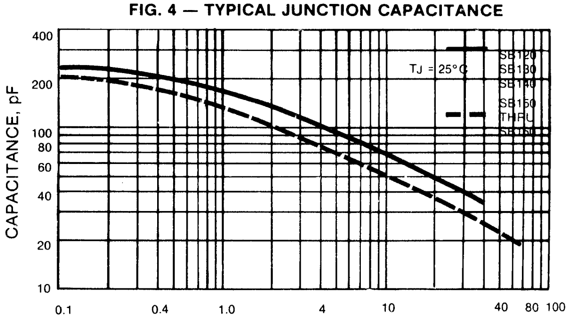
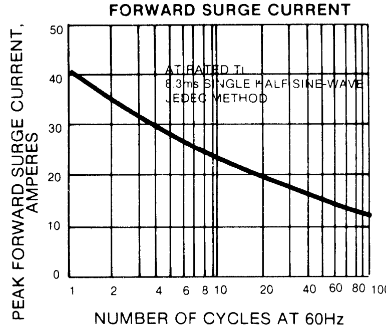


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



GENERAL INSTRUMENT

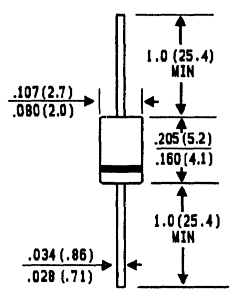
SB190 AND SB1100

MINIATUSRE SCHOTTKY BARRIER RECTIFIER

***VOLTAGE RANGE** -90 and 100 Volts* ***CURRENT** -1.0 Amperes*

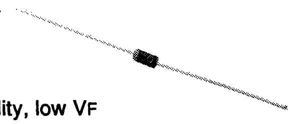
FEATURES

DO-41



Dimensions in inches
and
(millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection



MECHANICAL DATA

Case: DO-41 Molded Plastic
Terminals: Axial leads, solderable per MIL-STD- 202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounces, .34 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*SB190*	*SB1100*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	90	100	Volts
Working Peak Reverse Voltage	V_{RWM}	64	71	Volts
DC Blocking Voltage	V_{DC}	90	100	Volts
Maximum Average Forward Rectified Current at T_C= 135°C	$I_{(AV)}$	1.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	10		V/µs
Maximum Forward Voltage (Note 1) I_F = 1A, T_L = 25°C I_F = 1A, T_L = 100°C	V_F	0.79 0.69		Volts
Maximum Reverse Current at Peak Reverse Voltage T_C = 100°C (Note 1) Peak Reverse Voltage T_L = 25°C	I_R I_R	5 .5		mA mA
Maximum Thermal Resistance, Junction to Lead	$R_{\theta JL}$	15		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%. 2. 2.0us, 1.0KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

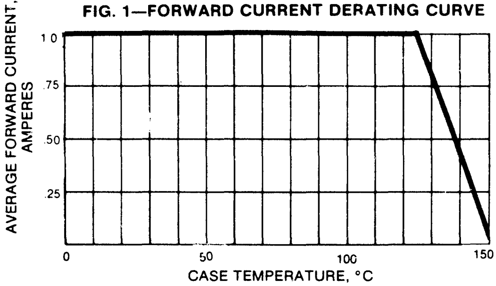


FIG. 2 — MAXIMUM NON-REPETITIVE SURGE CURRENT

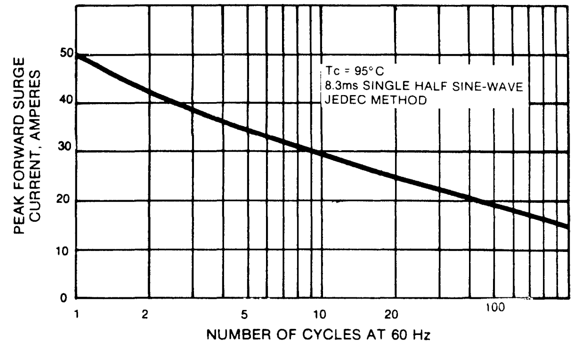


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

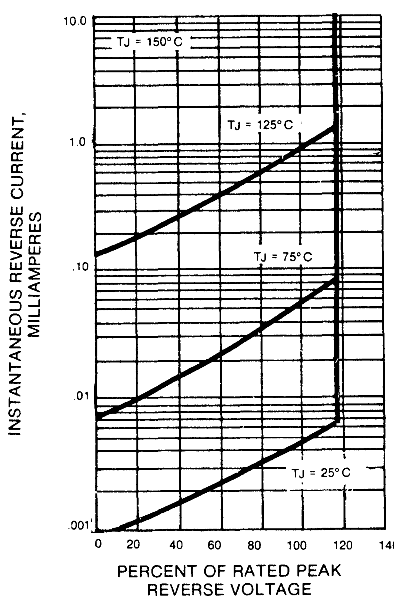


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

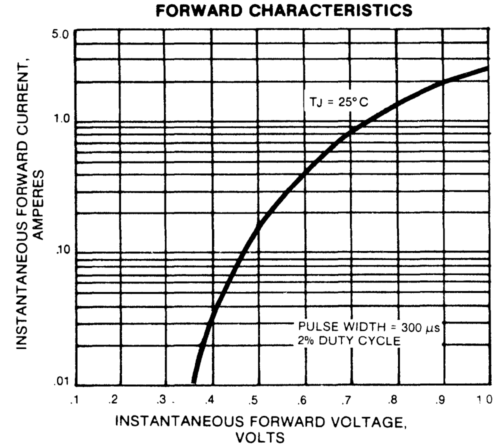
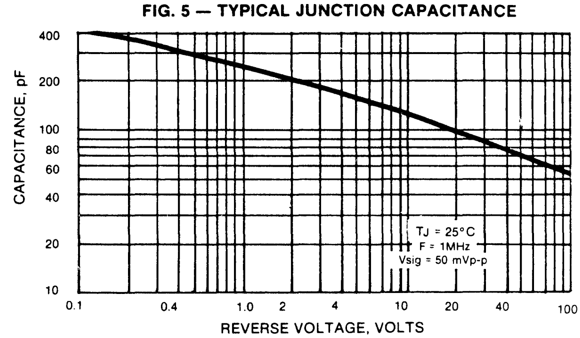


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



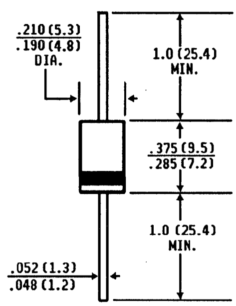
1N5820 THRU 1N5822

HIGH CURRENT SCHOTTKY BARRIER RECTIFIERS

***VOLTAGE** - 20 to 40 Volts* ***CURRENT** - 3.0 Amperes*

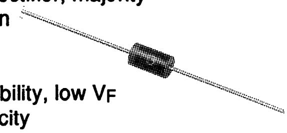
FEATURES

DO-201AD



Dimensions in inches
and
(Millimeters)

- Low cost
- Plastic package has Underwriters Laboratory Flammability Classificaiton 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications.
- High temperature soldering guaranteed: 250 °C/10 seconds/.375" (9.5 mm) lead lengths at 5 lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Molded Plastic
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.04 ounces, 1.12 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTIS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*1N5820*	*1N5821*	*1N5822*	*UNITS*
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	20	30	40	Volts
Maximum RMS Voltage	V_{RMS}	14	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	20	30	40	Volts
*Maximum Average Forward Rectified Current .375", 9.5mm Lead Length T_L = 95°C	$I_{(AV)}$		3.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_L = 75°C	I_{FSM}		80		Amps
Maximum Forward Voltage at 3.0 (Note 1)	V_F	.475	.500	.525	Volts
Maximum Forward Voltage at 9.4 (Note 1)	V_F	.850	.900	.950	Volts
*Maximum Average Reverse Current at Peak Reverse Voltage T_A = 25°C	I_R		2.0		mA
(Note 1) T_A = 100°C	I_R		20.0		mA
Typical Thermal Resistance (Note 2)	$R_{\Theta JL}$		20		°C/W
*Storage and Operating Temperature Range	T_J, T_{STG}		-65 to +125		°C

NOTES:
1. Measured at Pulse Width 300µ's. Duty Cycle 2%.
2. Thermal Resistance Junction to Lead Vertical PC Board Mounting, .375" (9.5mm) Lead Lengths.

*JEDEC registered values

FIG. 1 — FORWARD CURRENT DERATING CURVE

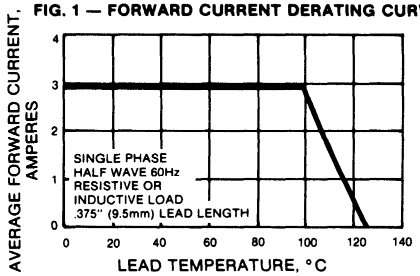


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

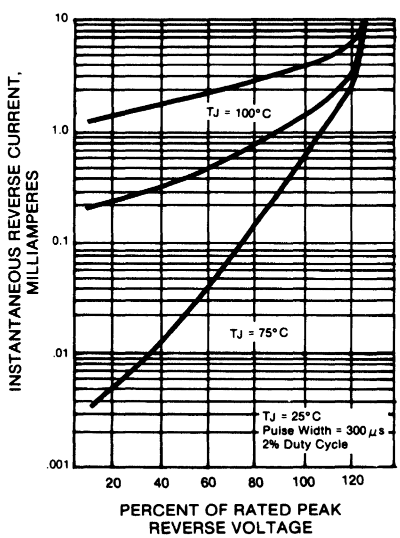


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

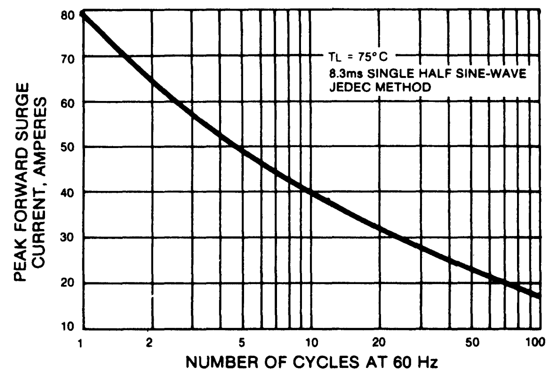


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

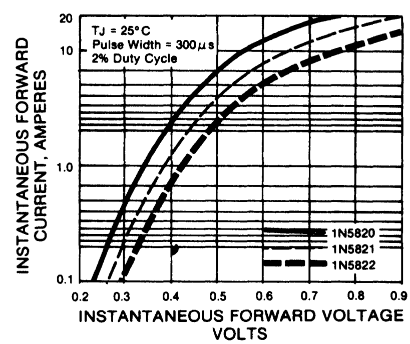
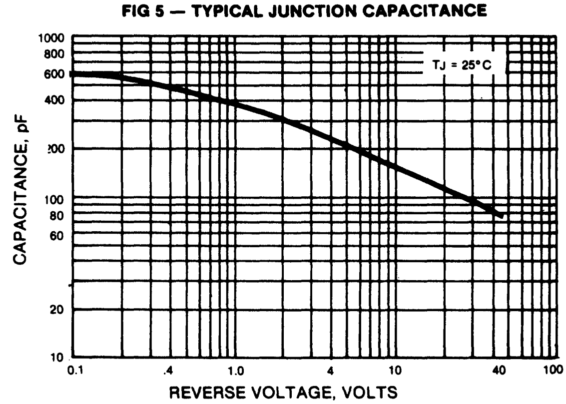


FIG 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

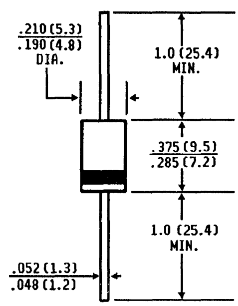
SB320 THRU SB360

HIGH CURRENT SCHOTTKY BARRIER RECTIFIERS

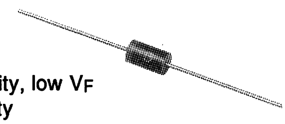
***VOLTAGE** - 20 to 60 Volts* ***CURRENT** - 3.0 Amperes*

FEATURES

DO-201AD



Dimensions in inches and (millimeters)



- Low cost
- Plastic package has Underwriters Laboratory Flammability Classificaiton 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applica tions.
- Guard Ring for transient protection
- High temperature soldering guaranteed: 250 °C/10 seconds/.375" (9.5 mm) lead lengths at 5 lbs., (2.3 kg) tension

MECHANICAL DATA

Case: Molded Plastic

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.012 ounces, .34 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*SB320*	*SB330*	*SB340*	*SB350*	*SB360*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	20	30	40	50	60	Volts
Maximum RMS Voltage	V_{RMS}	14	21	28	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	20	30	40	50	60	Volts
Maximum Average Forward Rectified Current .375", 9.5mm Lead Length	$I_{(AV)}$			3.0			Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			80			Amps
Maximum Forward Voltage at 3.0A	V_F	.50			.74		Volts
Maximum Average Reverse Current at Peak Reverse Voltage $T_A = 25°C$	I_R			0.5			mA
$T_A = 100°C$	I_R			20.0			mA
Maximum Thermal Resistance (Note 1)	$R_{\theta JL}$	20			10		°C/W
Operating Temperature Range	T_J	-65 to +125			-65 to +150		°C
Storage Temperature Range	T_{STG}			-65 to +150			°C

NOTES:

1. Thermal Resistance Junction to Lead Vertical PC Board Mounting, .375" (9.5 mm)Lead Length.

FIG. 1 — FORWARD CURRENT DERATING CURVE

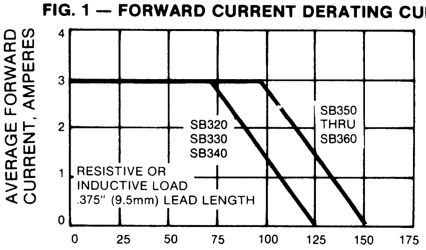


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

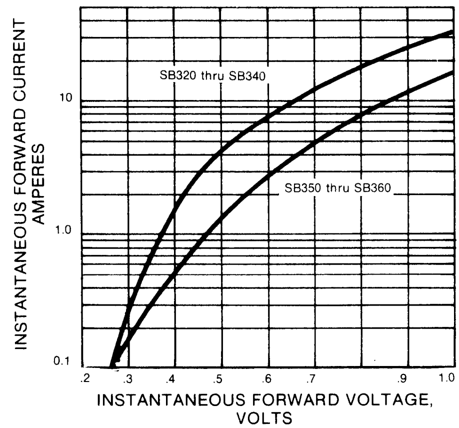


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

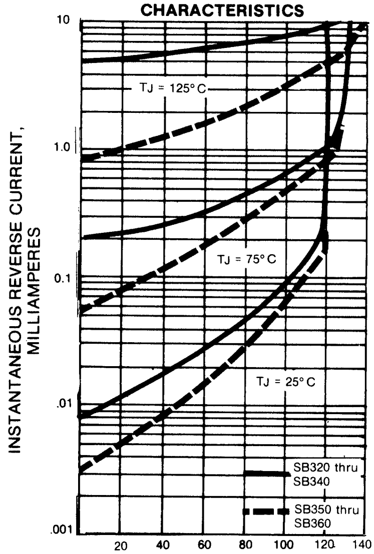


FIG. 4 — TYPICAL JUNCTION CAPAICTANCE

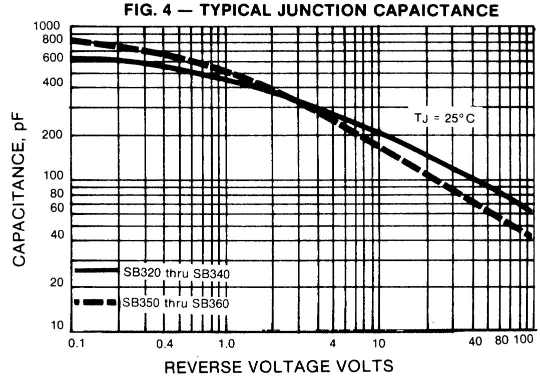
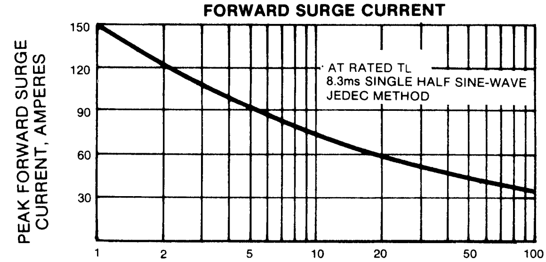


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



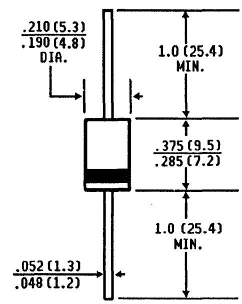
SB390 AND SB3100

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** -90 and 100 Volts* ***CURRENT** -3.0 Amperes*

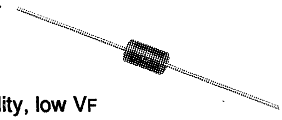
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection



MECHANICAL DATA

Case: DO-201AD Molded Plastic
Terminals: Axial leads, solderable per MIL-STD- 202, Method 208
Polarity: Color Band denotes cathode
Mounting Position: Any
Weight: .04 ounces, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*SB390*	*SB3100*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	90	100	Volts
Maximum RMS Voltage	V_{RWM}	64	71	Volts
Maximum DC Blocking Voltage	V_{DC}	90	100	Volts
Maximum Average Forward Rectified Current at T_C= 135°C	$I_{(AV)}$	3.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 3A, T_L = 25°C I_F = 3A, T_C = 100°C	V_F	0.79 0.69		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 100°C (Note 1) Peak Reverse Voltage T_C = 25°C	I_R I_R	.6 0.1		mA mA
Maximum Thermal Resistance, Junction to Lead	$R_{\theta JL}$	10.0		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1 — FORWARD CURRENT DERATING CURVE

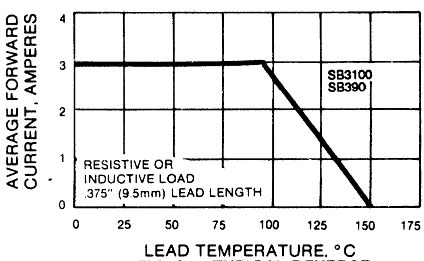


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

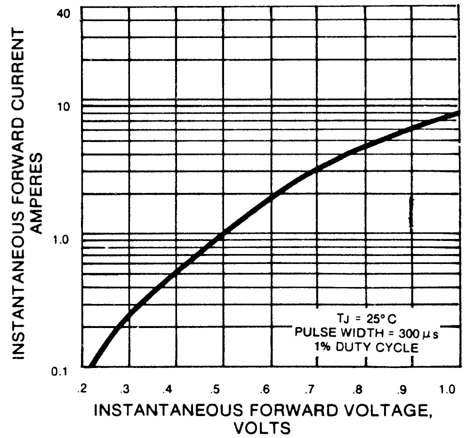


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

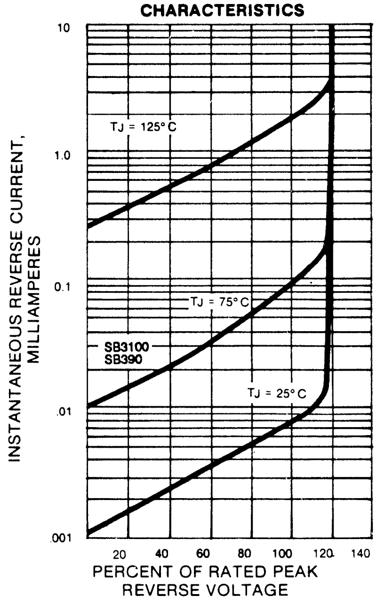


FIG. 4 — TYPICAL JUNCTION CAPAICTANCE

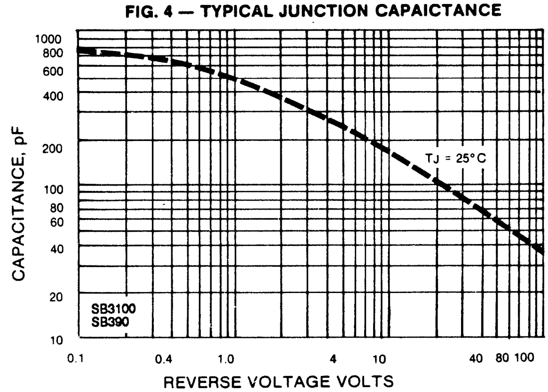
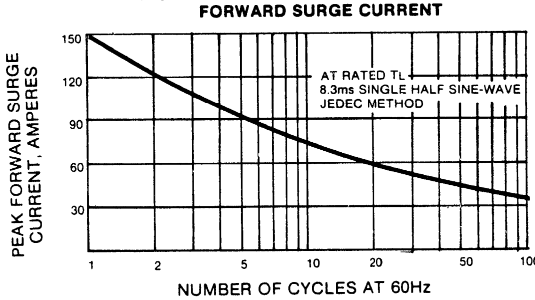


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



GENERAL INSTRUMENT

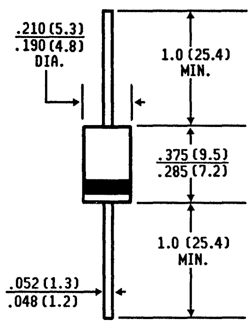
SB520 THRU SB560

HIGH CURRENT SCHOTTKY BARRIER RECTIFIERS

***VOLTAGE** - 20 to 60 Volts* ***CURRENT** - 5.0 Amperes*

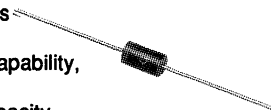
FEATURES

DO-201AD



Dimensions in inches
and
(millimeters)

- Low cost
- Plastic package has Underwriters Laboratory Flammability Classificaiton 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications.
- High temperature soldering guaranteed: 250 °C/10 seconds/.375" (9.5 mm) lead lengths at 5 lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Molded Plastic
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounces, .34 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	SB520	SB530	SB540	SB550	SB560	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	20	30	40	50	60	Volts
Maximum RMS Voltage	V_{RMS}	14	21	28	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	20	30	40	50	60	Volts
Maximum Average Forward Rectified Current .375", 9.5mm Lead Length T_L = 90°C	$I_{(AV)}$	5.0					Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_L = 70°C	I_{FSM}	150					Amps
Maximum Forward Voltage at 5.0A	V_F	.55			.67		Volts
Maximum Instantaneous Forward Voltage at DC Blocking Voltage T_A = 25°C	I_R	0.5					mA
T_A = 100°C	I_R	50.0			25.0		mA
Maximum Thermal Resistance (Note 1)	$R_{\Theta JL}$	15			10		°C/W
Operating Temperature Range	T_J	-65 to +125			-65 to +150		°C
Storage and Operating Temperature Range	T_J, T_{STG}	-65 to +125					°C

NOTES:
1. Thermal Resistance Junction to Lead Vertical PC Board Mounting, .375" (9.5mm) Lead Length.

FIG. 1 — FORWARD CURRENT DERATING CURVE

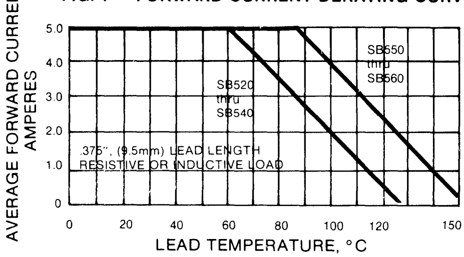


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

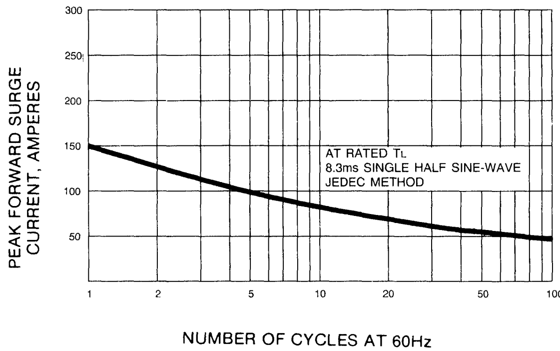


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

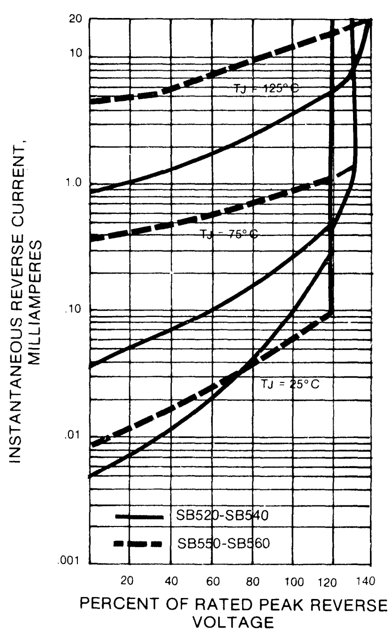


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

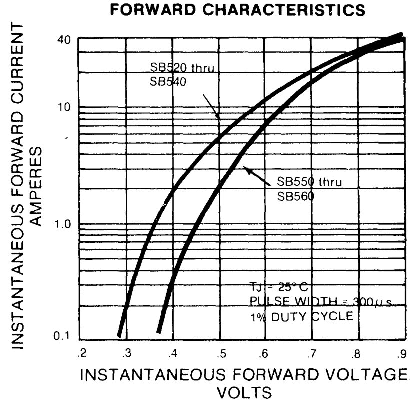
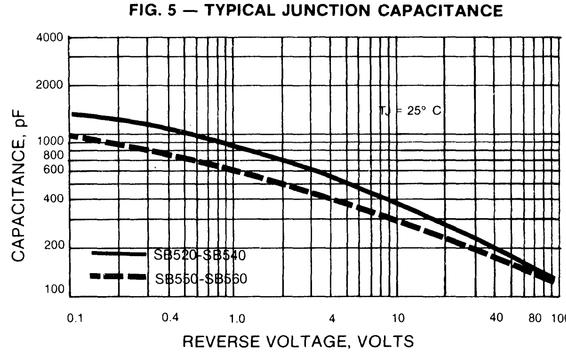


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

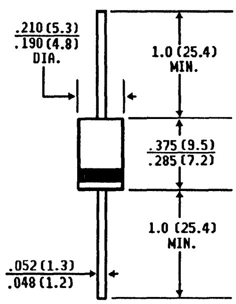


SB590 AND SB5100

SCHOTTKY RECTIFIER

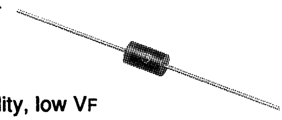
VOLTAGE RANGE - 90 and 100 Volts CURRENT - 5.0 Amperes

DO-201AD



Dimensions in inches and (millimeters)

FEATURES



- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection

MECHANICAL DATA

Case: DO-201AD Molded Plastic
Terminals: Axial leads, solderable per MIL-STD- 202, Method 208
Polarity: Color Band denotes cathode
Mounting Position: Any
Weight: .04 ounces, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	SB590	SB5100	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	90	100	Volts
Maximum RMS Voltage	V_{RWM}	64	71	Volts
Maximum DC Blocking Voltage	V_{DC}	90	100	Volts
Maximum Average Forward Rectified Current at .375" (9.5 mm) lead length, see fig. 1	$I_{(AV)}$	5.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) $I_F = 5A, T_L = 25°C$ / $I_F = 5A, T_C = 100°C$	V_F	0.79 / 0.69		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage $T_C = 100°C$ (Note 1)	I_R	20.0		mA
Peak Reverse Voltage $T_C = 25°C$	I_R	0.6		mA
Maximum Thermal Resistance, Junction to Lead	$R_{\theta JL}$	15.0		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1 — FORWARD CURRENT DERATING CURVE

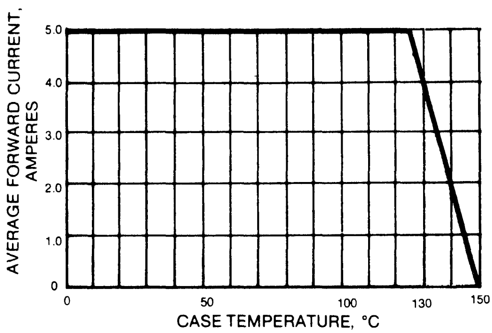


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

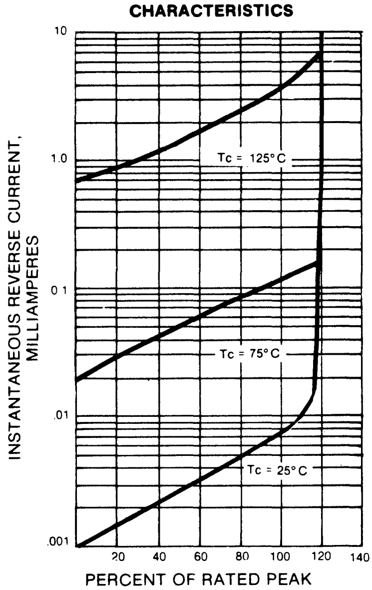


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

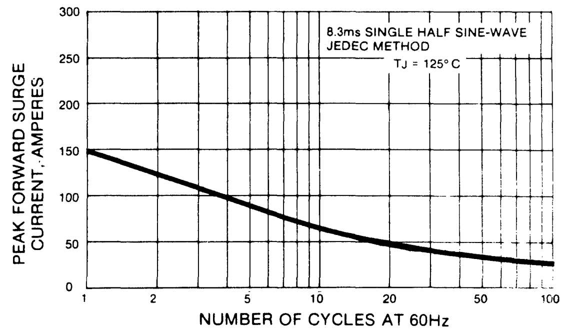


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

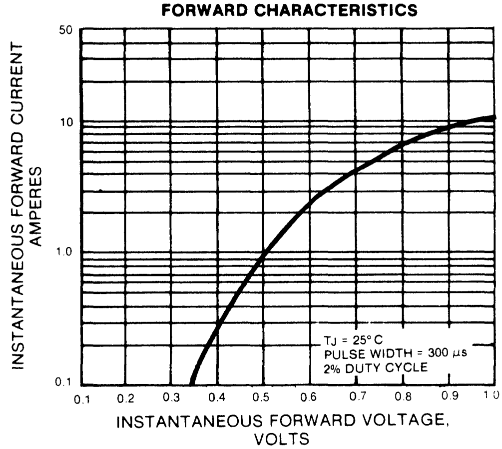
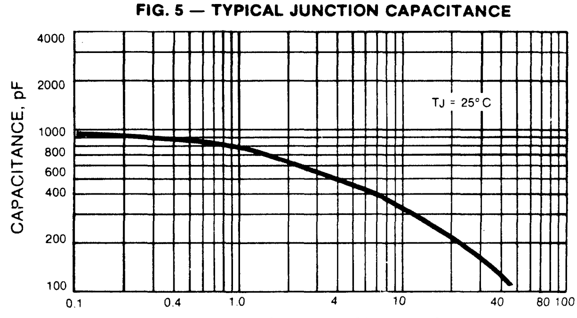


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



MEDIUM CURRENT SCHOTTKY RECTIFIERS

5 TO 40 AMPERES

**SEE
NEW
ISOLATED
PACKAGES**

GENERAL INSTRUMENT

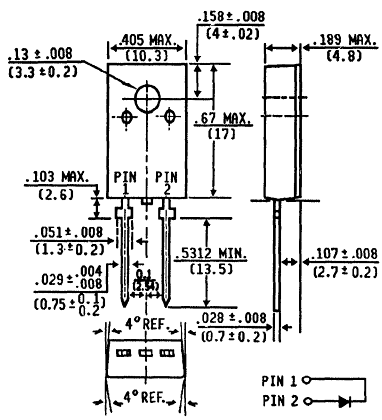
SBLF530 AND SBLF540

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 5.0 Amperes*

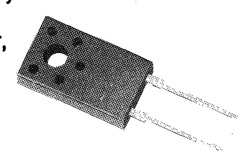
FEATURES

ITO-220



Dimensions in inches and (millimeters)

- Isolated Plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5K V_{RMS}



MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBLF530*	*SBLF540*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	5.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	175		Amps
Maximum Instantaneous Forward Voltage at 5.0A, See Fig. 1	V_F	.55		Volts
Maximum Average Reverse Current at Tc = 25°C Rated Peak Reverse Voltage Tc = 100°C	I_R	0.5 33.0		mA
Typical Thermal Resistance (Note 1)	$R\theta JC$	3.5		°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-40 to +125		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 μs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

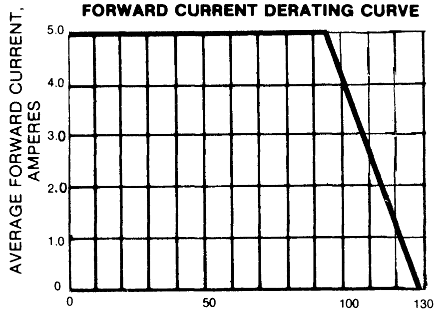


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

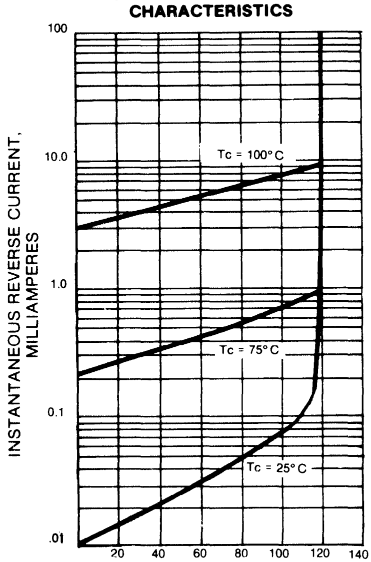


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

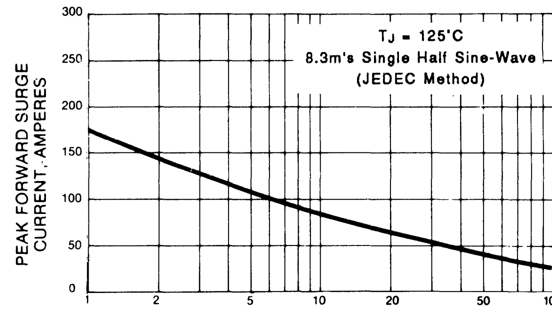


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

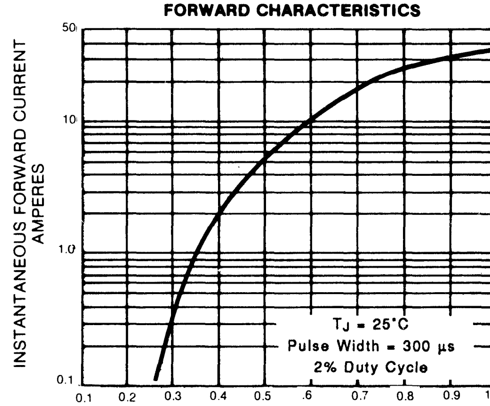
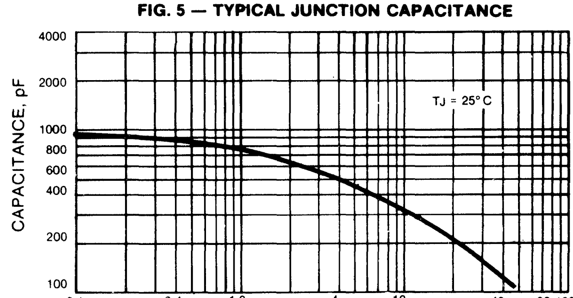


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

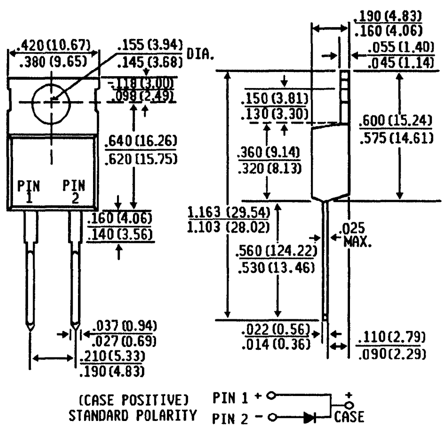
SBL530 AND SBL540

SCHOTTKY RECTIFIER

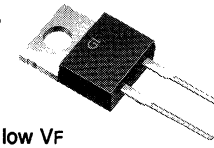
***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 5.0 Amperes*

FEATURES

TO-220



Dimensions in inches and (millimeters)



- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

CROSS REFERENCE GUIDE

GI	FUJI	SHINDENGEN
SBL530	- - -	S5S3M
SBL540	ERC80-004	S5S4M

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBL530*	*SBL540*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current at T_C = 114°C	$I_{(AV)}$	5.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	175		Amps
Maximum Instantaneous Forward Voltage at 5.0A, T_C = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at T_C = 25°C Rated Peak Reverse Voltage (Note 3)T_C = 100°C	I_R	0.5 33.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.0		°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-40 to +125		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 μs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

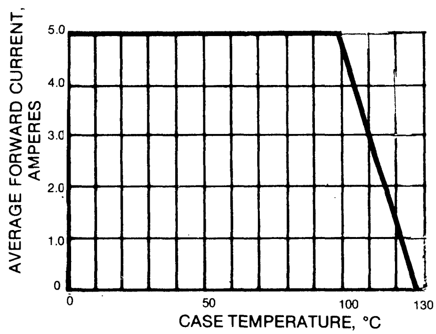


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

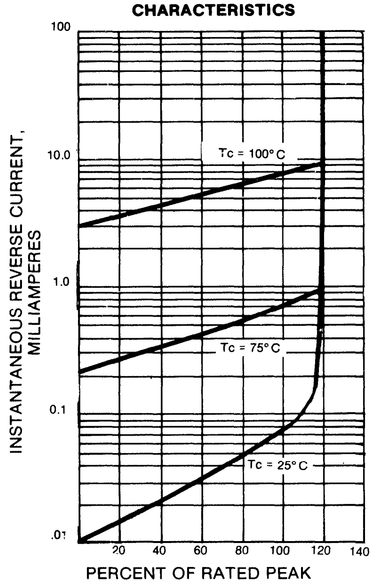


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

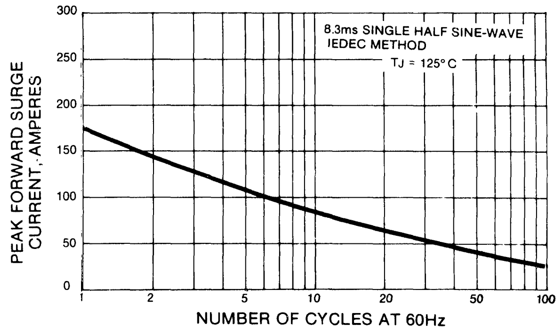


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

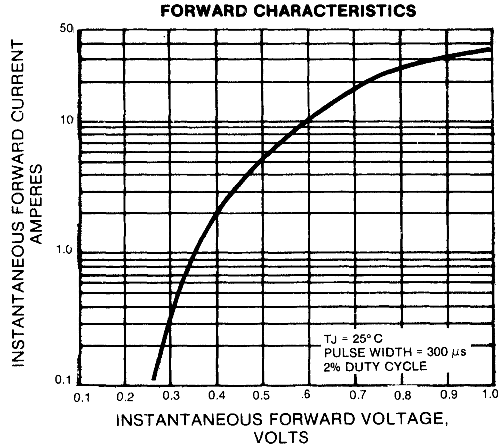
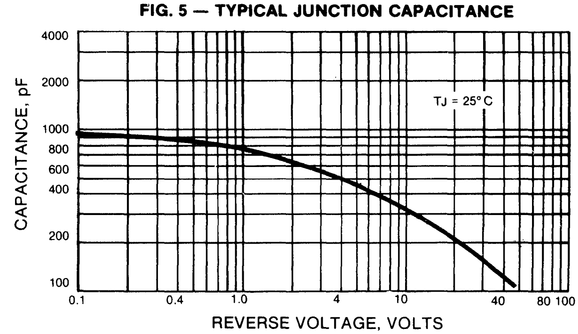


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



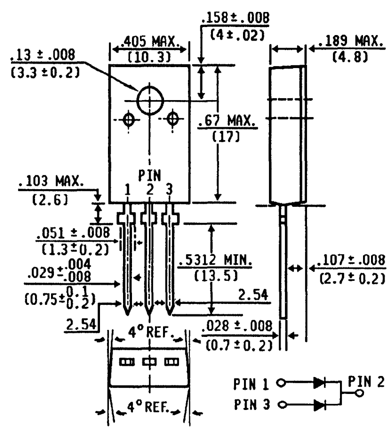
SBLF530CT AND SBLF540CT

SCHOTTKY RECTIFIER

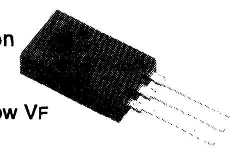
***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 5.0 Amperes*

FEATURES

ITO-220 CT



Dimensions in inches
and
(millimeters)



- Isolated Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBLF530CT*	*SBLF540CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	5.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 2.5A, T_C = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at T_C = 25°C Rated DC Blocking Voltage per element T_C= 100°C	I_R	0.5 33.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.5		°C/W
Operating Temperature Range	T_C	-40 to +125		°C
Storage Temperature Range	T_{STG}	-40 to+150		°C

NOTES:
1. Thermal Resistance from Junction to Case per element.
2. 300 µs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

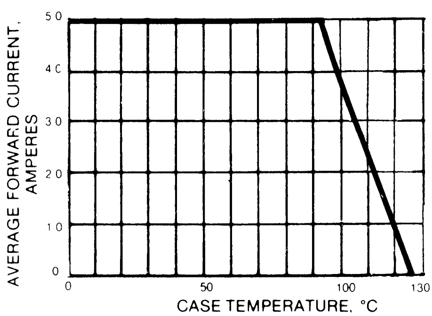


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

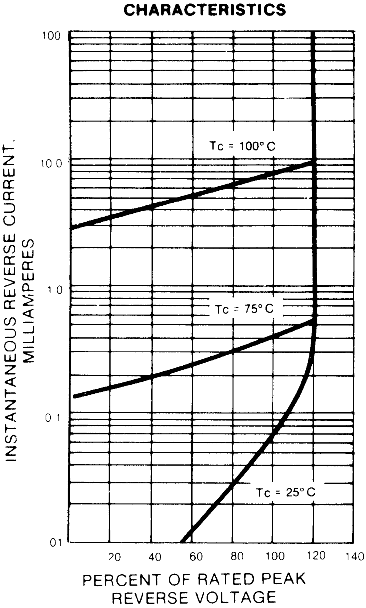


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

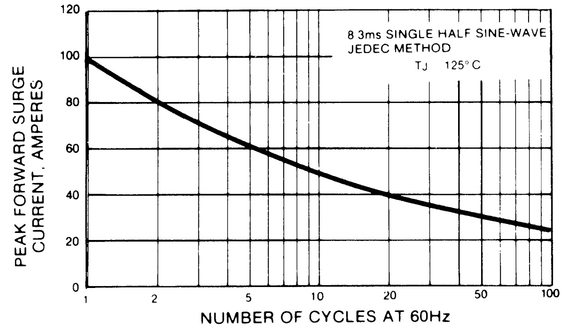


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

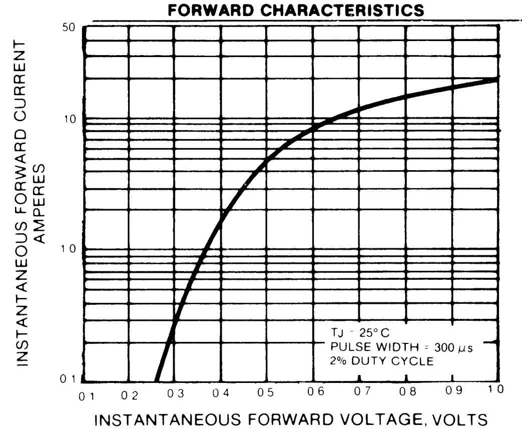
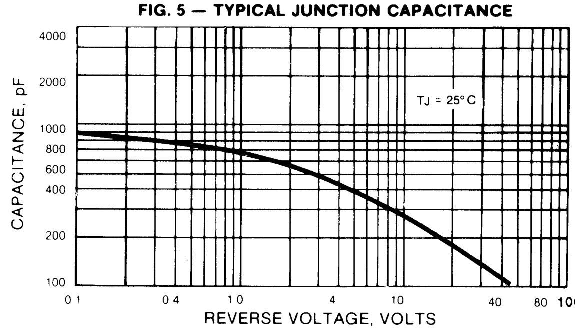


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

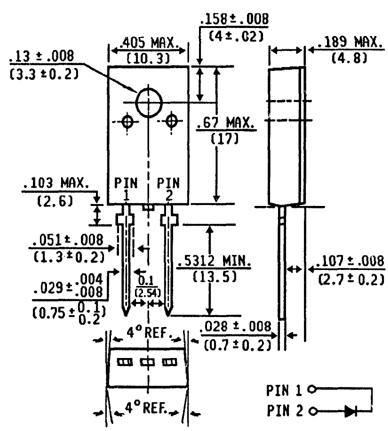
MBRF735 AND MBRF745

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 7.5 Amperes*

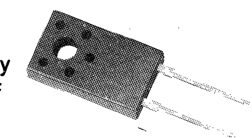
FEATURES

ITO-220



Dimensions in inches and (millimeters)

- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	MBRF735	MBRF745	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Maximum RMS Voltage	V_{RMS}	25	32	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	7.5		Amps
Peak Foward Surge Current,8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Instantaneous Forward Voltage I_F = 7.5A, T_C = 125°C I_F = 15A, T_C = 125°C I_F = 15A, T_C = 25°C	V_F	 0.57 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C=125°C	I_R	15		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage (Note 2) T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change	dv/dt	1000		V/µs
Typical Thermal Resistance, (Note 1)	$R\Theta JC$	3.5		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance Junction to Case.
2. 300µs Pulse Width, 2% Duty Factor.
3. 2.0µs, 1.0 KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

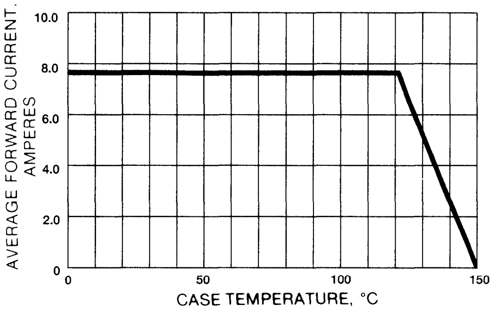


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

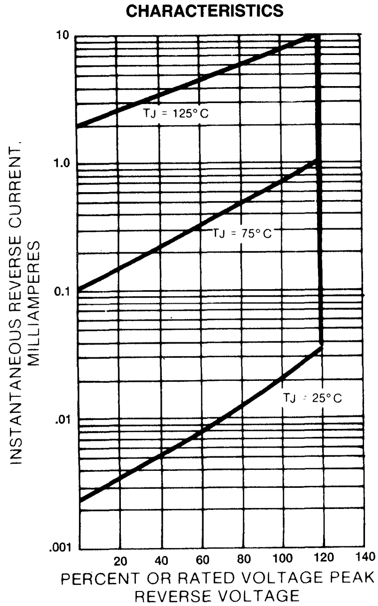


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

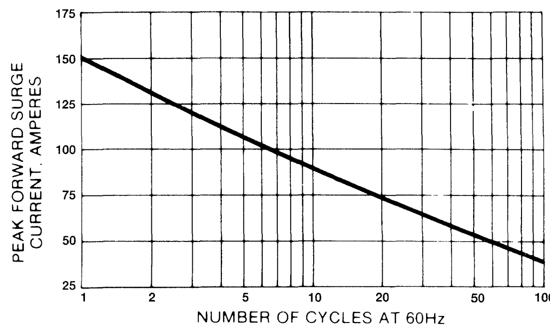


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

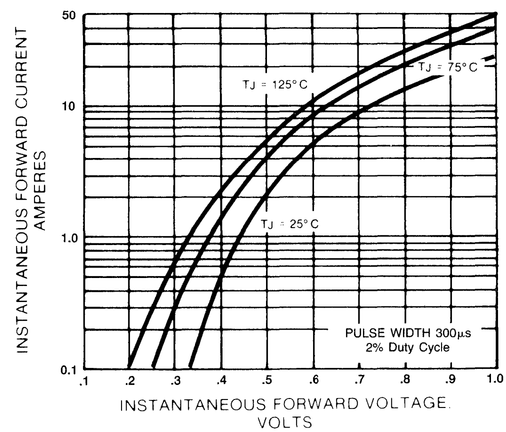
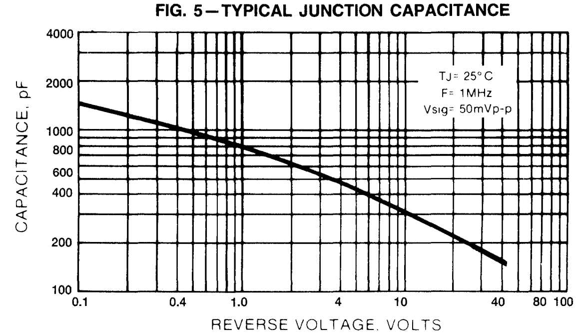


FIG. 5—TYPICAL JUNCTION CAPACITANCE



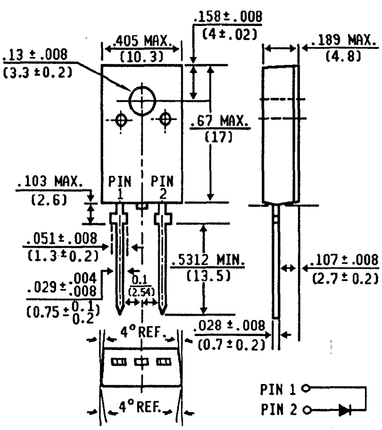
MBRF750 AND MBRF760

SCHOTTKY RECTIFIER

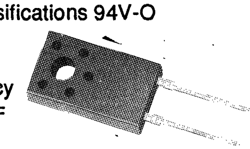
***VOLTAGE RANGE** - 50 and 60 Volts* ***CURRENT** - 7.5 Amperes*

FEATURES

ITO-220



Dimensions in inches and (millimeters)



- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF750*	*MBRF760*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	7.5		Amps
Peak Foward Surge Current,8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	.75		Amps
Maximum Instantaneous Forward Voltage I_F = 7.5A, T_C = 125°C I_F = 7.5A, T_C = 25°C	V_F	0.65 0.75		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C=100°C	I_R	50		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage (Note 2) T_C = 25°C	I_R	0.5		mA
Voltage Rate of Change	dv/dt	1000		V/µs
Typical Thermal Resistance, (Note 1)	$R_{\theta JC}$	3.5		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance Junction to Case.
2. 300µs Pulse Width, 2% Duty Factor.
3. 2.0µs, 1.0 KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

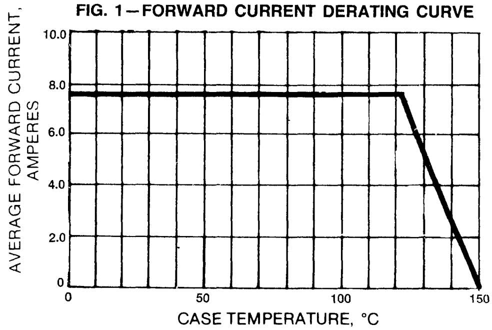


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

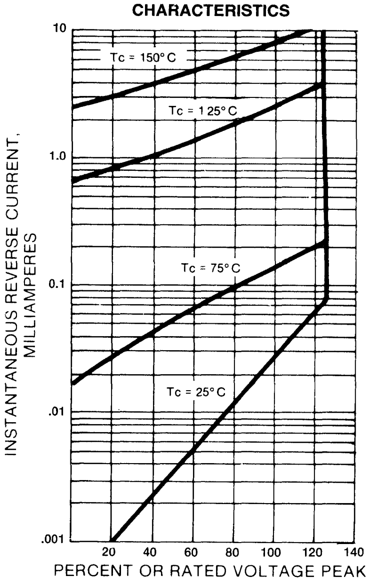


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

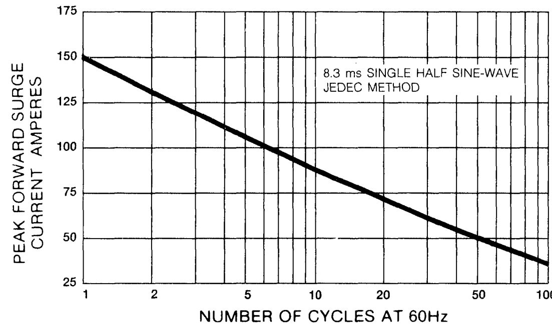


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

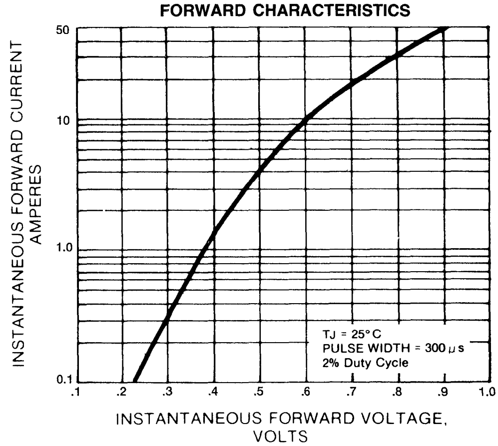
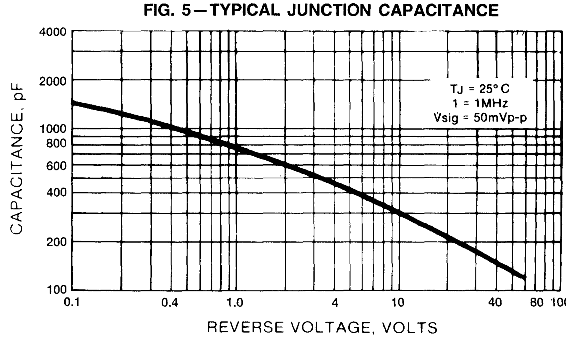


FIG. 5—TYPICAL JUNCTION CAPACITANCE



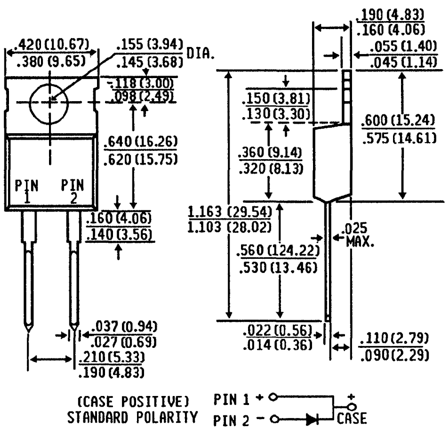
MBR735 AND MBR745

SCHOTTKY RECTIFIER

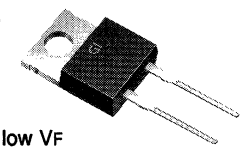
***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 7.5 Amperes*

FEATURES

TO-220



Dimensions in inches and (millimeters)



- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for trnsientr protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR735*	*MBR745*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Maximum RMS Voltage	V_{RMS}	24.5	31.5	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	7.5		Amps
Peak Foward Surge Current,8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Instantaneous Forward Voltage I_F = 7.5A, T_C = 125°C I_F = 15A, T_C = 125°C I_F = 15A, T_C = 25°C	V_F	0.57 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C=125°C	I_R	15		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage (Note 2) T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change	dv/dt	1000		V/µs
Typical Thermal Resistance, (Note 1)	$R\theta JC$	3.0		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance Junction to CASE.
2. 300µs Pulse Width, 2% Duty Factor.
3. 2.0µs, 1.0 KHz.

FIG. 1 — FORWARD CURRENT DERATING CURVE

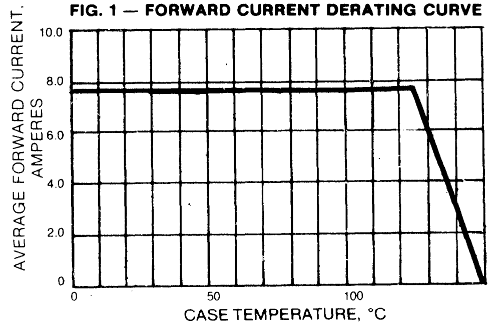


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

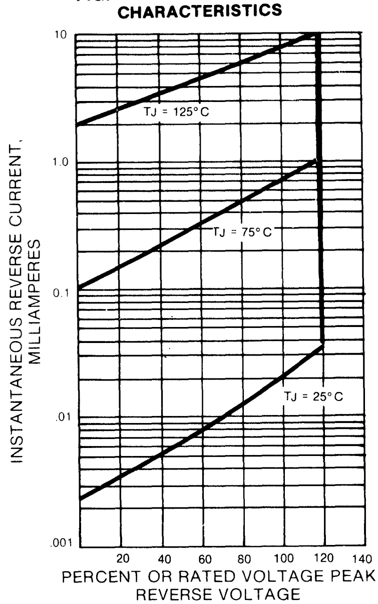


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

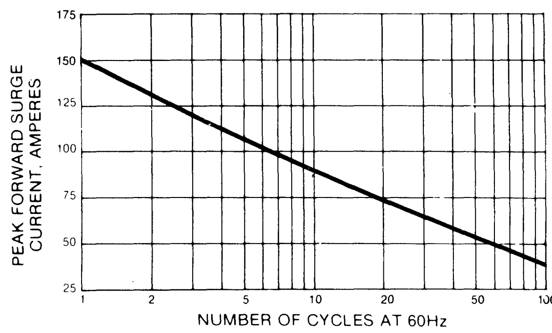


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

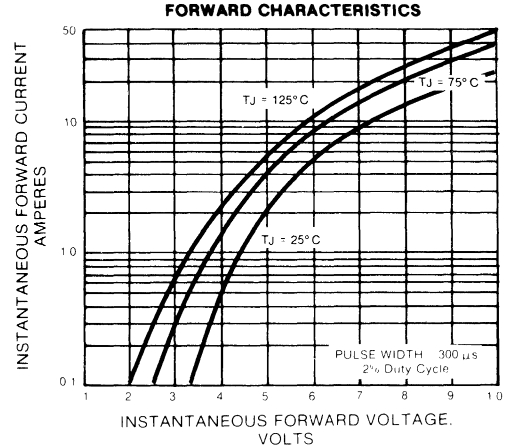
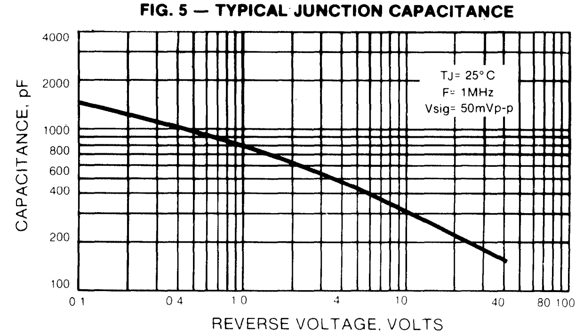


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

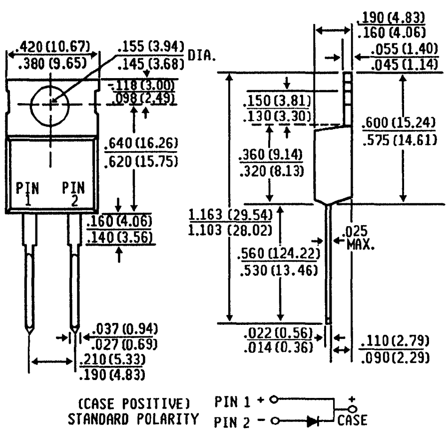
MBR750 AND MBR760

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 50 and 60 Volts CURRENT - 7.5 Amperes

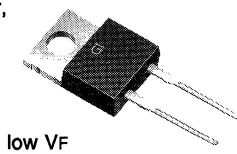
FEATURES

TO-220



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction



- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBR750*	*MBR760*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	7.5		Amps
Peak Forward Surge Current, 8.3ms single half sine--wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Maximum Instantaneous Forward Voltage (Note 2) I_F = 7.5A, T_C = 125°C I_F = 7.5, T_C = 25°C	V_F	.65 .75		Volts
Maximum Average Reverse Current at T_C = 25°C Rated Peak Reverse Voltage (Note 2) T_C = 100°C	I_R	0.5 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\Theta JC}$	3.0		°C/W
Maximum Operating Storage Temperature Range	T_C,T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 μs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

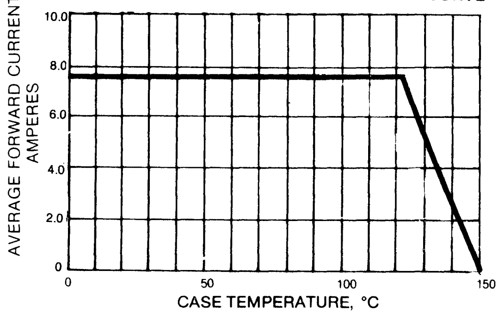


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

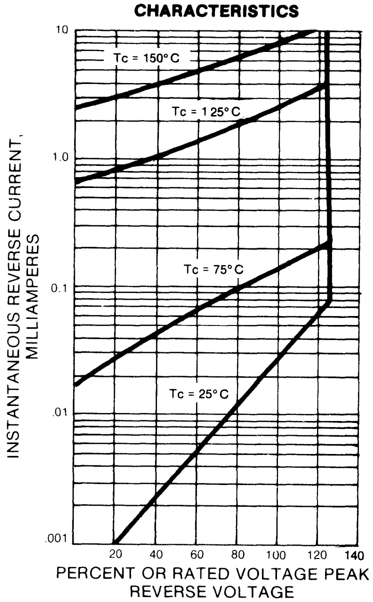


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

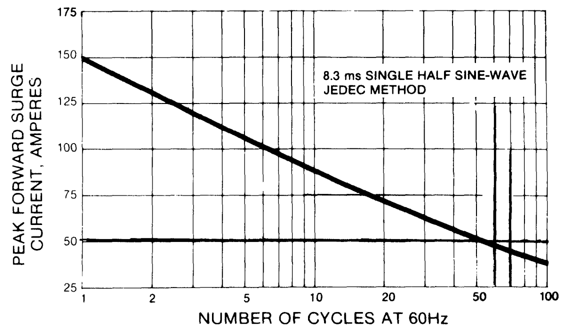


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

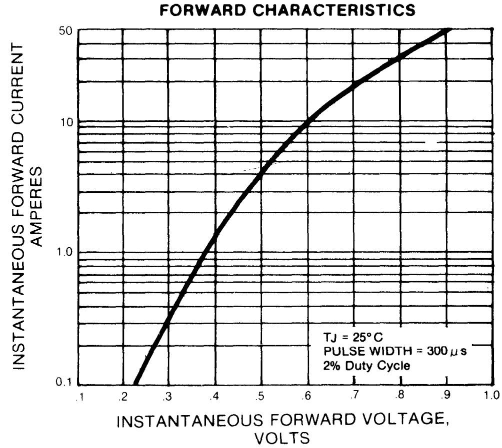
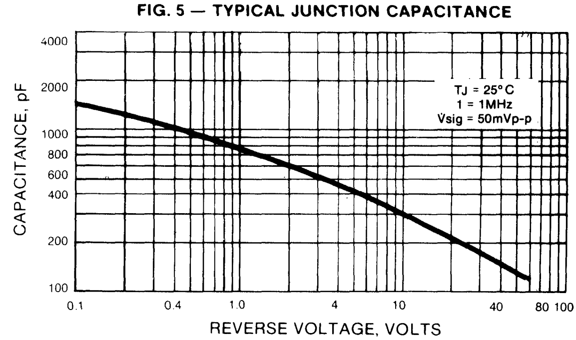


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

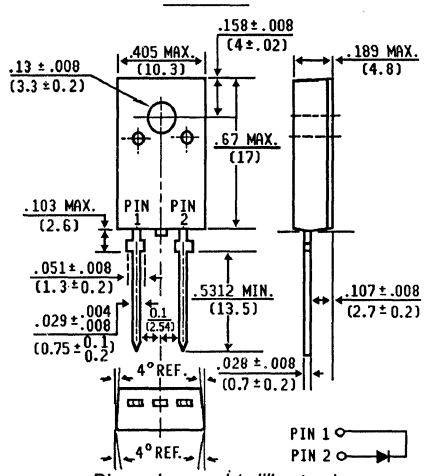
MBRF1035 AND MBRF1045

SCHOTTKY RECTIFIER

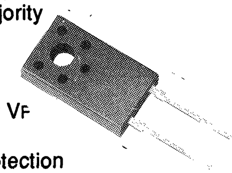
***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 10.0 Amperes*

FEATURES

ITO-220



Dimensions and (millimeters)



- Isolated overmolded package
- Metal to silicon rectifier majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Guard ring for transient protection
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Internal Insulation: 1.5K V_{RMS}

MECHANICAL DATA

Case: ITO-220 full overmolded plastic
Terminals: Leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5in.- lb.max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBRF1035*	*MBRF1045*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RMS}	25	32	Volts
DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	10		Amps
Peak Repetitive Forward Current , (Square Wave 20 KHz) at T_C = 135°C	I_{FSM}	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	dv/dt	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.57 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1)	I_R	15		mA
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 25°C	I_R	0.1		mA
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.2		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%. 2. 2.0us, 1.0KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

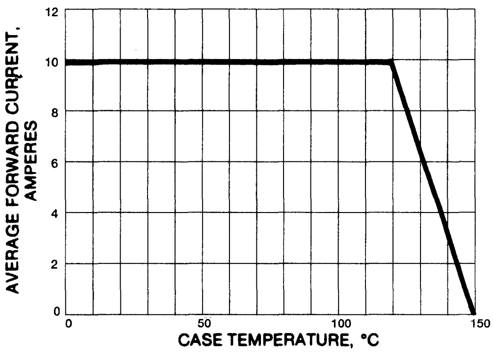


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

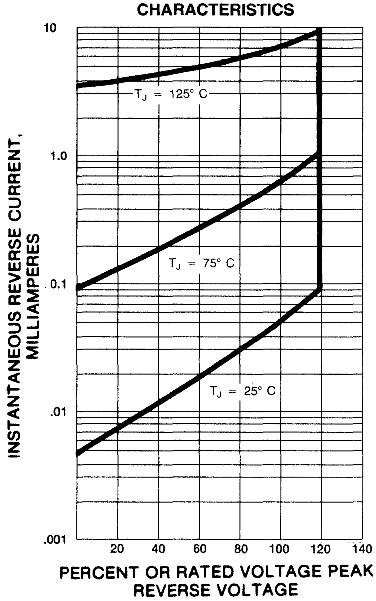


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

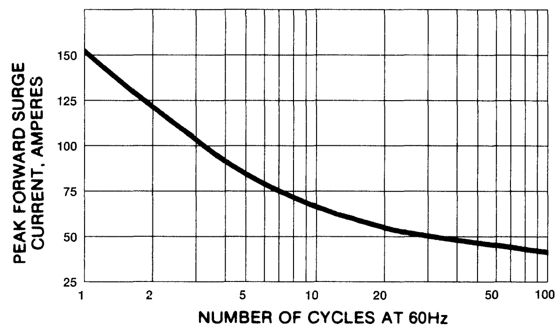


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

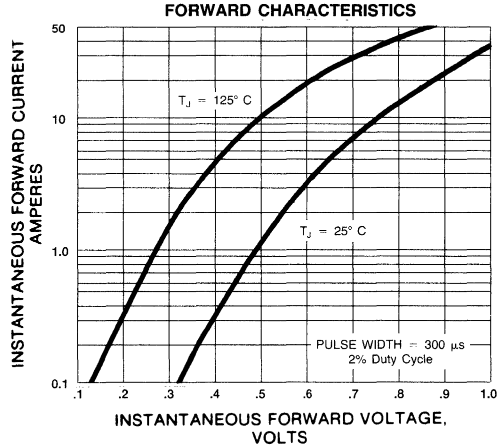
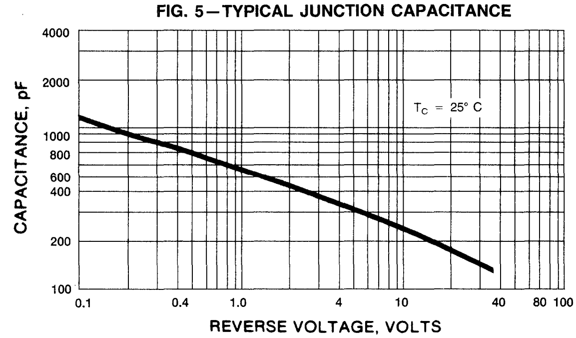


FIG. 5—TYPICAL JUNCTION CAPACITANCE



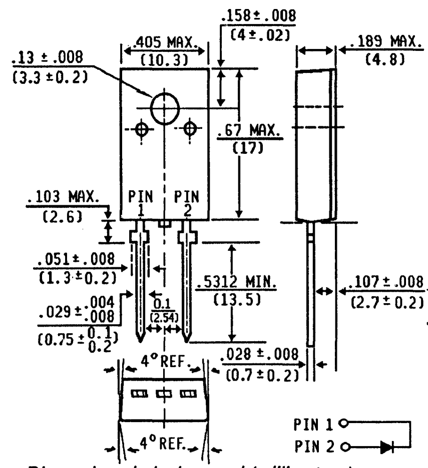
MBRF1050 AND MBRF1060

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** -50 and 60 Volts* ***CURRENT** -10.0 Amperes*

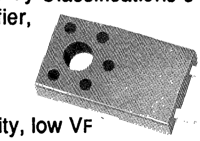
FEATURES

ITO-220



Dimensions in inches and (millimeters)

- Isolated plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Internal Insulation: 1.5K V_{RMS}



MECHANICAL DATA

Case: ITO-220 Fully over molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in-lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	*MBRF1050*	*MBRF1060*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Working Peak Reverse Voltage	V_{RMS}	35	42	Volts
DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current	$I_{(AV)}$	10		Amps
Peak Repetitive Forward Current , (Square Wave 20 KHz) at T_C = 135°C	I_{FSM}	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.70 0.85 0.95		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1)	I_R	25		mA
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 25°C	I_R	0.1		mA
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.2		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES:
1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1—FORWARD CURRENT DERATING CURVE

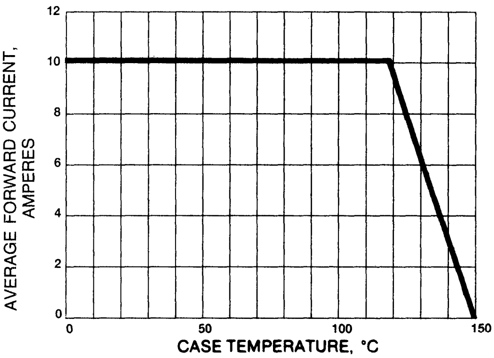


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

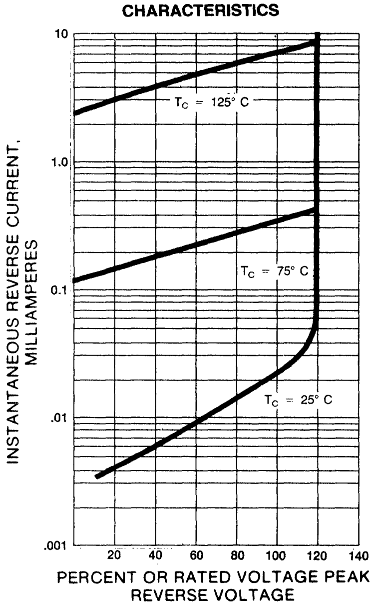


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

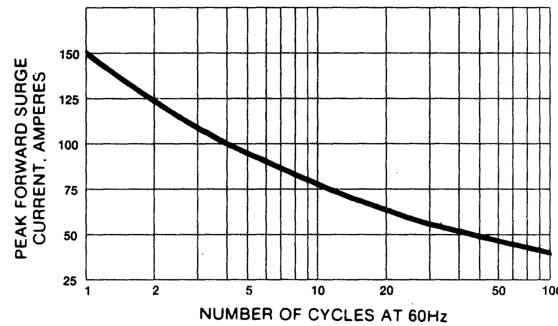


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

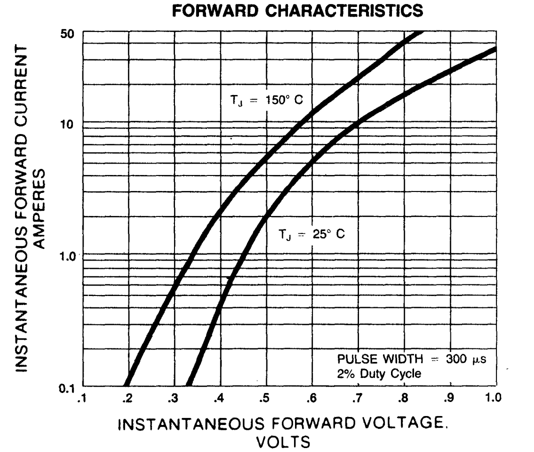
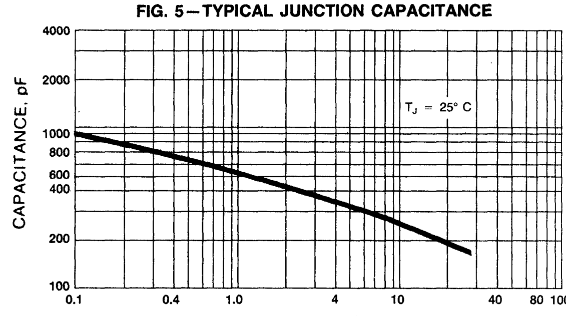


FIG. 5—TYPICAL JUNCTION CAPACITANCE



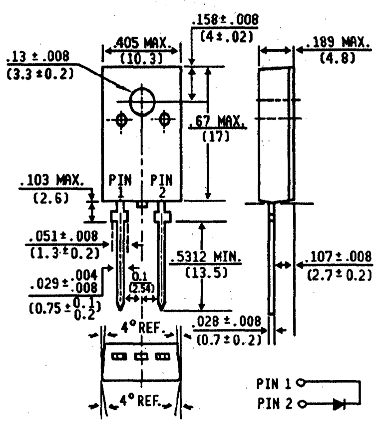
GENERAL INSTRUMENT

MBRF1090 AND MBRF10100

SCHOTTKY RECTIFIER

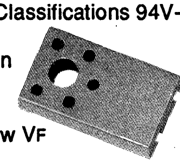
VOLTAGE RANGE - 90 and 100 Volts   CURRENT -10.0 Amperes

ITO-220



Dimensions in inches and (millimeters)

FEATURES



- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: .08 ounces, 2.24 grams
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF1090*	*MBRF10100*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	90	100	Volts
Working Peak Reverse Voltage	V_{RMS}	64	71	Volts
DC Blocking Voltage	V_{DC}	90	100	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	10		Amps
Peak Repetitive Forward Current, (Square Wave 20 KHz) at T_C = 125°C	I_{FSM}	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 25°C I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	 0.80 0.70 0.85 0.95		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1) Peak Reverse Voltage T_C = 25°C	 I_R I_R	 25 0.1		 mA mA
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1—FORWARD CURRENT DERATING CURVE

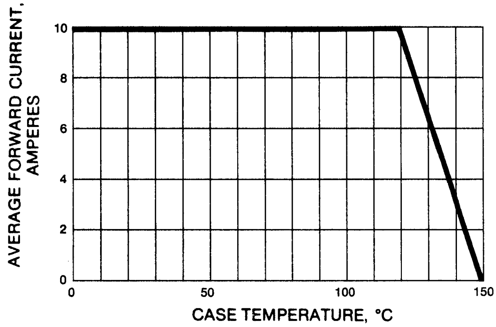


FIG. 2—TYPICAL REVERSE CHARACTERISTICS

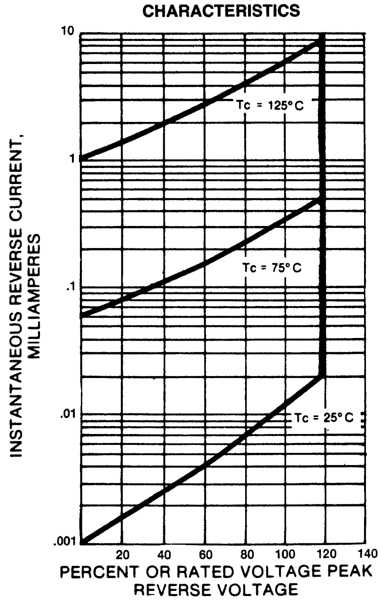


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

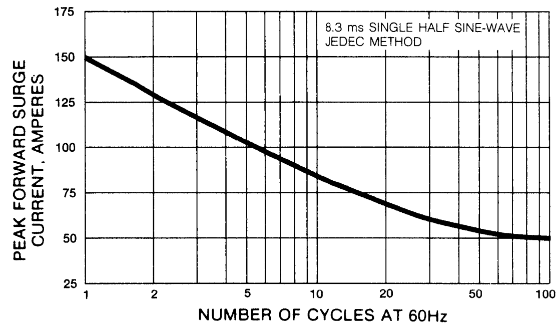


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

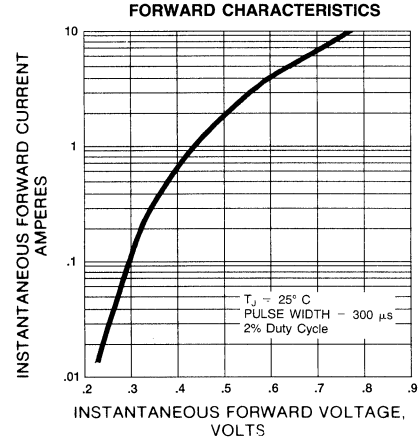
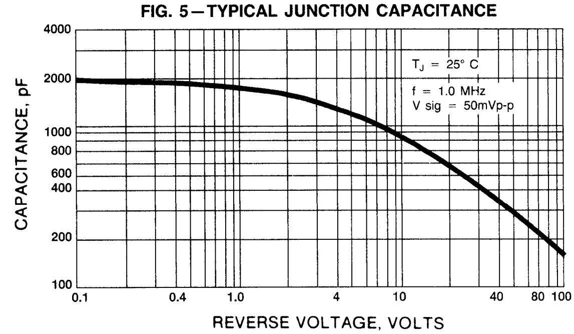


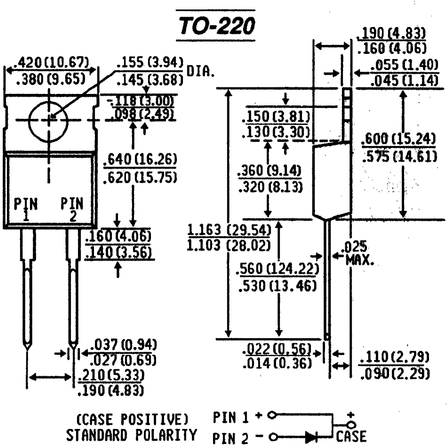
FIG. 5—TYPICAL JUNCTION CAPACITANCE



MBR1035 AND MBR1045

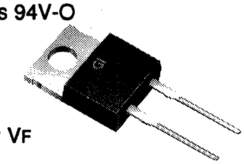
SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 35 and 45 Volts*   ***CURRENT** - 10.0 Amperes*



Dimensions and (millimeters)

FEATURES



- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Axial leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR1035*	*MBR1045*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RWM}	35	45	Volts
DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	10		Amps
Peak Repetitive Forward Current , (Square Wave 20 KHz) at T_C = 135°C	I_{FSM}	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	dv/dt	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.57 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1)	I_R	15		mA
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 25°C	I_R	0.1		mA
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1 — FORWARD CURRENT DERATING CURVE

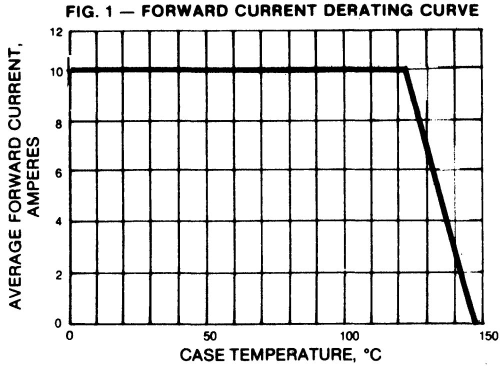


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

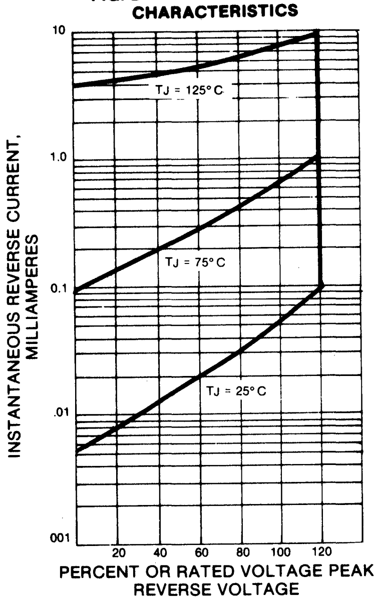


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

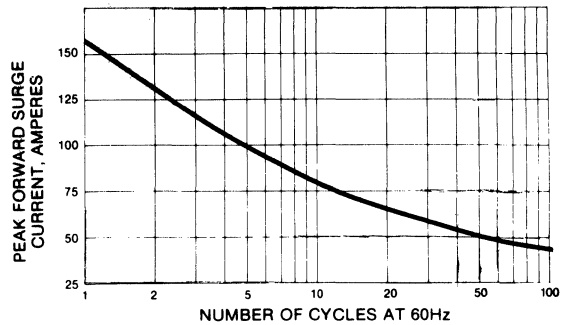


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

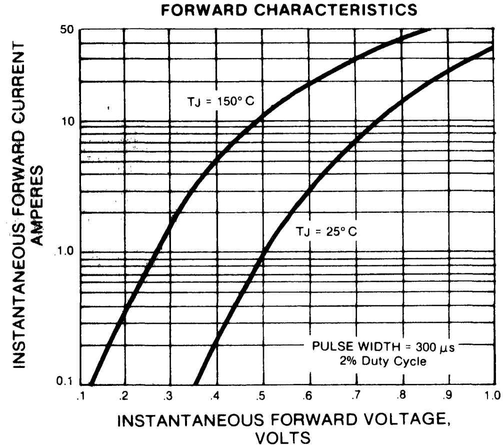
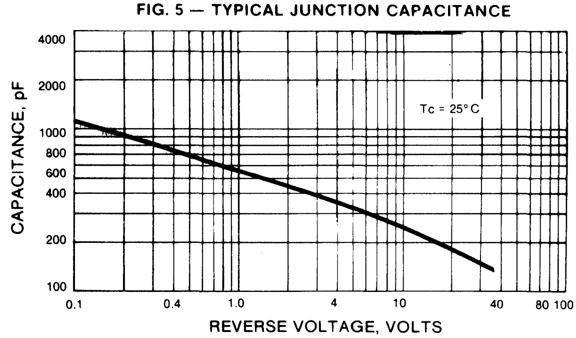


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



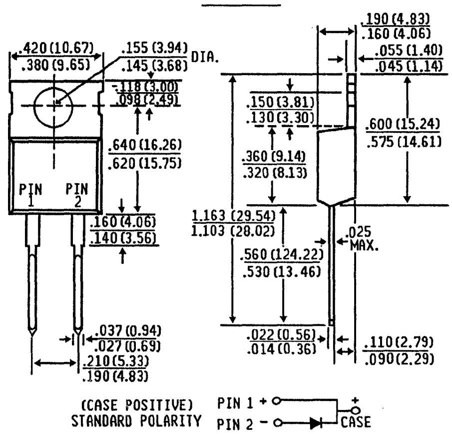
MBR1050 AND MBR1060

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** -50 and 60 Volts* ***CURRENT** -10.0 Amperes*

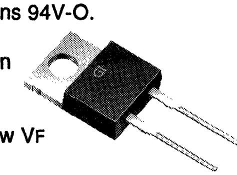
FEATURES

TO-220



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	CYMBOLS	MBR1050	MBR1060	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Working Peak Reverse Voltage	V_{RWM}	50	60	Volts
DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	10		Amps
Peak Repetitive Forward Current , (Square Wave 20 KHz) at T_C = 135°C	I_{FSM}	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.70 0.85 0.95		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1)	I_R	25		mA
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 25°C	I_R	0.1		mA
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1 — FORWARD CURRENT DERATING CURVE

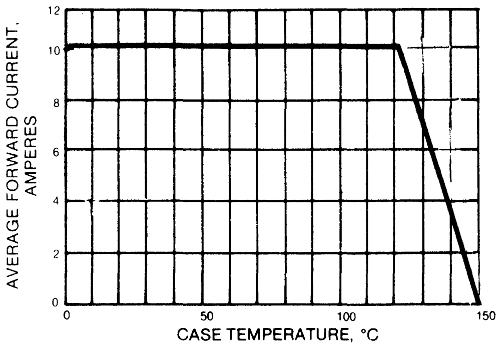


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

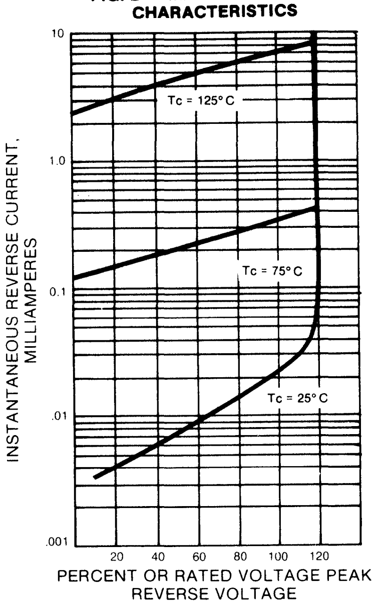


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

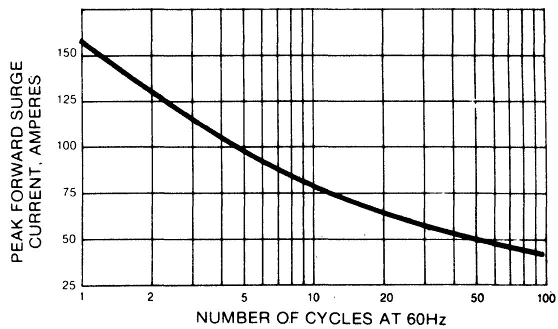


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

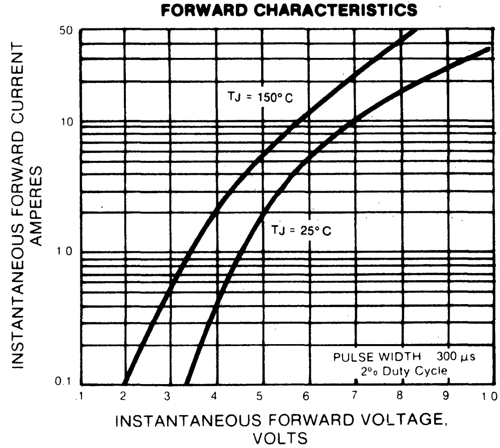
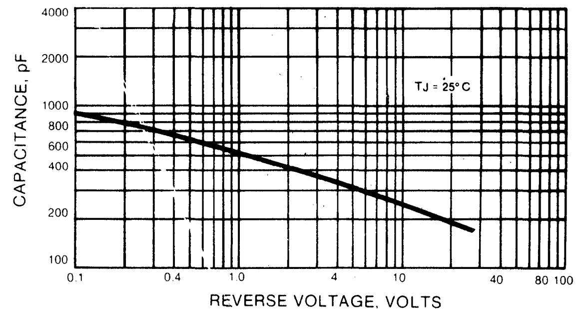


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

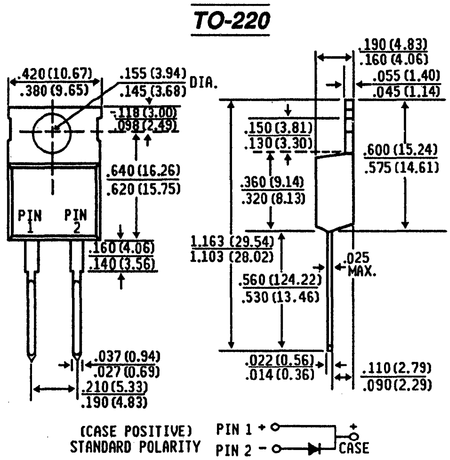


GENERAL INSTRUMENT

MBR1090 AND MBR10100

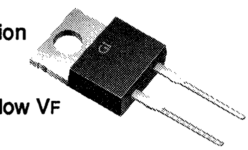
SCHOTTKY RECTIFIER

VOLTAGE RANGE - 90 and 100 Volts CURRENT - 10.0 Amperes



Dimensions in inches and (millimeters)

FEATURES



- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Axial leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR1090*	*MBR10100*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	90	100	Volts
Working Peak Reverse Voltage	V_{RWM}	90	100	Volts
DC Blocking Voltage	V_{DC}	90	100	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	10		Amps
Peak Repetitive Forward Current, (Square Wave 20 KHz) at T_C = 125°C	I_{FSM}	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 25°C	V_F	0.80		Volts
I_F = 10A, T_C = 125°C	V_F	0.70		Volts
I_F = 20A, T_C = 125°C	V_F	0.85		Volts
I_F = 20A, T_C = 25°C	V_F	0.95		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1)	I_R	25		mA
Peak Reverse Voltage T_C = 25°C	I_R	0.1		mA
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1—FORWARD CURRENT DERATING CURVE

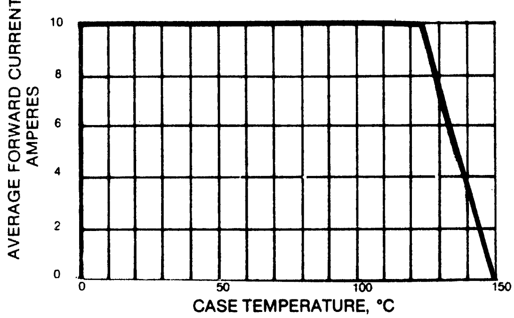


FIG. 2—TYPICAL REVERSE CHARACTERISTICS

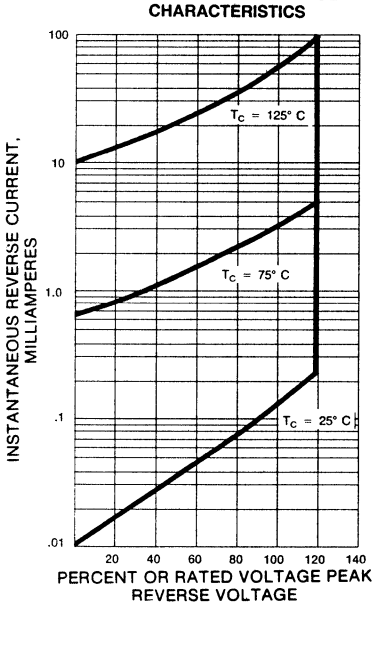


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

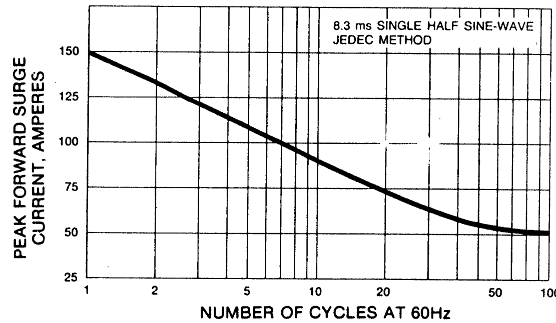


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

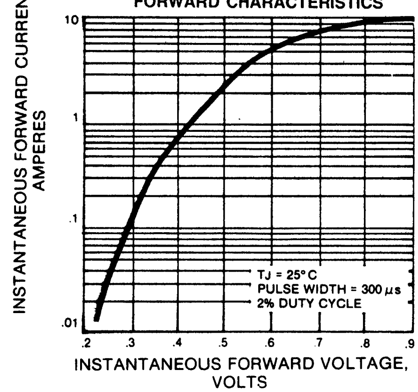
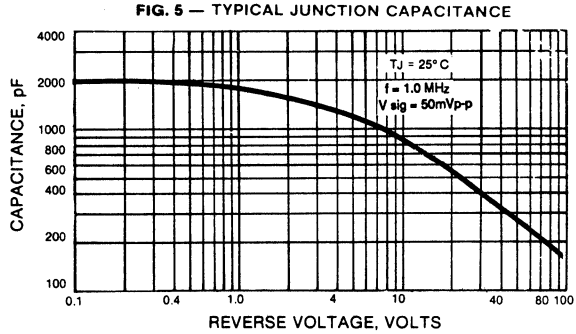


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

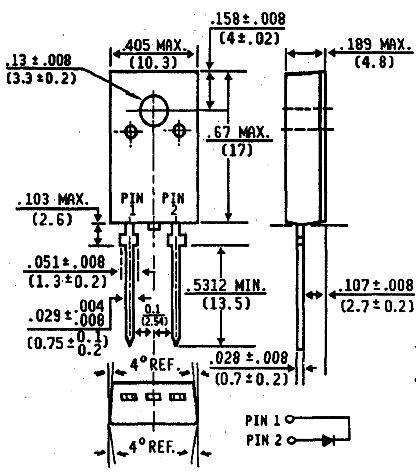
SBLF1030 AND SBLF1040

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 10 Amperes*

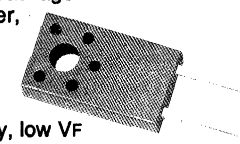
FEATURES

ITO-220



Dimensions in inches and (millimeters)

- Isolated overmolded package
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 fully overmolded Plastic
Terminals: leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at °C ambient temperature unless otherwise specified.
Resistive or inductive load.For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBLF1030*	*SBLF1040*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	10		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	250		Amps
Maximum Instantaneous Forward Voltage I_F = 10A, T_C = 25°C (Note 2)	V_F	.60		Volts
Maximum Average Reverse Current at T_C = 25°C / Rated DC Blocking Voltage per element T_C = 100°C	I_R	1.0 / 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.5		°C/W
Operating and Storage Temperature Range	T_C,T_{STG}	-40 to +125		°C

NOTES:

1. Thermal Resistance from Junction to Case.
2. 300 μs Pulse Width, 2% Duty Factor.

FIG. 1 - FORWARD CURRENT DERATING CURVE

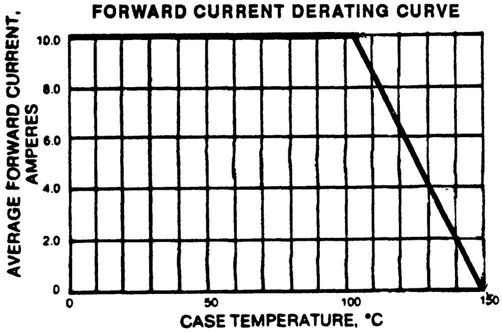


FIG. 2 - TYPICAL REVERSE CHARACTERISTICS

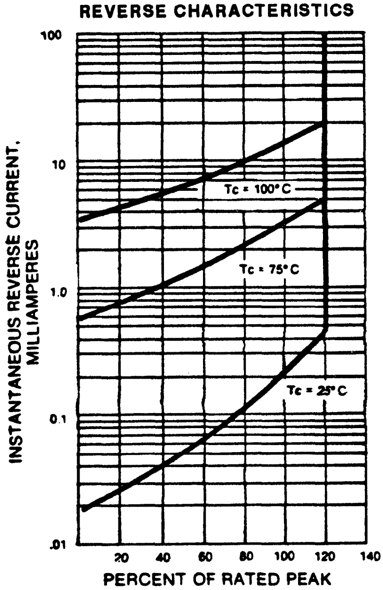


FIG. 3 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

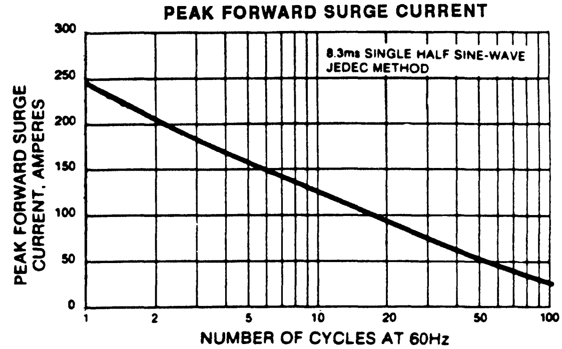


FIG. 4 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

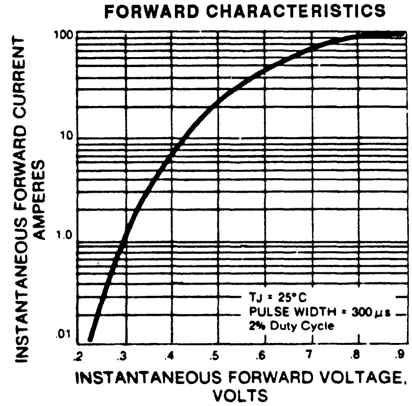
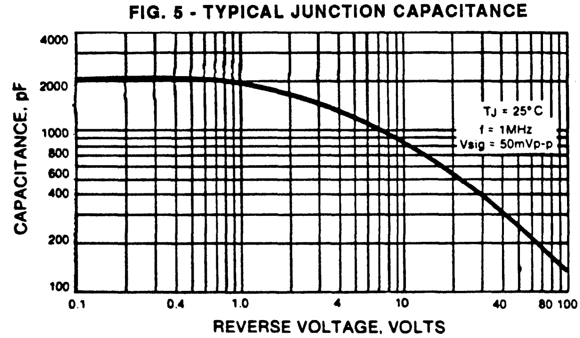


FIG. 5 - TYPICAL JUNCTION CAPACITANCE

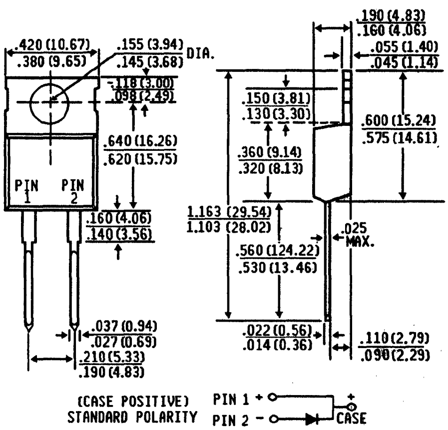


SBL1030 AND SBL1040

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 30 and 40 Volts   CURRENT - 10 Amperes

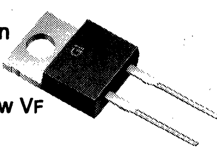
TO-220



Dimensions in inches and (millimeters)

FEATURES

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

CROSS REFERENCE GUIDE

GI	FUJI	SHINDENEN
SBL1040	ERC62-004	---

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified. Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBL1030*	*SBL1040*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	10		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	250		Amps
Maximum Instantaneous Forward Voltage I_F = 10A, Tc = 25°C (Note 2)	V_F	.60		Volts
Maximum Average Reverse Current at Tc = 25°C Rated DC Blocking Voltage per element Tc = 100°C	I_R	1.0 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.0		°C/W
Operating and Storage Temperature Range	T_C, T_{STG}	-40 to +125		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 µs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

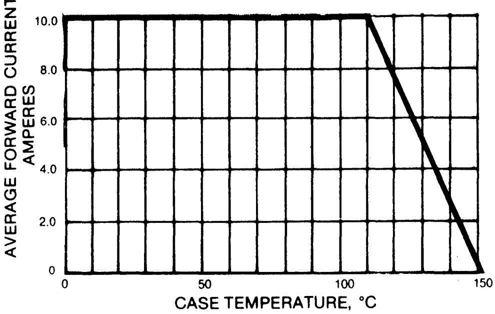


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

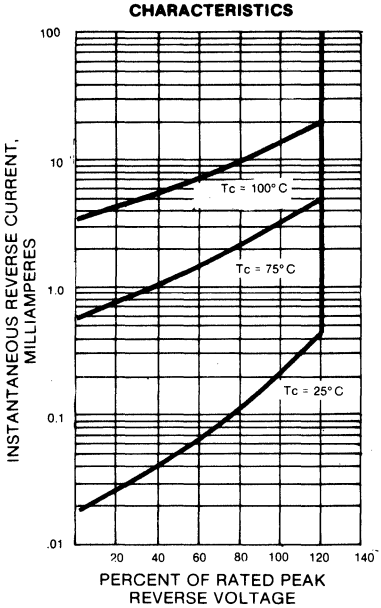


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

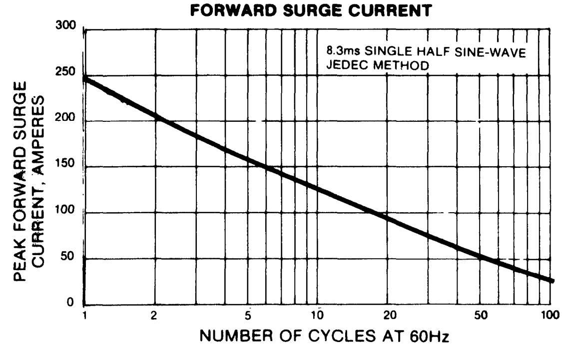


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

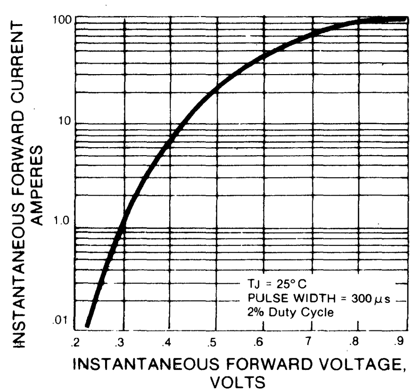
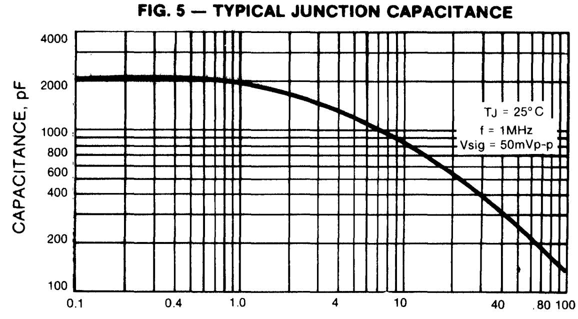


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



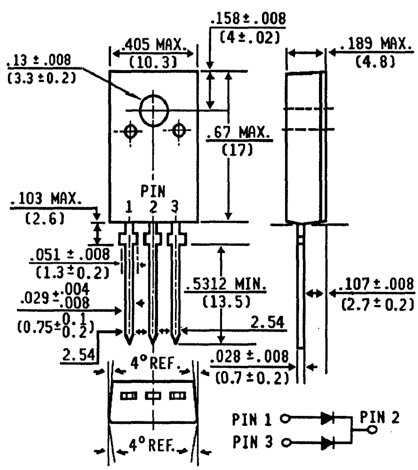
SBLF1030CT AND SBLF1040CT

SCHOTTKY RECTIFIER

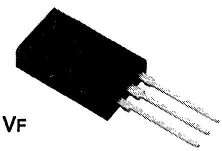
***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 10 Amperes*

FEATURES

ITO-220 CT



Dimensions in inches
and
(millimeters)



- Isolated Plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Dual rectifier construction, positive center-tap
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBLF1030CT*	*SBLF1040CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	10.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	175		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 5.0A,Tc = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at Tc = 25°C Rated DC Blocking Voltage per element Tc= 100°C	I_R	0.5 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.5		°C/W
Operating Temperature Range	T_C	-40 to +125		°C
Storage Temperature Range	T_{STG}	-40 to+150		°C

NOTES:
1. Thermal Resistance from Junction to Case per element.
2. 300µs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

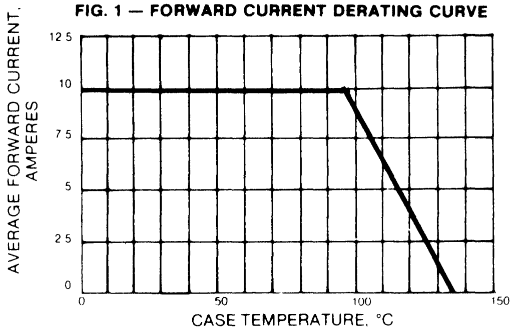


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

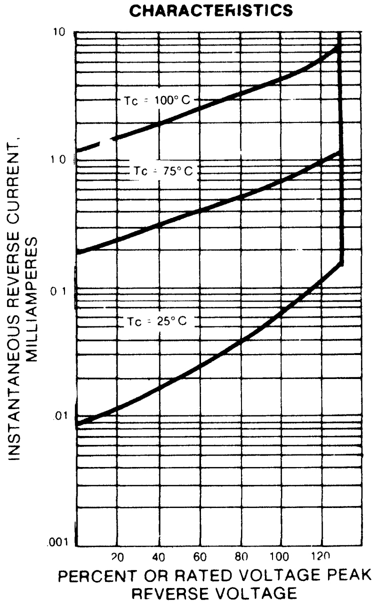


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

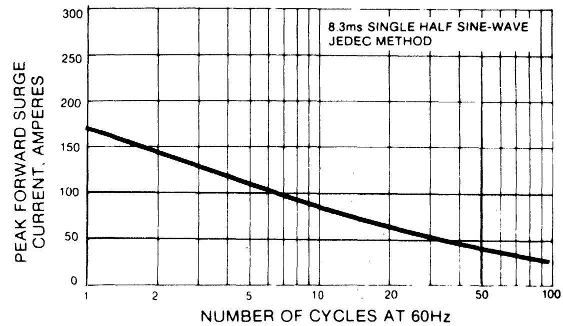


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

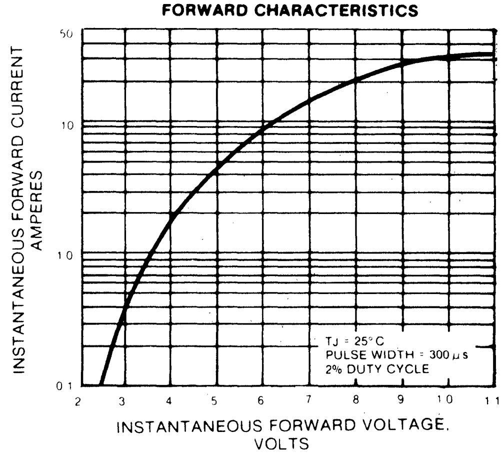
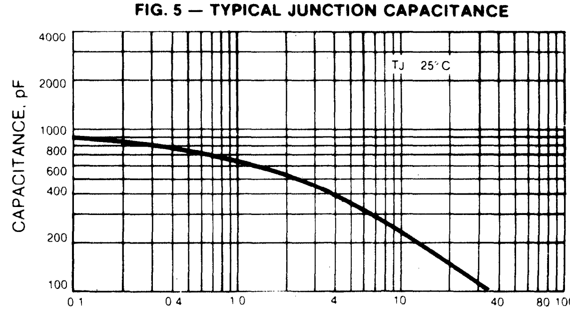


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

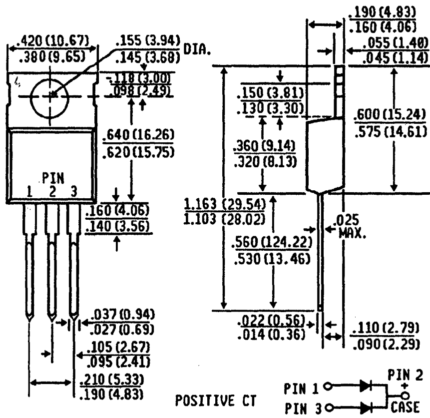
SBL1030CT AND SBL1040CT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 30 and 40 Volts CURRENT - 10 Amperes

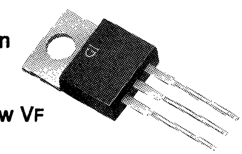
FEATURES

TO-220 CT



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Dual rectifier construction, positive center-tap
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

CROSS-REFERENCE GUIDE

GI	FUJI	SHINDENGEN
SBL1040CT	ESAC82-004	- - -

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBL1030CT*	*SBL1040CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	10.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	175		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 5.0A,Tc = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at Tc = 25°C Rated DC Blocking Voltage per element Tc= 100°C	IR	0.5 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.0		°C/W
Operating Temperature Range	T_C	-40 to +125		°C
Storage Temperature Range	T_{STG}	-40 to+150		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300µs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

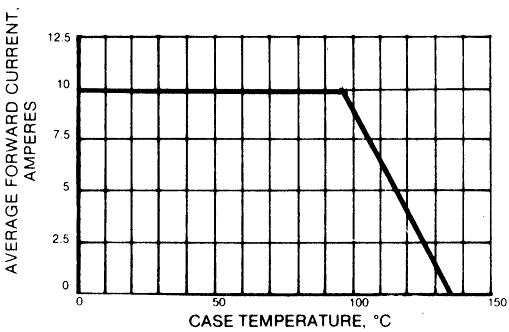


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

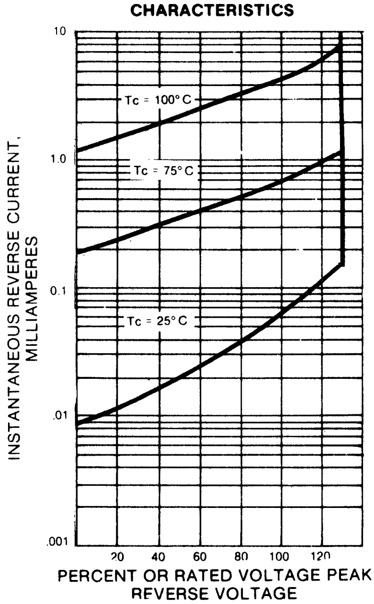


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

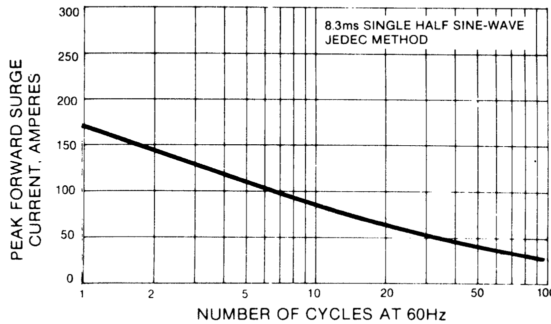


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

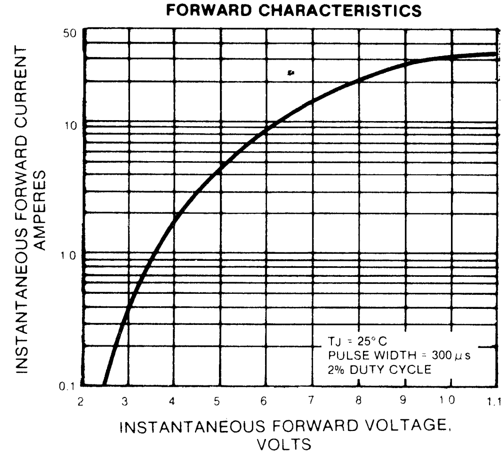
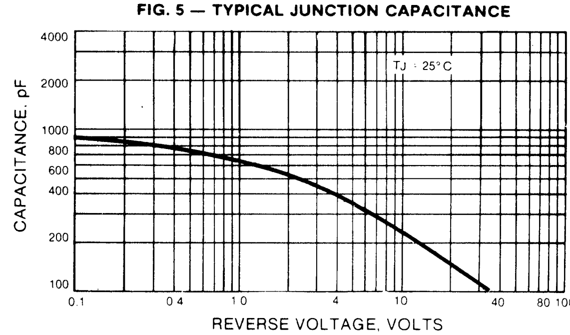


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

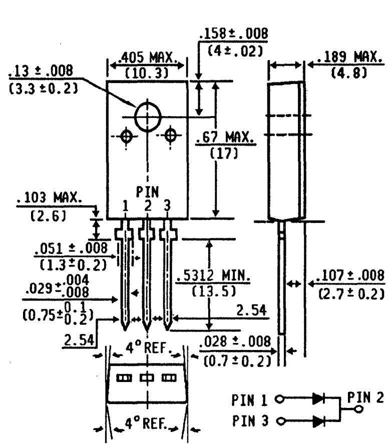
MBRF1535CT AND MBRF1545CT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 35 and 45 Volts CURRENT - 15 Amperes

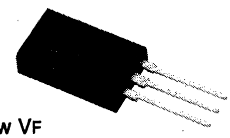
FEATURES

ITO-220 CT



Dimensions in inches
and
(millimeters)

- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction



- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF1535CT*	*MBRF1545CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RWS}	25	32	Volts
DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	15.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 7.5A,T_C = 125°C (Note 2) I_F = 15A, T_C=125°C I_F =15A, T_C = 25°C	V_F	.057 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 125 °C	I_R	15.0		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/µs
Typical Thermal Resistance (Note 1)	RθJC	3.5		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +150		°C

NOTES: 1. Thermal Resistance from Junction to Case per element. 2. 300 µs Pulse Width, 2% Duty Factor.

FIG. 1—FORWARD CURRENT DERATING CURVE

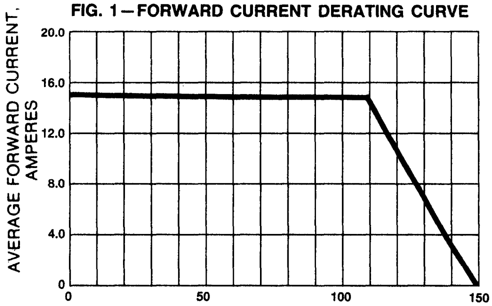


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

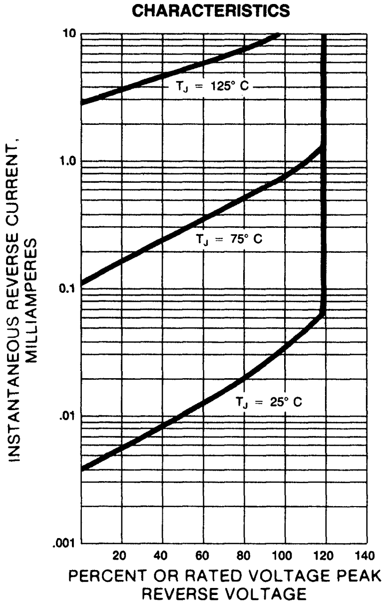


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

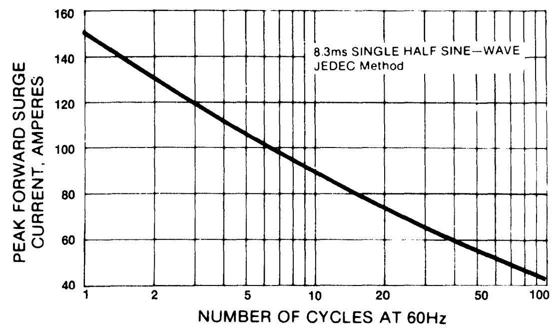


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

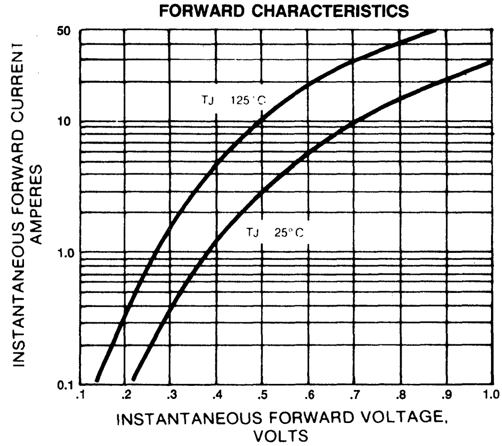
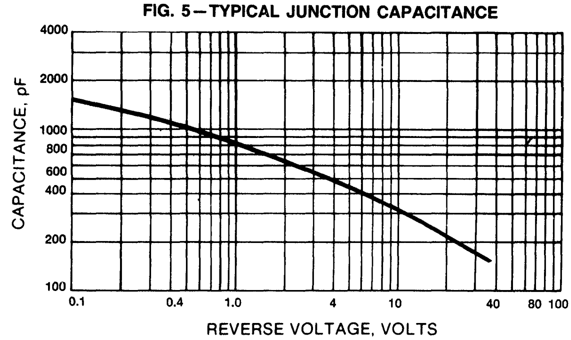


FIG. 5—TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

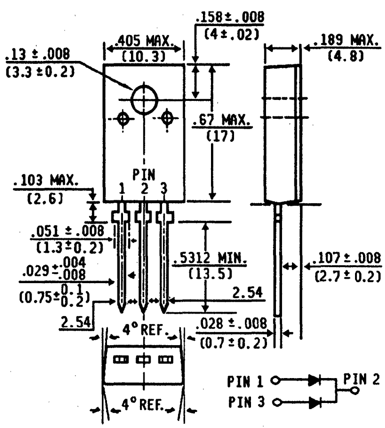
MBRF1550CT AND MBRF1560CT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 50 and 60 Volts* ***CURRENT** - 15 Amperes*

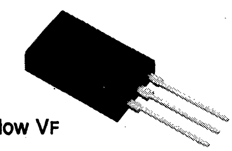
FEATURES

ITO-220 CT



Dimensions in inches
and
(millimeters)

- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction



- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF1550CT*	*MBRF1560CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Working Peak Reverse Voltage	V_{RWS}	35	42	Volts
DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	15.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 7.5A, T_C = 125°C (Note 2) I_F = 7.5A, T_C = 25°C	V_F	.65 .75		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 100 °C	I_R	50.0		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 25°C	I_R	1.0		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/µs
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.5		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +150		°C

NOTES: 1. Thermal Resistance from Junction to Case per element. 2. 300 µs Pulse Width, 2% Duty Factor.

FIG. 1—FORWARD CURRENT DERATING CURVE

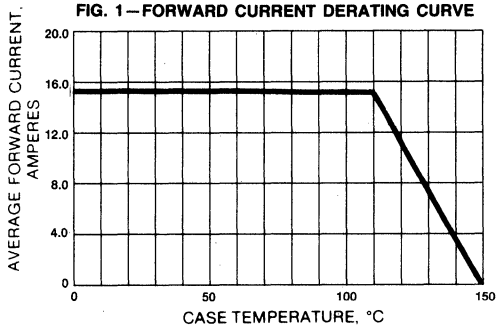


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

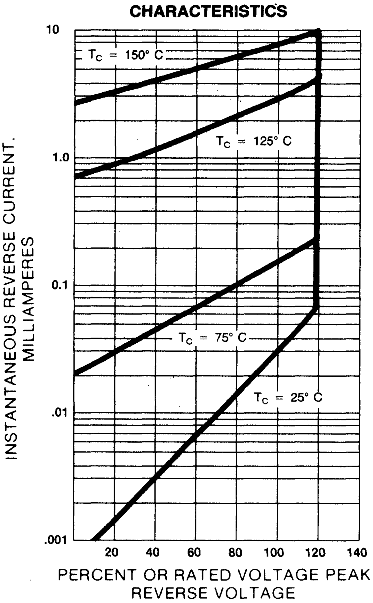


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

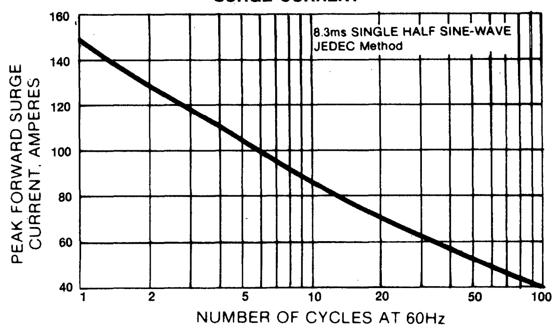


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

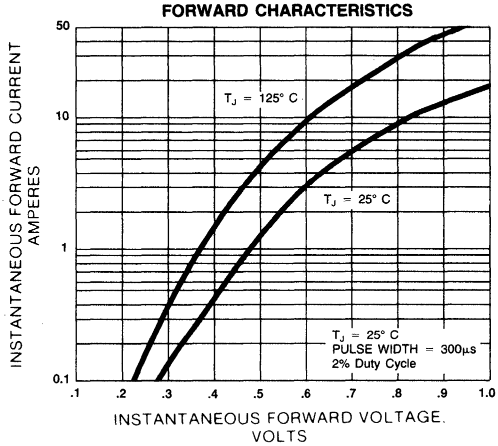
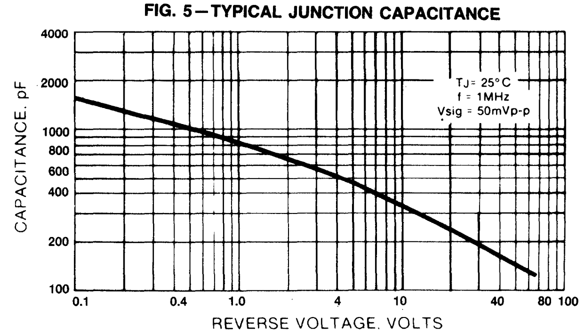


FIG. 5—TYPICAL JUNCTION CAPACITANCE



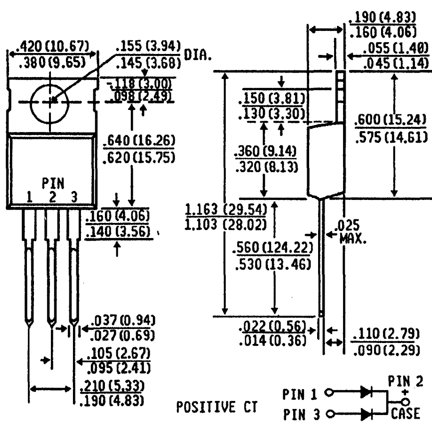
GENERAL INSTRUMENT

MBR1535CT AND MBR1545CT

SCHOTTKY RECTIFIER

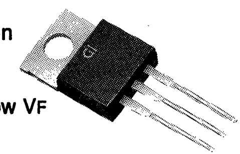
VOLTAGE RANGE - 35 and 45 Volts CURRENT - 15 Amperes

TO-220 CT



Dimensions in inches and (millimeters)

FEATURES



- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR1535CT*	*MBR1545CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RWM}	24.5	31.5	Volts
DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current at T_C= 105°C	$I_{(AV)}$	15.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	IRSM	1.0		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 7.5A, T_C = 125°C (Note 2) I_F = 15A, T_C = 125°C I_F = 15A, T_C = 25°C	V_F	0.57 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 125°C	I_R	15		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/µs
Typical Thermal Resistance (Note 1)	$R_{\Theta JC}$	3.0		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance Junction to CASE.
2. 300 µs Pulse Width, 2% Duty Factor.
3. 2.0 µs, 1.0 KHz

FIG. 1 — FORWARD CURRENT DERATING CURVE

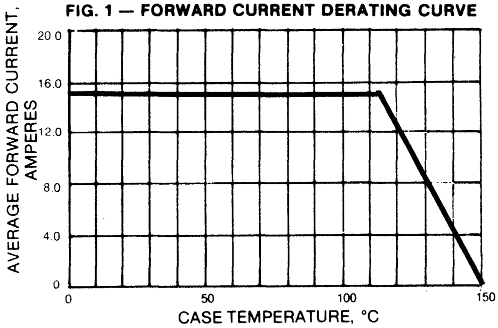


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

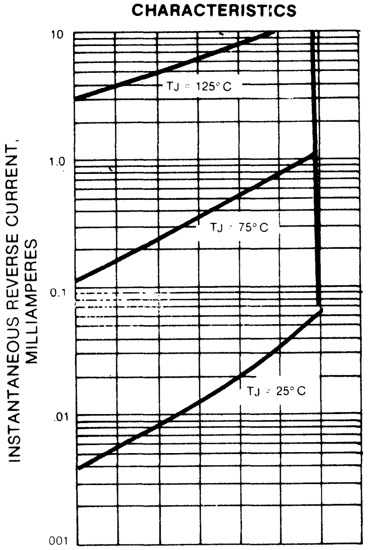


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

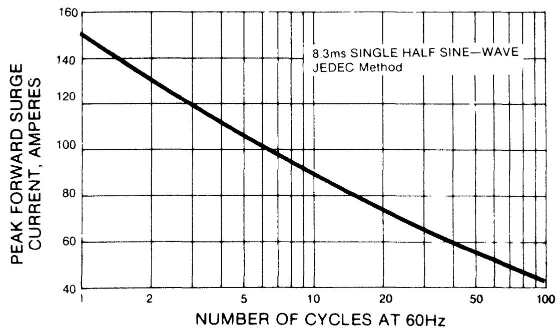


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

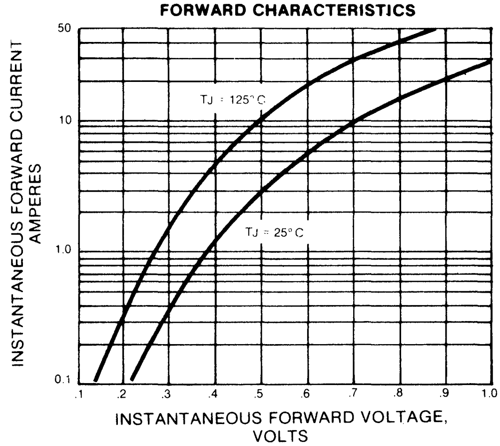
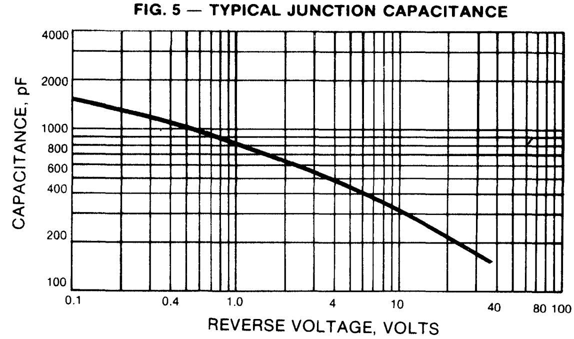


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

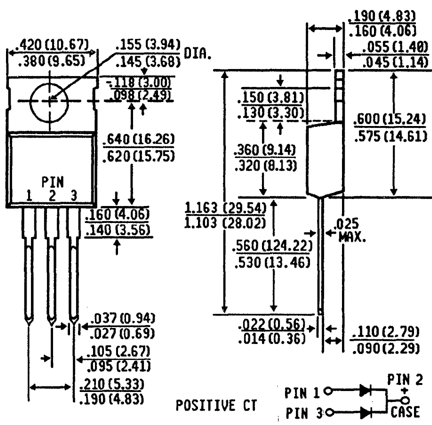
MBR1550CT AND MBR1560CT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 50 and 60 Volts* ***CURRENT** - 15 Amperes*

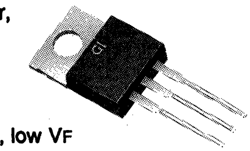
FEATURES

TO-220 CT



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBR1550CT*	*MBR1560CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current at T_C = 105°C	$I_{(AV)}$	15.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 7.5A, T_C = 125°C (Note 2) I_F = 7.5A, T_C = 25°C	V_F	.65 .75		Volts
Maximum Average Reverse Current at T_C = 25°C Rated DC Blocking Voltage per element T_C = 100°C	I_R	1.0 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.0		°C/W
Operating Temperature Range	T_C	-65 to +150		°C
Storage Temperature Range	T_{STG}	-65 to +150		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 μs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

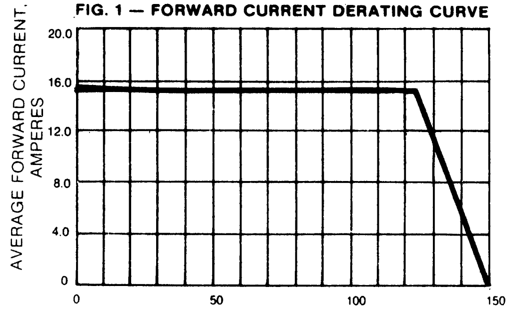


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

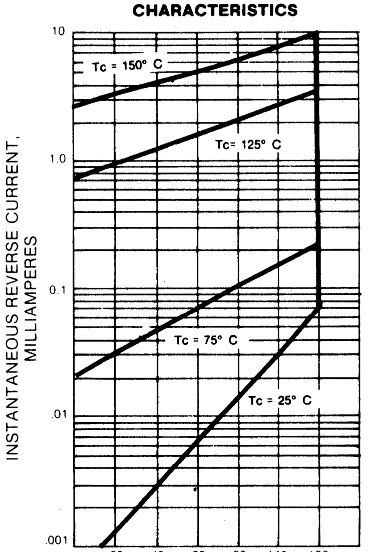


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

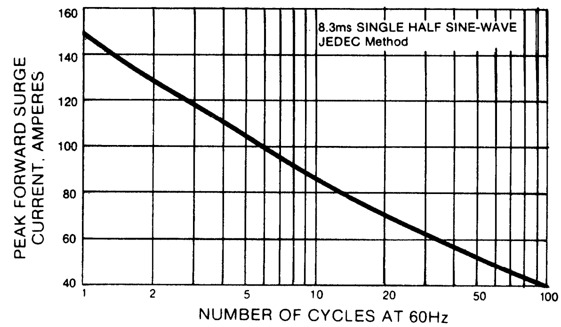


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

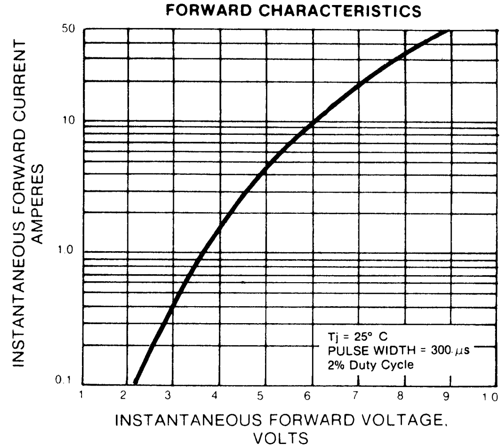
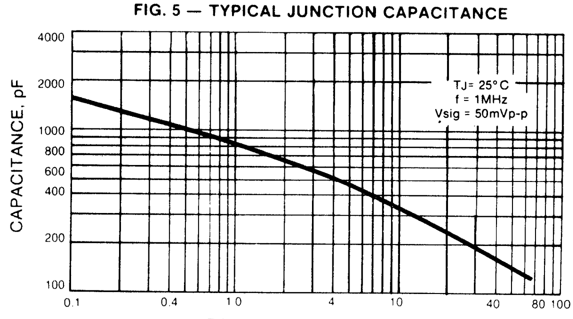


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

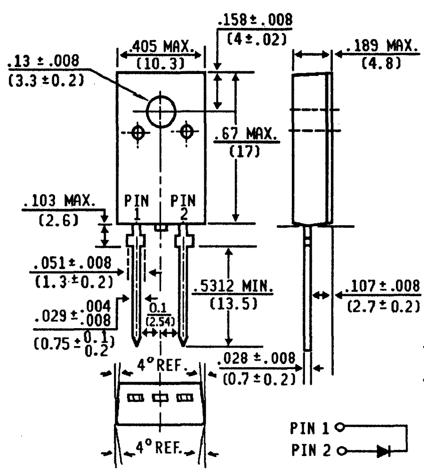
MBRF1635 AND MBRF1645

SCHOTTKY RECTIFIER

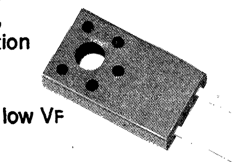
***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 16 Amperes*

FEATURES

ITO-220



Dimensions in inches and (millimeters)



- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any ***Mounting Torque:*** 5 in. -lbs. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF1635*	*MBRF1645*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RMS}	25	32	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	16.0		Amps
Peak Repetitive Forward Current, Square Wave 20 KHz, 50% Duty Cylce at T_C = 125°C	I_{FSM}	32.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0µs, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, (rated V_R)	dv/dt	1000		V/µs
Maximum Forward Voltage(Note 1) I_F=16A, T_C=125°C	V_F	0.57		Volts
I_F = 16A, T_C = 25°C	V_F	0.63		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1)	I_R	40		mA
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 25°C	I_R	0.2		mA
Maximum Thermal Resistance,Junction to Case	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1.Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1—FORWARD CURRENT DERATING CURVE

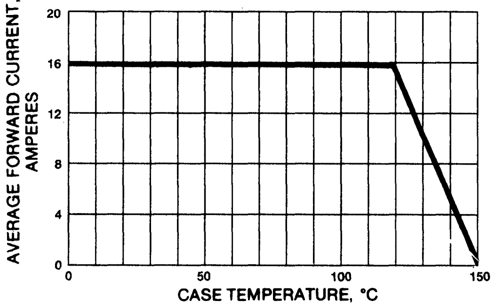


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

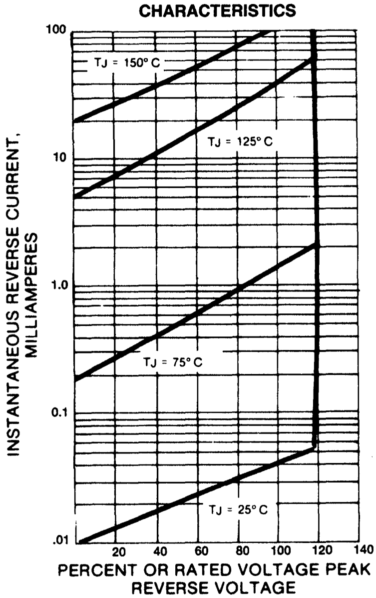


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

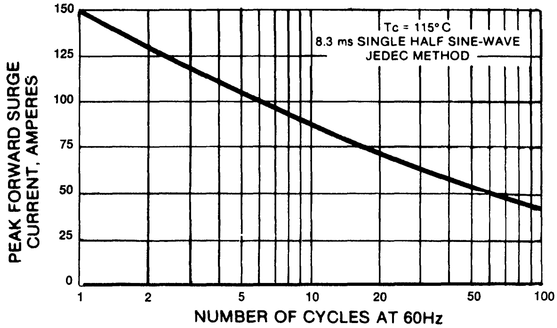


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

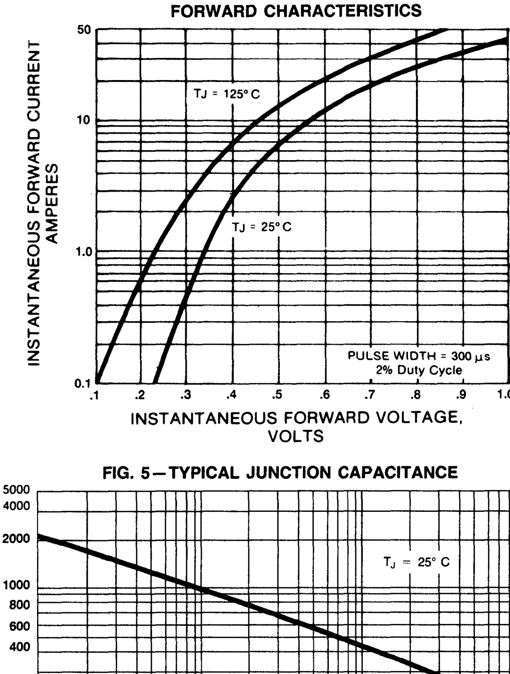
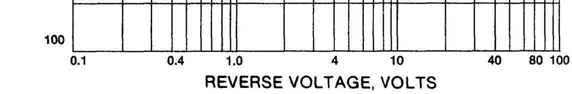


FIG. 5—TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

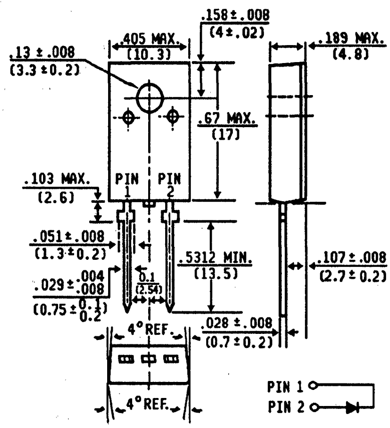
MBRF1650 AND MBRF1660

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 50 and 60 Volts* ***CURRENT** - 16 Amperes*

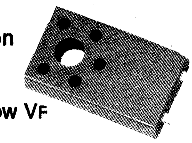
FEATURES

ITO-220



Dimensions in inches and (millimeters)

- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any ***Mounting Torque:*** 5 in. - lbs. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF1650*	*MBRF1660*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Working Peak Reverse Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	16.0		Amps
Peak Repetitive Forward Current, Square Wave 20 KHz, 50% Duty Cylce at T_C = 125°C	I_{FSM}	32.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0μs, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, (rated V_R)	dv/dt	1000		V/μs
Maximum Forward Voltage(Note 1) I_F=16A, T_C=125°C	V_F	0.65		Volts
I_F = 16A, T_C = 25°C	V_F	0.75		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 100°C (Note 1)	I_R	50		mA
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 25°C	I_R	1.0		mA
Maximum Thermal Resistance,Junction to Case	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES:
1. Pulse Test Pulse Width 300 μs, Duty Cycle 2%.

FIG. 1—FORWARD CURRENT DERATING CURVE

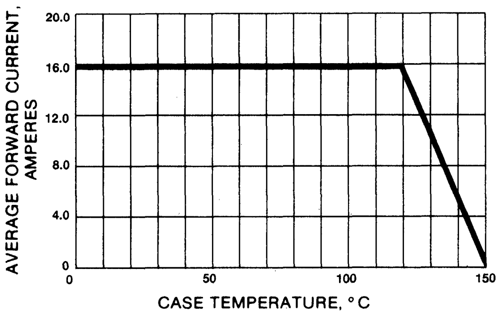


FIG. 2—TYPICAL REVERSE CHARACTERISTICS

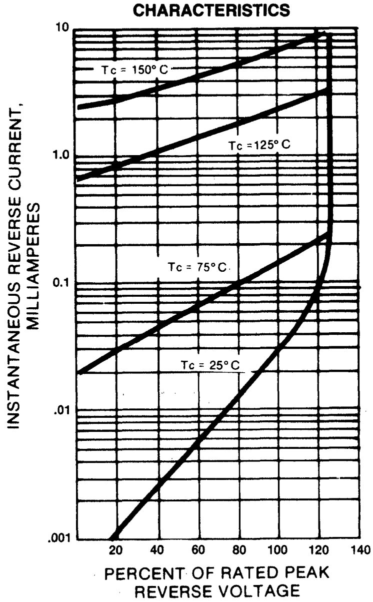


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

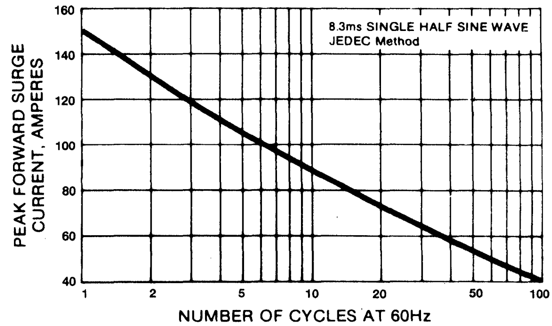


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

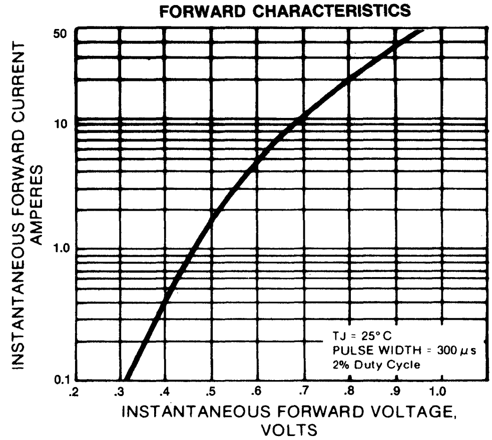
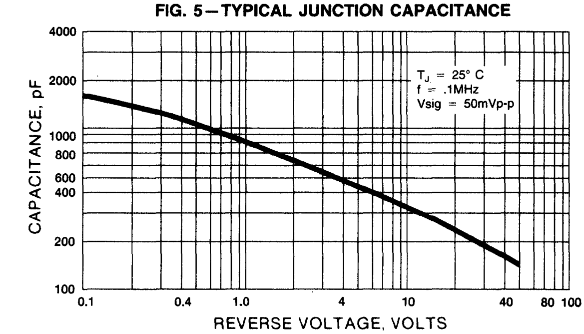


FIG. 5—TYPICAL JUNCTION CAPACITANCE



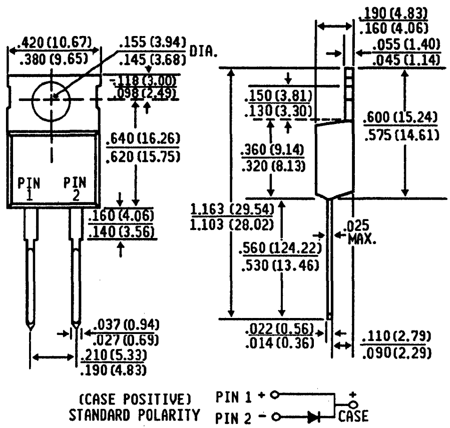
GENERAL INSTRUMENT

MBR1635 AND MBR1645

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 16 Amperes*

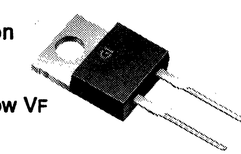
TO-220



Dimensions in inches and (millimeters)

FEATURES

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR1635*	*MBR1645*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RWM}	35	45	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current at T_C= 125°C	$I_{(AV)}$	16.0		Amps
Peak Repetitive Forward Current, Square Wave 20 KHz, 50% Duty Cylce at T_C = 125°C	I_{FSM}	32.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0µs, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, (rated V_R)	dv/dt	1000		V/µs
Maximum Forward Voltage(Note 1) I_F=16A, T_C=125°C	V_F	0.57		Volts
I_F = 16A, T_C = 25°C	V_F	0.63		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1)	I_R	40		mA
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 25°C	I_R	0.2		mA
Maximum Thermal Resistance,Junction to Case	$R_{\theta JC}$	1.5		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +175		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES:

1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1 — FORWARD CURRENT DERATING CURVE

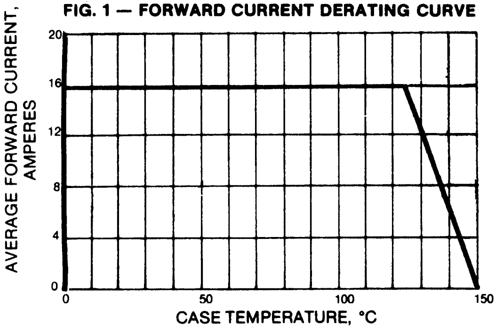


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

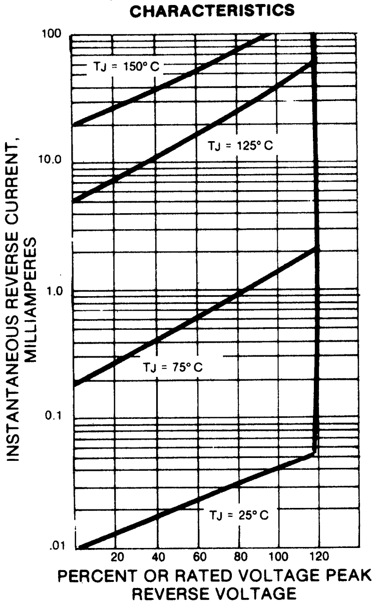


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

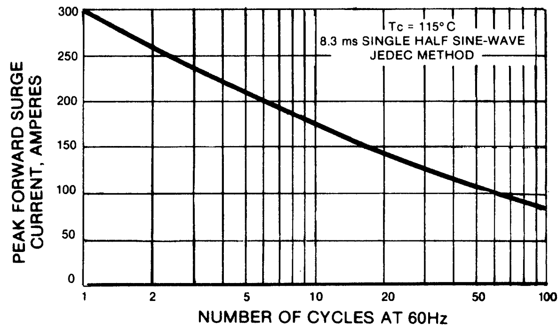


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

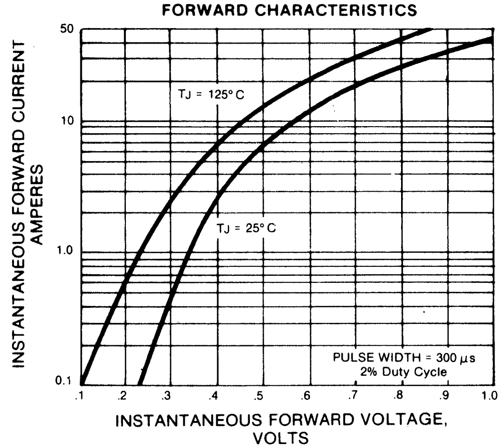
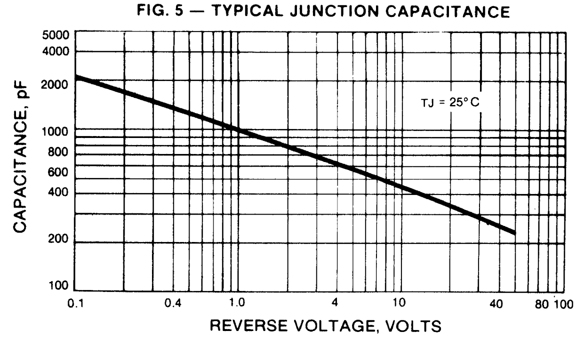


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



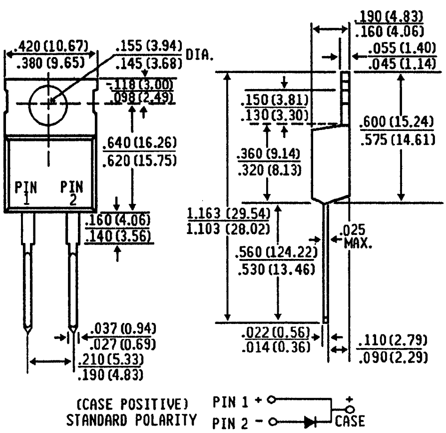
MBR1650 AND MBR1660

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 50 and 60 Volts* ***CURRENT** - 16 Amperes*

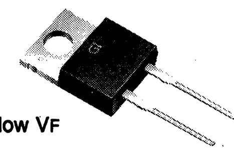
FEATURES

TO-220



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBR1650*	*MBR1660*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	16.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 16A, T_C = 125°C (Note 2) I_F = 16A, T_C = 25°C	V_F	.65 .75		Volts
Maximum Average Reverse Current at T_C = 25°C Rated DC Blocking Voltage per element T_C= 100°C	I_R	1.0 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.0		°C/W
Operating Temperature Range	T_C	-65 to +150		°C
Storage Temperature Range	T_{STG}	-65 to +150		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 μs Pulse Width, 2% Duty Factor.

RATINGS AND CHARACTERISTIC CURVES MBR1650 AND MBR1660

FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

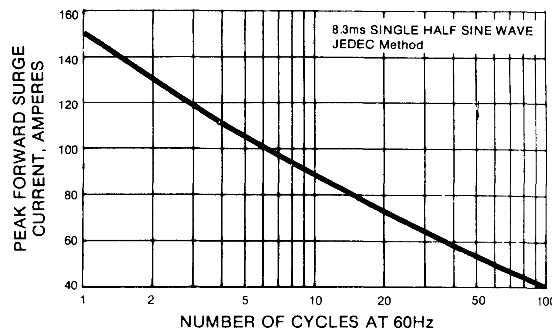


FIG. 1 — FORWARD CURRENT DERATING CURVE

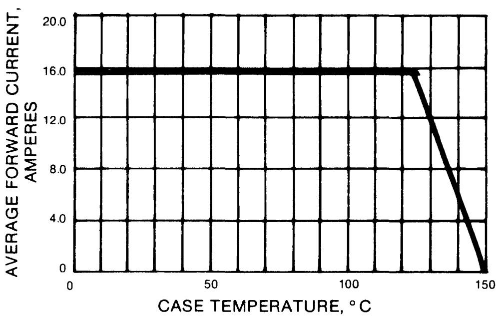


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

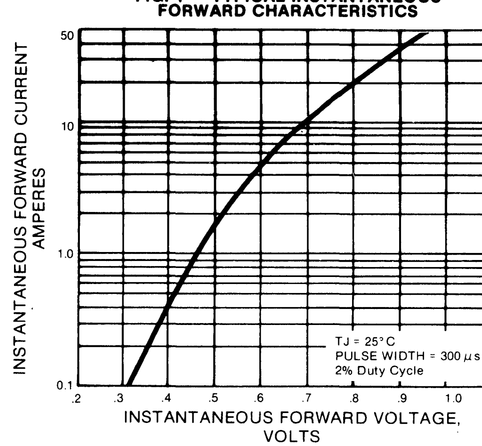


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

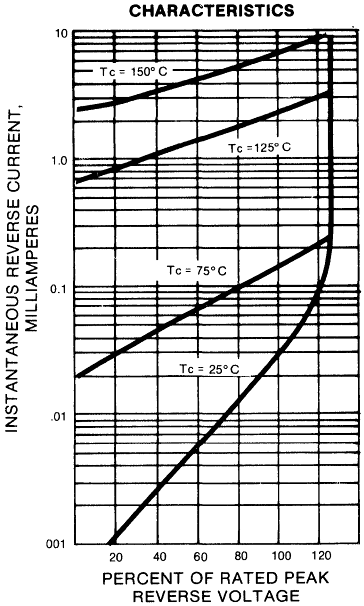
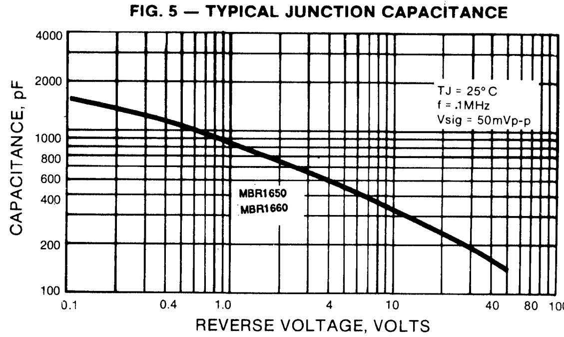


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

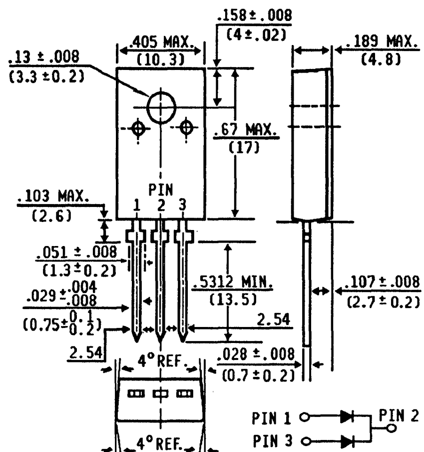
SBLF1630CT AND SBLF1640CT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - *30 and 40 Volts* ***CURRENT -*** *16 Amperes*

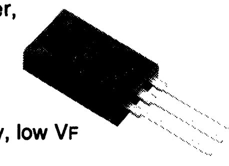
FEATURES

ITO-220 CT



Dimensions in inches
and
(millimeters)

- Isolated overmolded package
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5K V_{RMS}



MECHANICAL DATA

Case: ITO-220 Fully overmolded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in-lbs max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBLF1630CT*	*SBLF1640CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	16.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	250		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 8.0A,Tc = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at Tc = 25°C Rated DC Blocking Voltage per element Tc= 100°C	I_R	1.0 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	2.2		°C/W
Operating Temperature Range	T_C	-40 to +125		°C
Storage Temperature Range	T_{STG}	-40 to+150		°C

NOTES:
1. Thermal Resistance from Junction to Case per element.
2 300 μs Pulse Width, 2% Duty Factor.

FIG. 1—FORWARD CURRENT DERATING CURVE

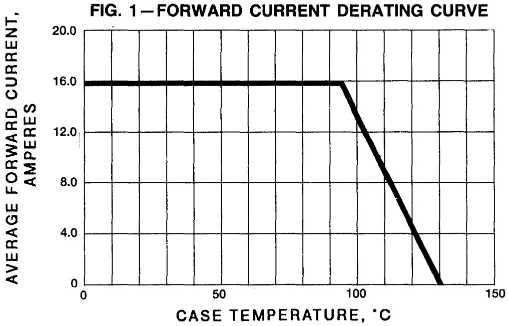


FIG. 2—TYPICAL REVERSE CHARACTERISTICS

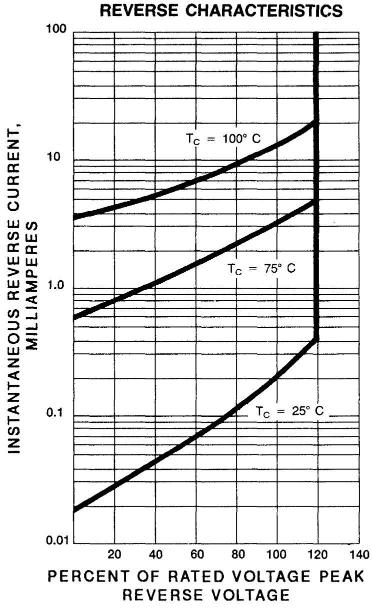


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

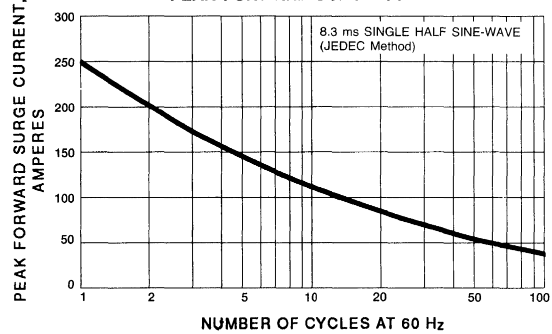


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

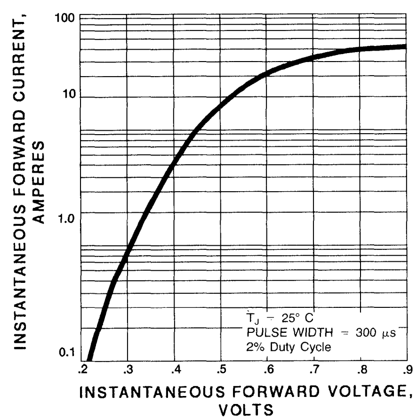
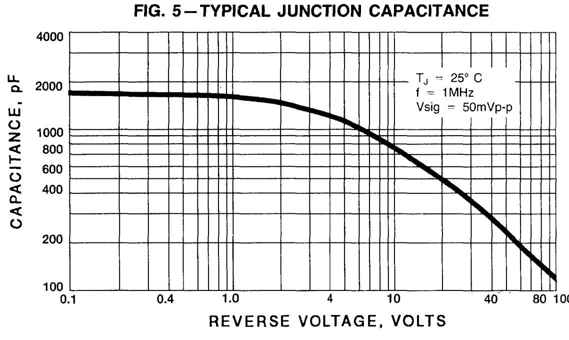


FIG. 5—TYPICAL JUNCTION CAPACITANCE



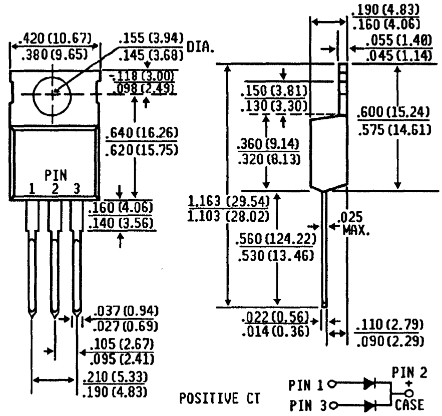
SBL1630CT AND SBL1640CT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** -16 Amperes*

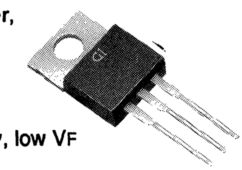
FEATURES

TO-220 CT



Dimensions in inches and (millimeters)

- Plastic package had Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction



- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

CROSS REFERENCE GUIDE

GI	FUJI	SHINDENGEN
SBL1640CT	ESAD82-004	---

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	SBL1630CT	SBL1640CT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current at TC = 95°C	$I_{(AV)}$	16.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	250		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 8.0A,Tc = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at Tc = 25°C Rated DC Blocking Voltage per element Tc= 100°C	I_R	0.5 50.0		mA
Typical Thermal Resistance (Note 1)	RθJC	3.0		°C/W
Operating Temperature Range	T_C	-40 to +125		°C
Storage Temperature Range	T_{STG}	-40 to+150		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2 300 µs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

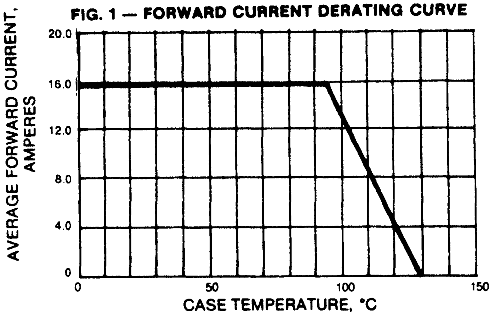


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

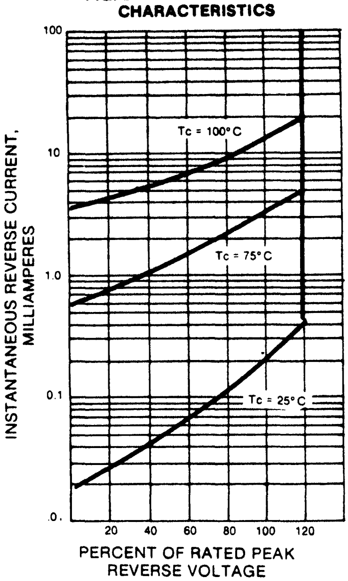


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

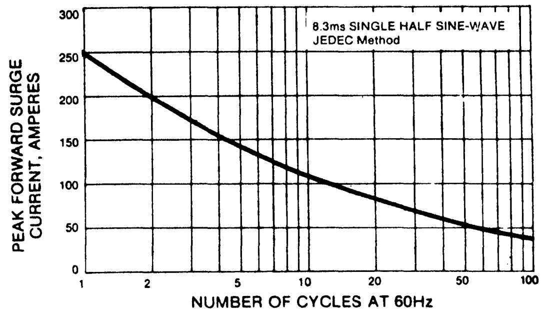


Fig. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

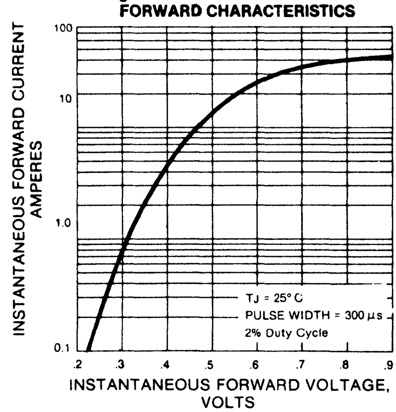
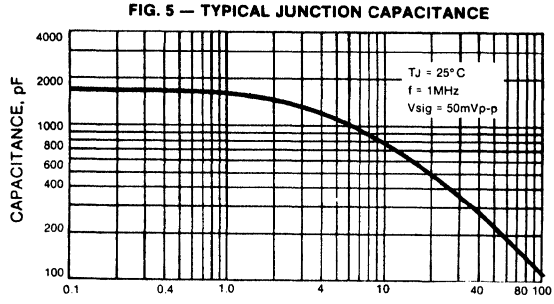


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

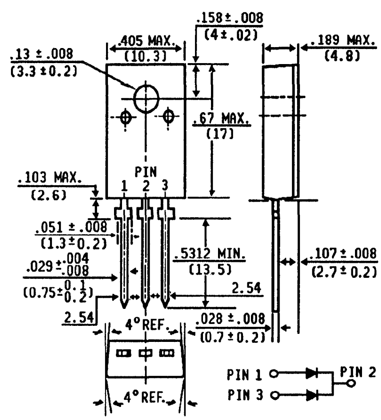


MBRF2035CT AND MBRF2045CT

SCHOTTKY RECTIFIER

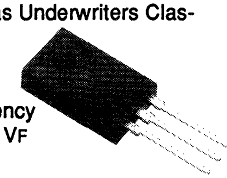
VOLTAGE RANGE - 35 and 45 Volts CURRENT - 20 Amperes

ITO-220 CT



Dimensions in inches and (millimeters)

FEATURES



- Isolated plastic package has Underwriters Classification 94-V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 molded Plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in.- lbs. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF2035CT*	*MBRF2045CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RM}	24.5	31.5	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.57 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 125°C	I_R	25		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		Vμs
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	2.2		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance to Case per element. 2. 300 μs Pulse Width 300 μs, 2% Duty Factor. 3. 2.0 μs, 1KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

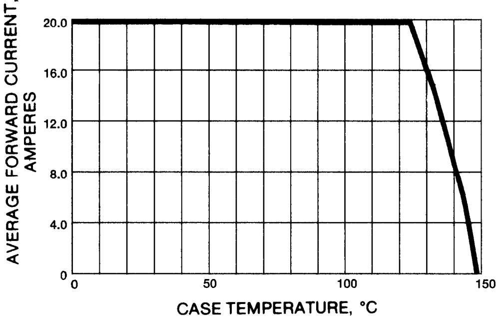


FIG. 2—TYPICAL REVERSE CHARACTERISTICS

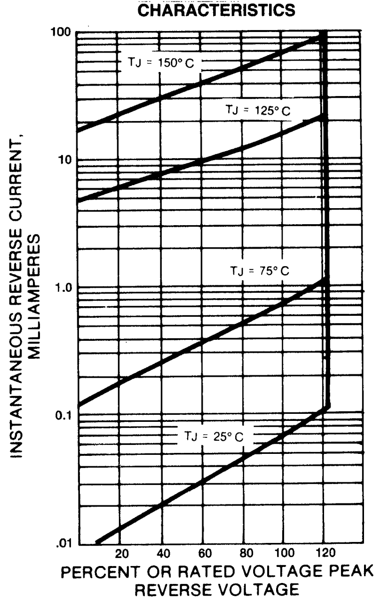


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

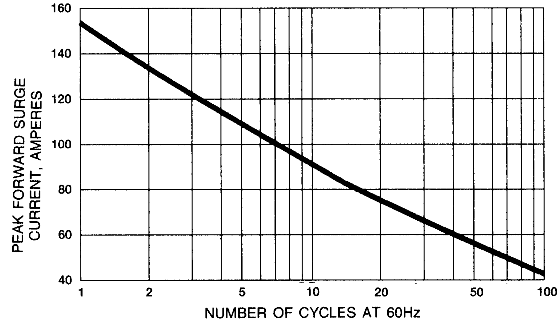


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

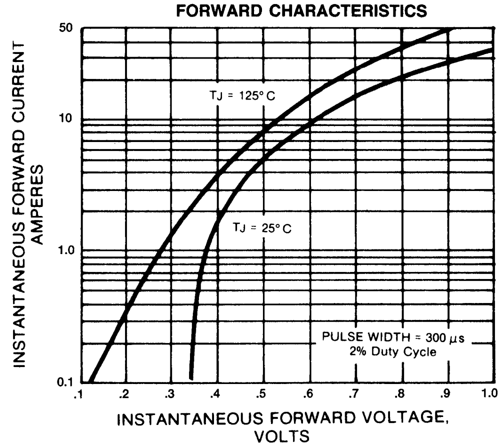
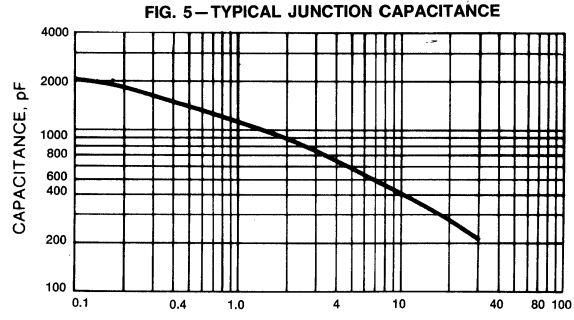


FIG. 5—TYPICAL JUNCTION CAPACITANCE



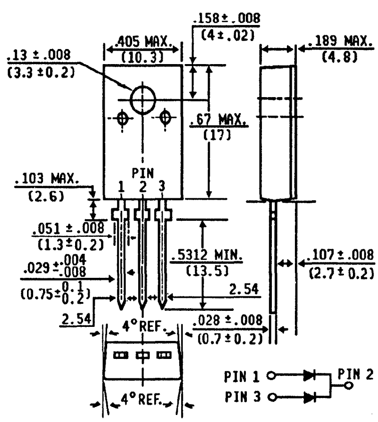
GENERAL INSTRUMENT

MBRF2050CT AND MBRF2060CT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 50 and 60 Volts CURRENT - 20 Amperes

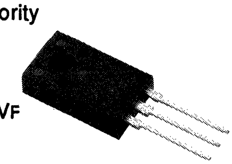
ITO-220 CT



Dimensions in inches and (millimeters)

FEATURES

- Isolated plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation:1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 fully over molded Plastic
Terminals: Lead solderable per MIL-STD-202 Method 208
Polarity: As marked
Mounting Position: Any ***Mounting Torque:*** 5 in-lbs max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTCS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF2050CT*	*MBRF2060CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Working Peak Reverse Voltage	V_{RM}	50	60	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg (Note 2) I_F = 10A, T_C = 125°C / I_F = 20A, T_C = 125°C / I_F = 20A, T_C = 25°C	V_F	0.70 / 0.85 / 0.95		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 125°C	I_R	25		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/µs
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	2.2		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance Junction to Case. 2. 300 µs Pulse Width 300 us, 2% Duty Factor. 3. 2.0 µs, 1KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

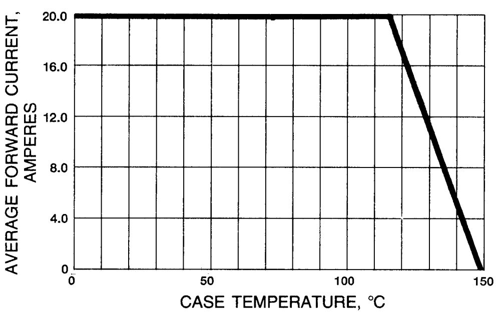


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

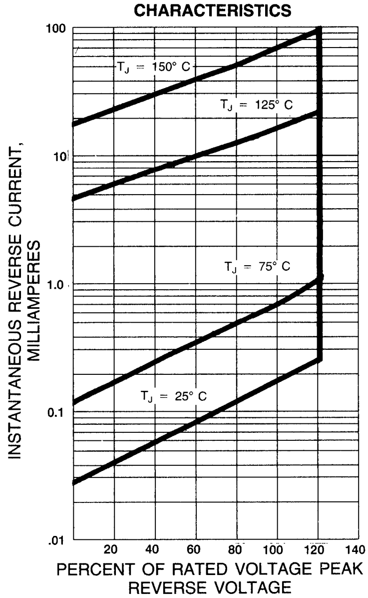


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

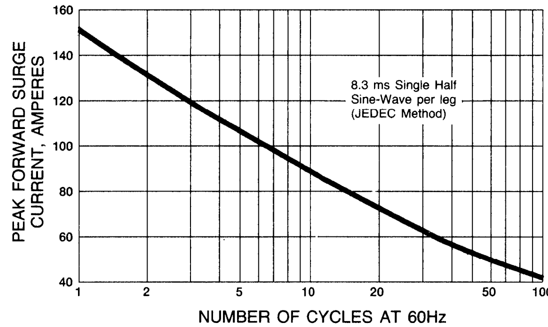


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

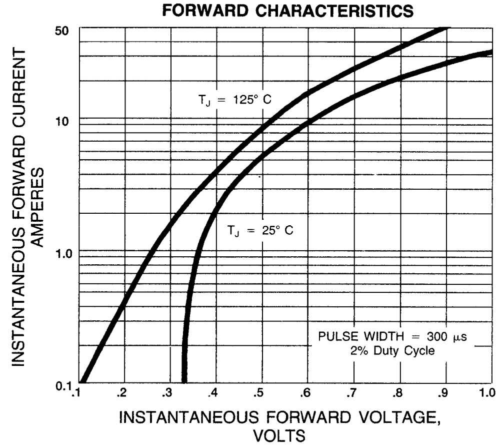
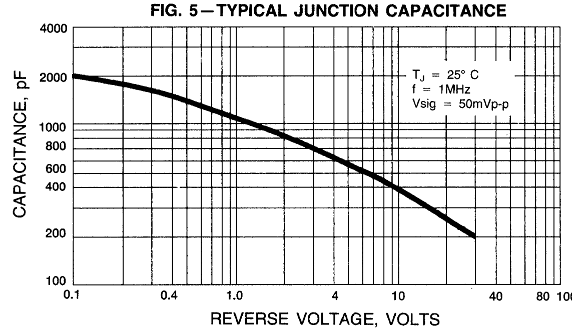


FIG. 5—TYPICAL JUNCTION CAPACITANCE



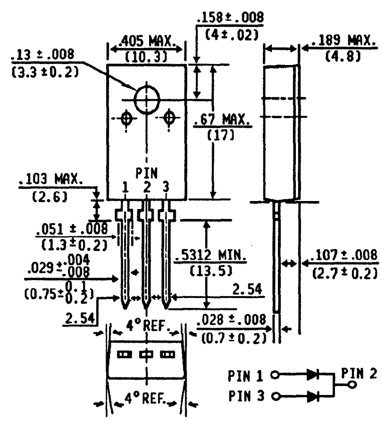
MBRF2090CT AND MBRF20100CT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** -90 and 100 Volts* ***CURRENT** - 20 Amperes*

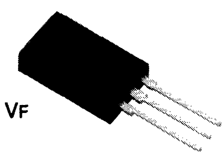
FEATURES

ITO-220CT



Dimensions in inches and (millimeters)

- Isolated plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lbs. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF2090CT*	*MBRF20100CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	90	100	Volts
Working Peak Reverse Voltage	V_{RMS}	64	71	Volts
DC Blocking Voltage	V_{DC}	90	100	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	20		Amps
Peak Repetitive Forward Current, (Square Wave 20 KHz) at T_C = 125°C	I_{FSM}	40		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 25°C I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	 0.80 0.70 0.85 0.95		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1) Peak Reverse Voltage T_C = 25°C	 I_R I_R	 25.0 0.1		 mA mA
Maximum Thermal Resistance, Junction to Case per element	$R_{\theta JC}$	2.2		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1—FORWARD CURRENT DERATING CURVE

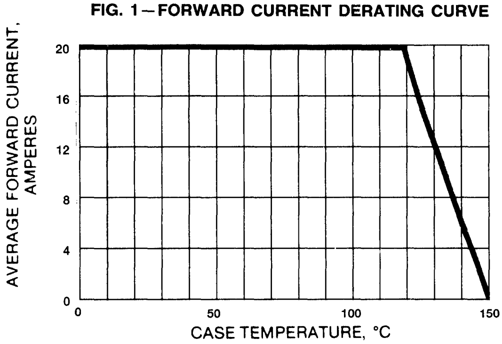


FIG. 2—TYPICAL REVERSE CHARACTERISTICS

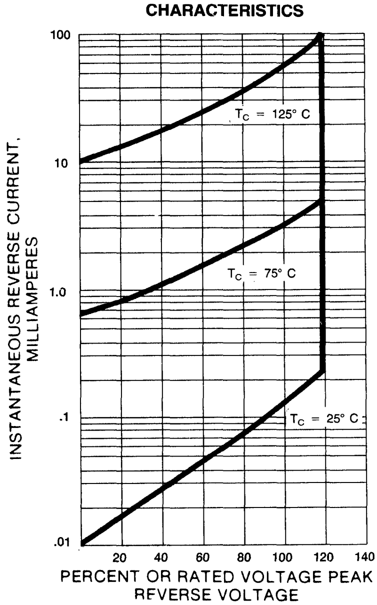


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

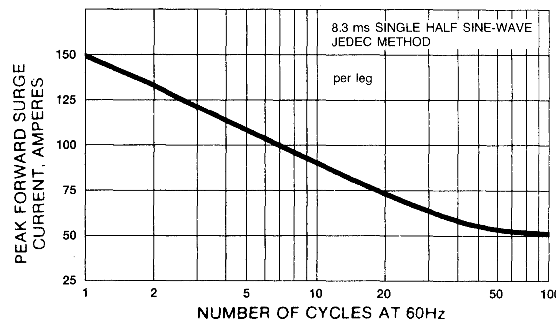


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

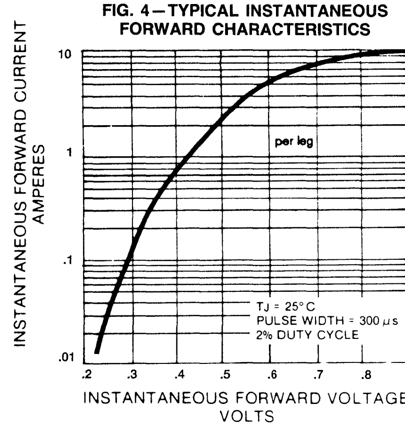
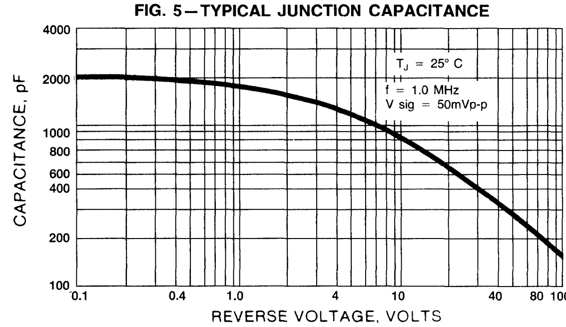


FIG. 5—TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

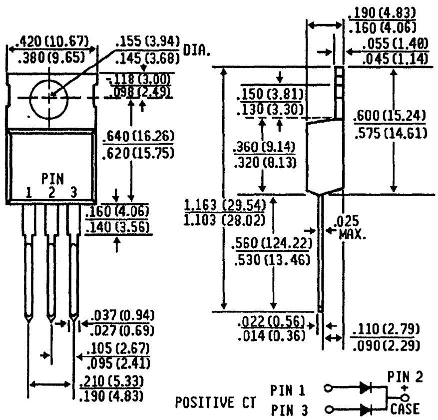
MBR2035CT AND MBR2045CT

SCHOTTKY RECTIFIER

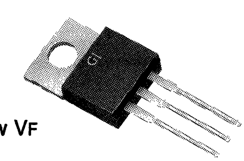
***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 20 Amperes*

FEATURES

TO-220 CT



Dimensions in inches and (millimeters)



- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- Guard Ring for transient protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case

MECHANICAL DATA

Case: TO-220 molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR2035CT*	*MBR2045CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RM}	24.5	31.5	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg (Note 2)_ I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.57 0.72 0.84		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 125°C	I_R	15		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		Vμs
Typical Thermal Resistancec (Note 1)	$R\Theta JC$	2.0		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance Junction to CASE.
2. 300 μs Pulse Width 300 us, 2% Duty Factor.
3. 2.0 μs, 1KHz.

FIG. 1 — FORWARD CURRENT DERATING CURVE

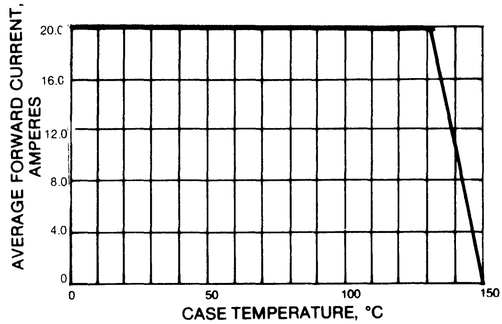


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

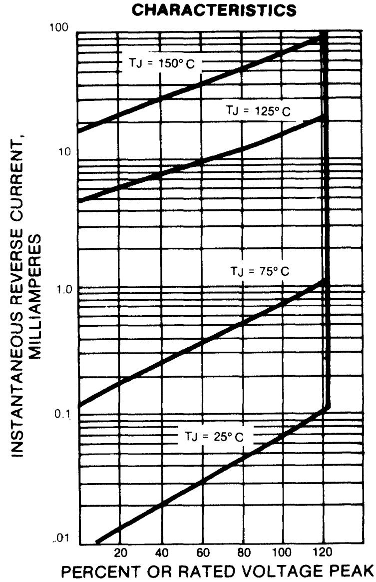


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

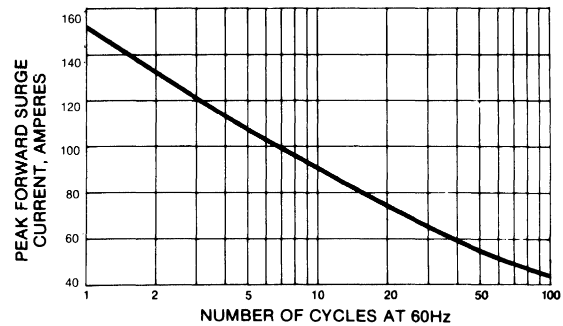


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

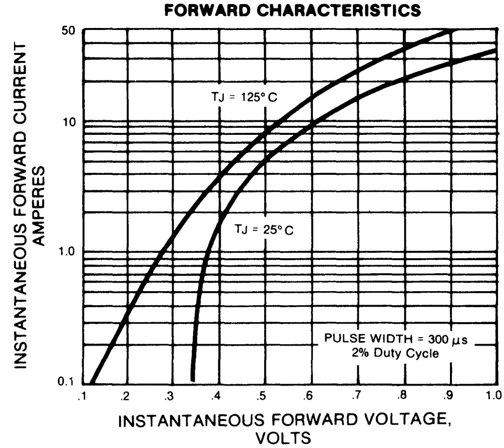
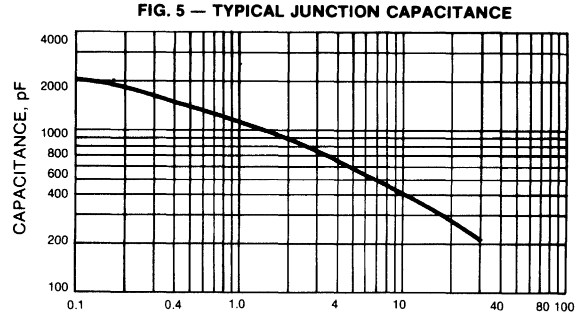


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



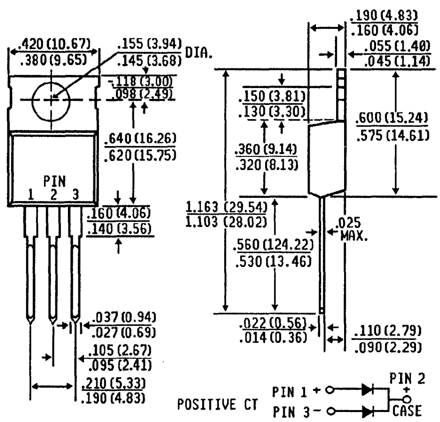
MBR2050CT AND MBR2060CT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 50 and 60 Volts CURRENT - 20 Amperes

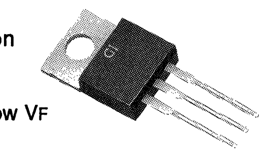
FEATURES

TO-220 CT



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabnility Classification 94 V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR2050CT*	*MBR2060CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Working Peak Reverse Voltage	V_{RM}	50	60	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg (Note 2) I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.70 0.85 0.95		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 125°C	I_R	15		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		Vμs
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance to CASE.
2. 300 μs Pulse Width 300 us, 2% Duty Factor.
3. 2.0 μs, 1KHz.

FIG. 1 — FORWARD CURRENT DERATING CURVE

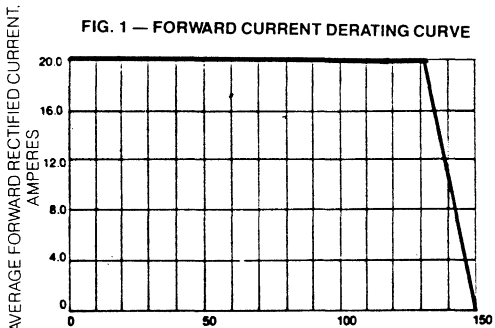


FIG. 2 - MAXIMUM REVERSE CHARACTERISTICS

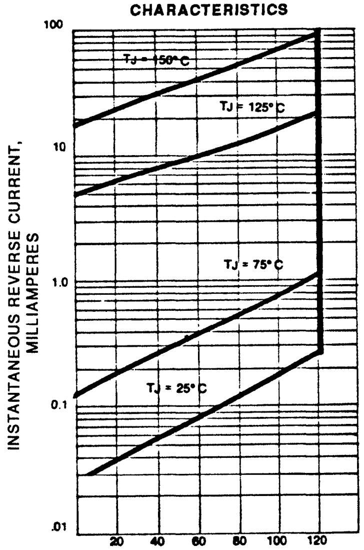


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

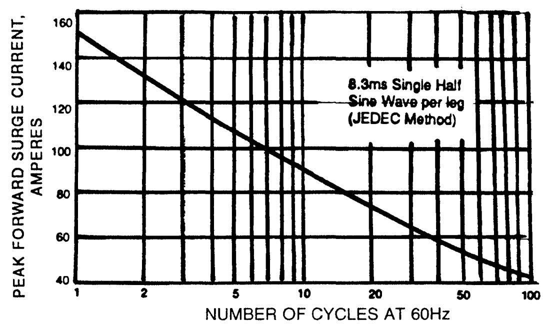


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

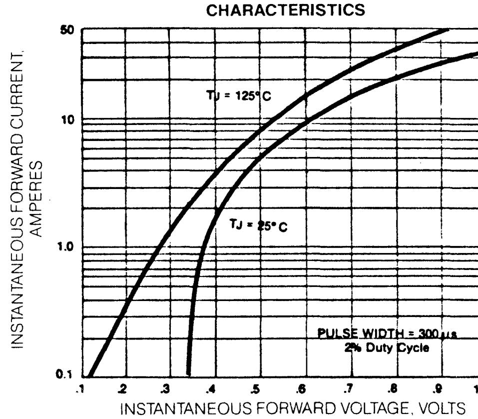
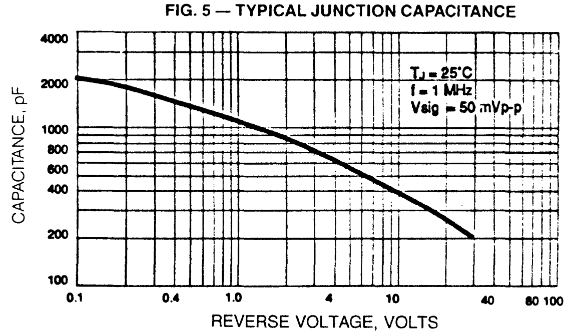


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

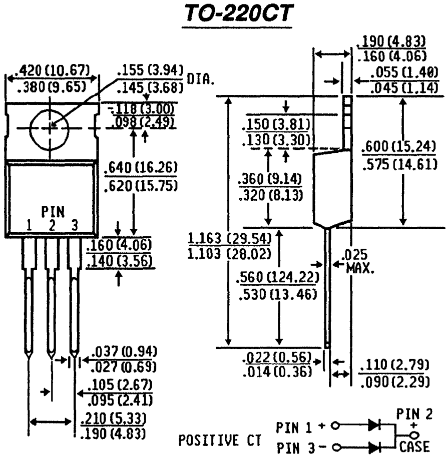
MBR2090CT AND MBR20100CT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** -90 and 100 Volts* ***CURRENT** - 20 Amperes*

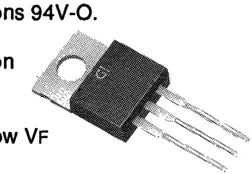
FEATURES

TO-220CT



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR2090CT*	*MBR20100CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	90	100	Volts
Working Peak Reverse Voltage	V_{RWM}	90	100	Volts
DC Blocking Voltage	V_{DC}	90	100	Volts
Maximum Average Forward Rectified Current at T_C= 125°C	$I_{(AV)}$	20		Amps
Peak Repetitive Forward Current, (Square Wave 20 KHz) at T_C = 125°C	I_{FSM}	40		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	1.0		Amps
Voltage Rate of Change, dv/dt (rated V_R)	V/µs	1000		V/µs
Maximum Forward Voltage (Note 1) I_F = 10A, T_C = 25°C I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C. I_F = 20A, T_C = 25°C	V_F	 0.80 0.70 0.85 0.95		Volts
Maximum Instantaneous Reverse Current at Peak Reverse Voltage T_C = 125°C (Note 1) Peak Reverse Voltage T_C = 25°C	 I_R I_R	 150 0.15		 mA mA
Maximum Thermal Resistance, Junction to Case	RΘJC	2.0		°C/W
Maximum Operating Junction Temperature	T_C	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Pulse Test Pulse Width 300 µs, Duty Cycle 2%.

FIG. 1 — FORWARD CURRENT DERATING CURVE

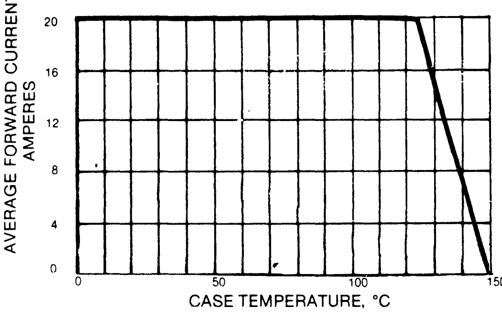


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

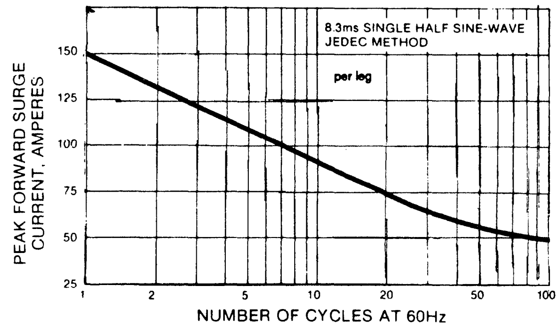


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

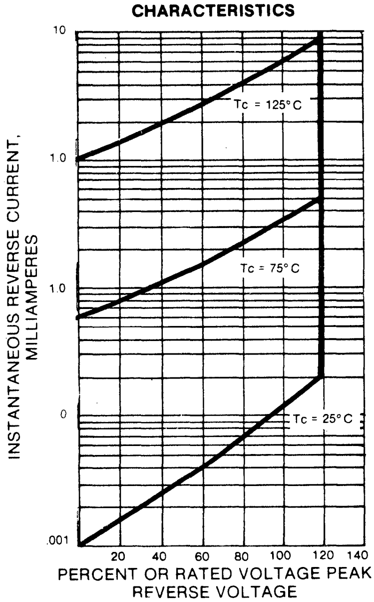


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

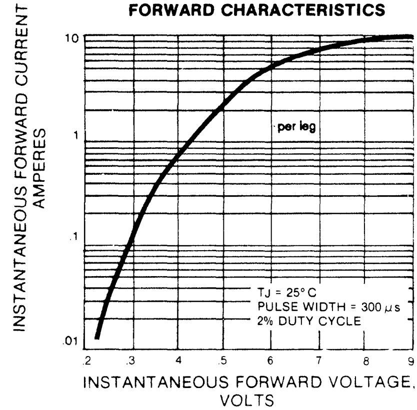
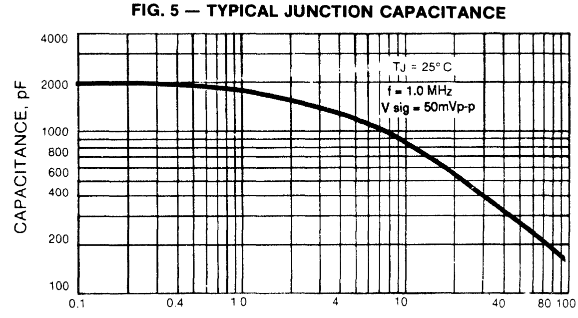


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

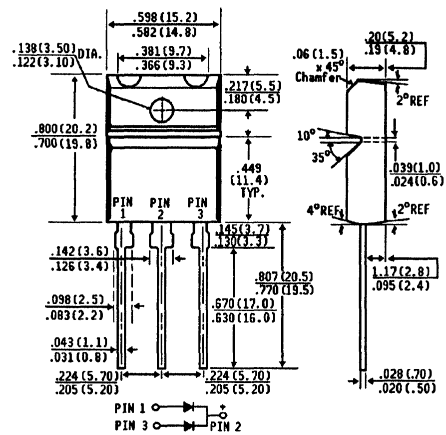
SBLF2030PT AND SBLF2040PT

SCHOTTKY RECTIFIER

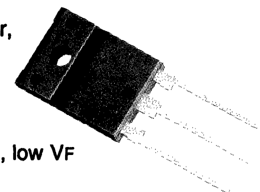
***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 20 Amperes*

FEATURES

ITO-3P



Dimensions in inches and (millimeters)



- ◆ Dual rectifier construction, positive center-tap
- ◆ Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- ◆ Metal to silicon rectifier, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ High current capability, low V_F
- ◆ High surge capacity
- ◆ Epitaxial construction
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ◆ High temperature soldering guaranteed: 250°C/10 seconds/.17", (4.3mm) lead lengths at 5 lbs. (2.3kg) tension
- ◆ Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-3P Molded Plastic
Terminals: Lead solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .47 ounces, 13.2 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBLF2030PT*	*SBLF2040PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	20.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	250		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 10.0, T_C = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at T_C = 25°C Rated DC Blocking Voltage per element T_C= 100°C	I_R	1.0 50.0		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	2.0		°C/W
Operating and Storage Temperature Range	T_C, T_{STG}	-40 to +125		°C

NOTES:
1. Thermal Resistance from Junction to Case per element.
2. 300 us Pulse Width, 2% Duty Factor.

FIG. 1—FORWARD CURRENT DERATING CURVE

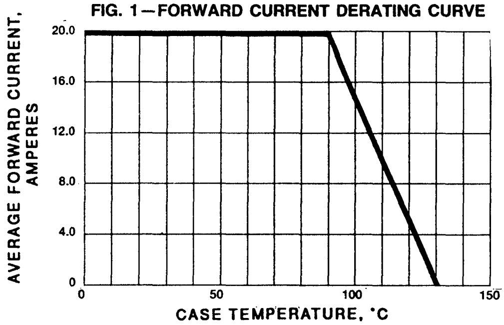


FIG. 2—TYPICAL REVERSE CHARACTERISTICS

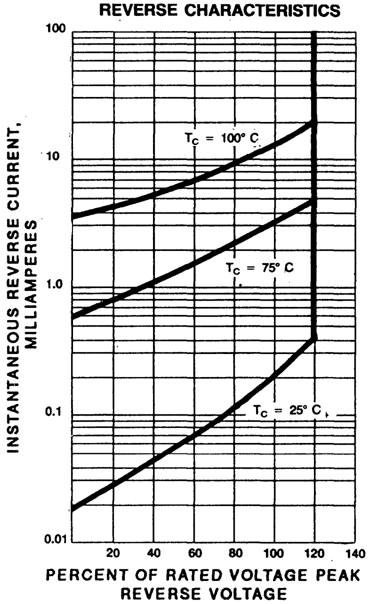


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

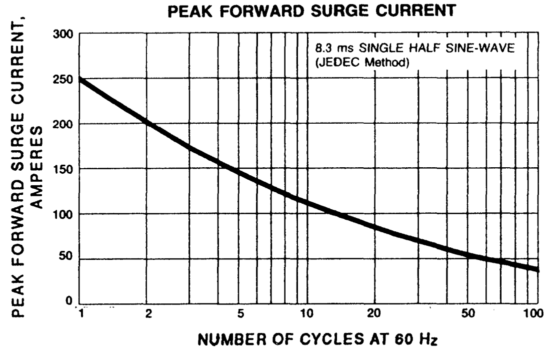


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

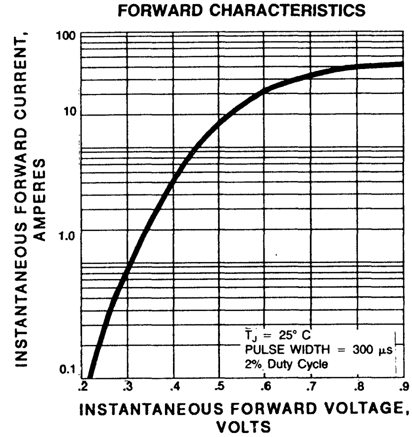
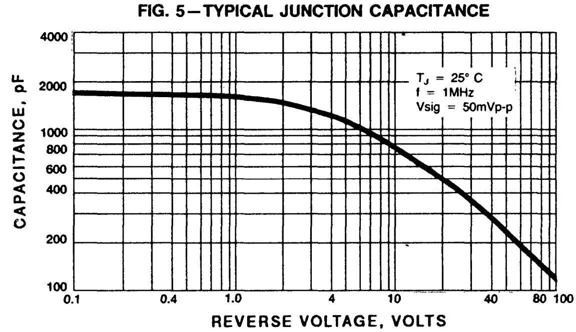


FIG. 5—TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

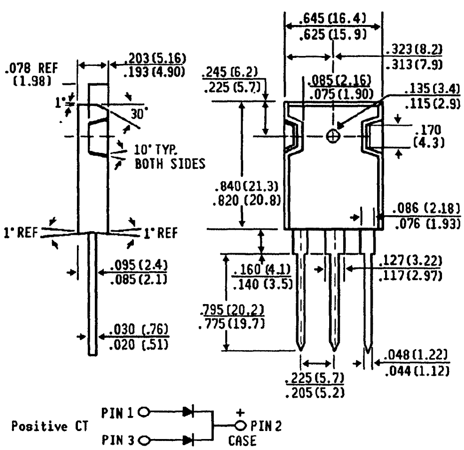
SBL2030PT AND SBL2040PT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 20 Amperes*

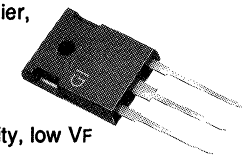
FEATURES

TO-3P



Dimensions in inches
and
(millimeters)

- Dual rectifier construction, positive center-tap
- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low VF
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.17", (4.3mm) lead lengths at 5 lbs. (2.3kg) tension



MECHANICAL DATA

Case: TO-3P Molded Plastic
Terminals: Lead solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .2 ounces, 5.6 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBL2030PT*	*SBL2040PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	20.0		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	250		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 8.0, Tc = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at Tc = 25°C Rated DC Blocking Voltage per element Tc= 100°C	I_R	1.0 50.0		mA
Typical Thermal Resistance (Note 1)	$R\theta JC$	1.5		°C/W
Operating and Storage Temperature Range	T_C,T_{STG}	-40 to +125		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 us Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

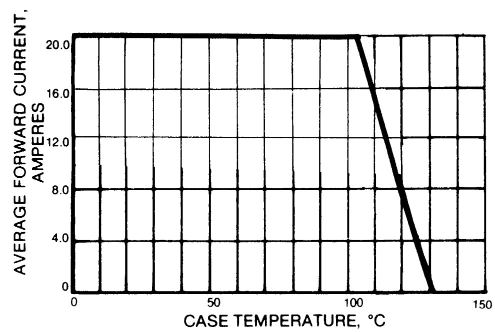


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

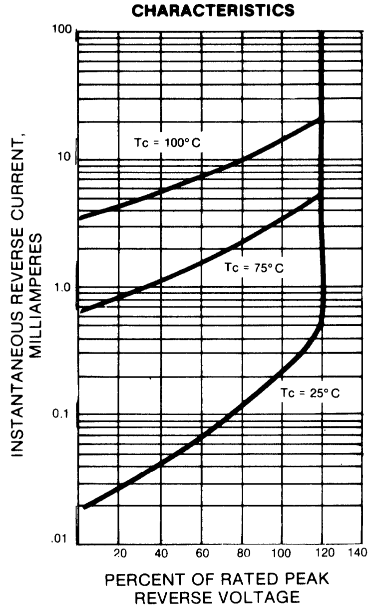


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

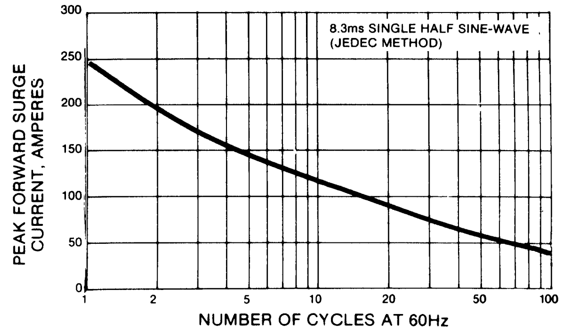


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

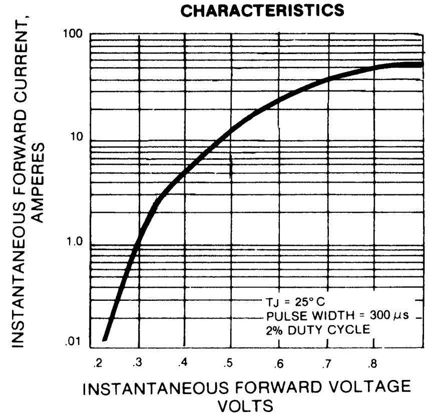
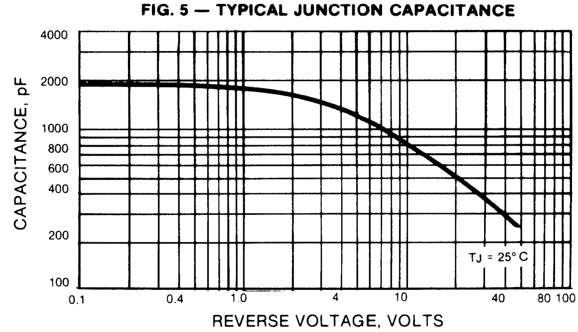


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



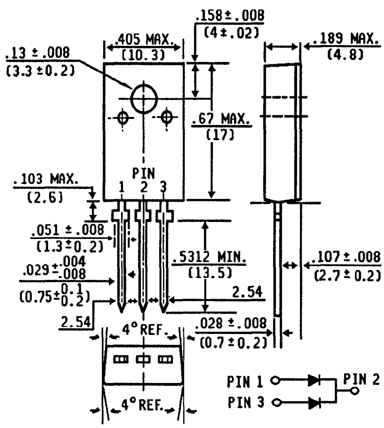
MBRF2535CT AND MBRF2545CT

SCHOTTKY RECTIFIER

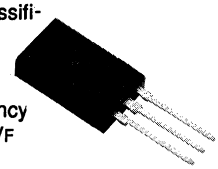
***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 30 Amperes*

FEATURES

ITO-220 CT



Dimensions in inches and (millimeters)



- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O.
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in.- lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBRF2535CT*	*MBRF2545CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RWM}	24.5	31.5	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	30		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg I_F = 30A, T_C = 125°C (Note 2) I_F = 30A, T_C = 25°C	V_F	0.73 0.82		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage (Note 2) T_C = 125°C	I_R	40		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	0.2		mA
Typical Thermal Resistance, (Note 1)	$R_{\theta JC}$	1.8		°C/W
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/us
Maximum Operating Junction Temperature	T_C	-65 to + 150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance Junction to CASE per element.
2. 300 µs Pulse Width, 2%, Duty Factor
3. 2.0µs, 1KHz.

FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

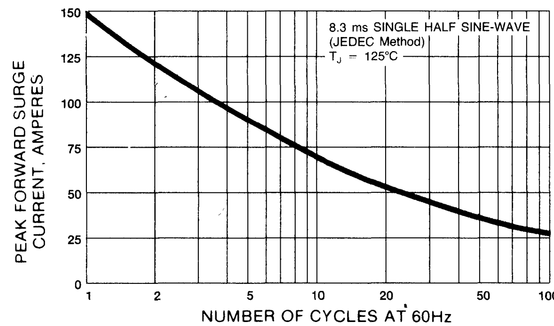


FIG. 1—FORWARD CURRENT DERATING CURVE

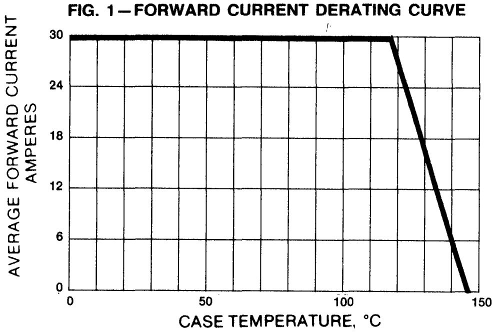


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

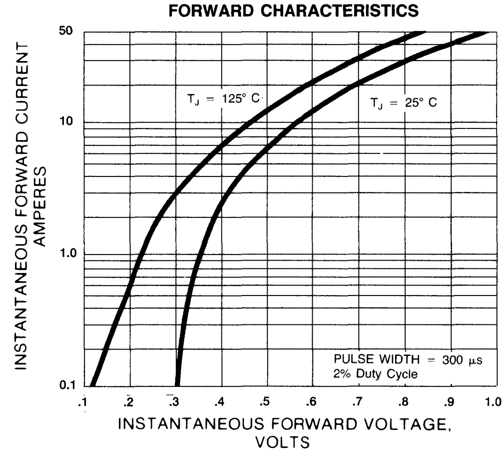


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

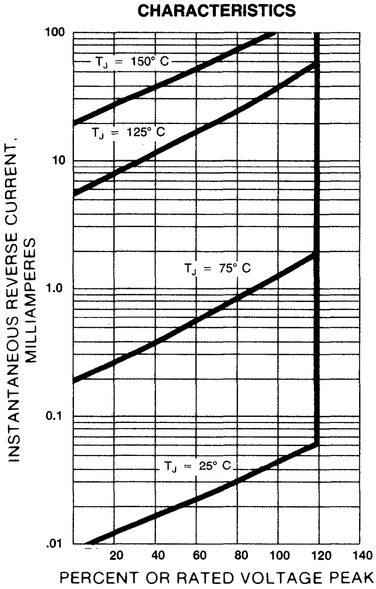
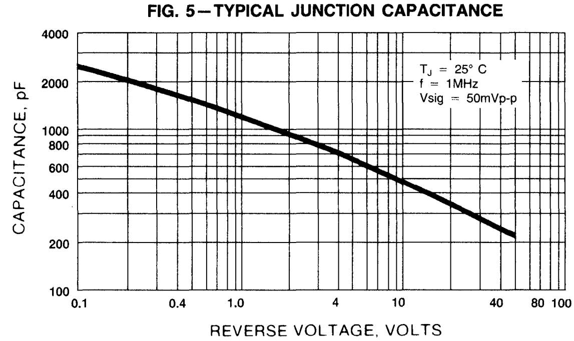


FIG. 5—TYPICAL JUNCTION CAPACITANCE



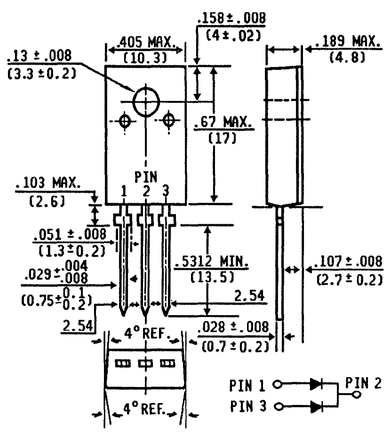
MBRF2550CT AND MBRF2560CT

SCHOTTKY RECTIFIER

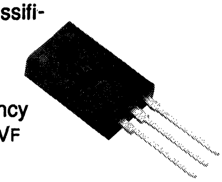
***VOLTAGE RANGE** - 50 and 60 Volts* ***CURRENT** - 30 Amperes*

FEATURES

ITO-220 CT



Dimensions in inches
and
(millimeters)



- ◆ Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- ◆ Metal to silicon rectifier, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ High current capability, low V_F
- ◆ High surge capacity
- ◆ Epitaxial construction
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ◆ High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- ◆ Guard Ring for transient protection
- ◆ Internal Insulation: 1.5K V_{RMS}

MECHANICAL DATA

Case: ITO-220 Molded Plastic
Terminals: Leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5in.- lb. max.
Weight: .08 ounces, 2.24 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBRF2550CT*	*MBRF2560CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	45	Volts
Working Peak Reverse Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	60	60	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	30.0		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg I_F = 15.0A, T_C = 125°C (Note 2) I_F = 15.0A, T_C = 25°C	V_F	.65 .75		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage(Note 2) T_C = 125°C	I_R	50.0		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	1.0		mA
Typical Thermal Resistance, (Note 1)	$R_{\theta JC}$	1.8		°C/W
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/us
Maximum Operating Junction Temperature	T_C	-65 to + 150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance Junction to Case per element. 2. 300 μs Pulse Width, 2%, Duty Factor 3. 2.0μs, 1KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

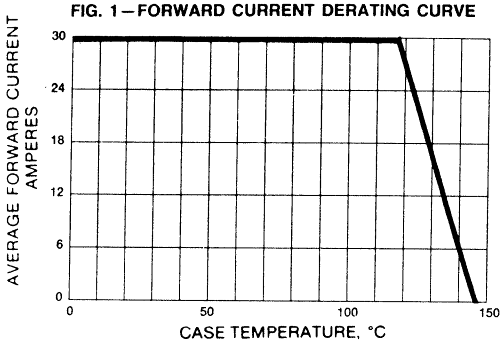


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

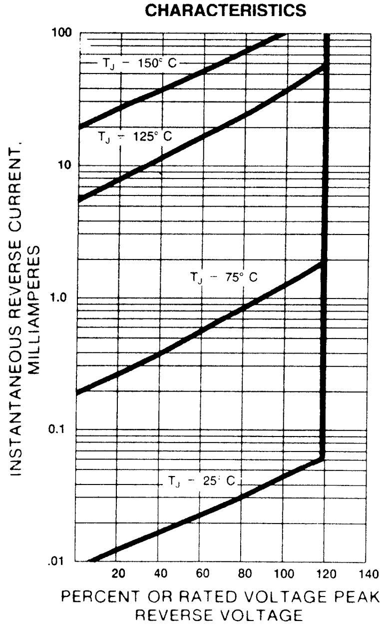


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

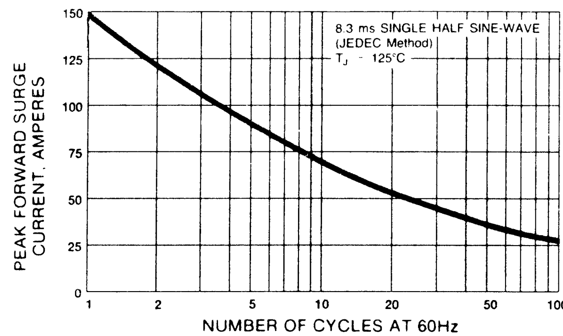


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

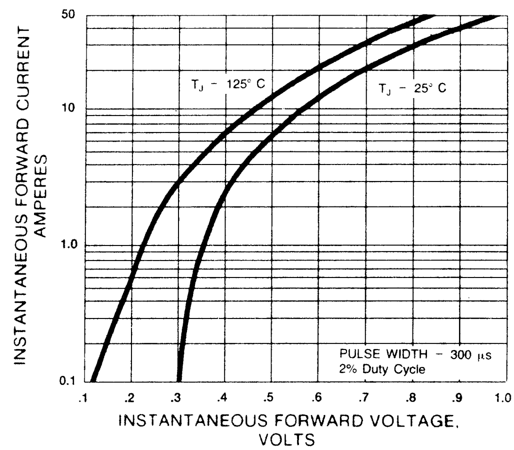
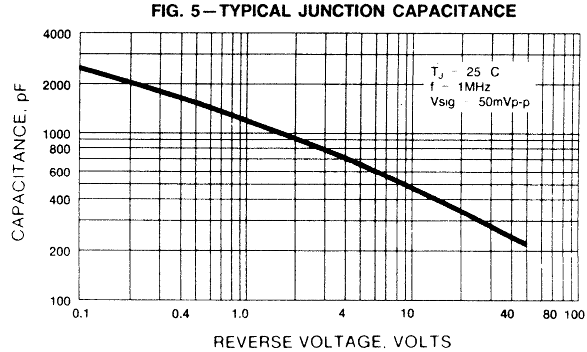


FIG. 5—TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

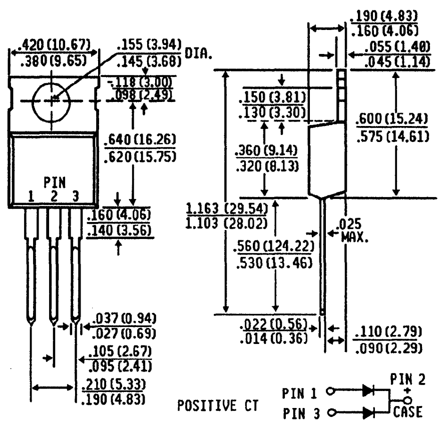
MBR2535CT AND MBR2545CT

SCHOTTKY RECTIFIER

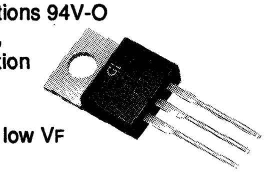
VOLTAGE RANGE - 35 and 45 Volts   CURRENT - 30 Amperes

FEATURES

TO-220 CT



Dimensions in inches and (millimeters)



- ◆ Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- ◆ Metal to silicon rectifier, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ High current capability, low V_F
- ◆ High surge capacity
- ◆ Epitaxial construction
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ◆ High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- ◆ Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR2535CT*	*MBR2545CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Working Peak Reverse Voltage	V_{RWM}	24.5	31.5	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	30		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg I_F = 30A, T_C = 125°C (Note 2) / I_F = 30A, T_C = 25°C	V_F	0.73 / 0.82		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Volltage(Note 2) T_C = 125°C	I_R	40		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	0.2		mA
Typical Thermal Resistance, (Note 1)	RθJC	1.5		°C/W
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/us
Maximum Operating Junction Temperature	T_C	-65 to + 150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance Junction to CASE.
2. 300 us Pulse Width, 2%, Duty Factor
3. 2.0us, 1KHz.

FIG. 1 — FORWARD CURRENT DERATING CURVE

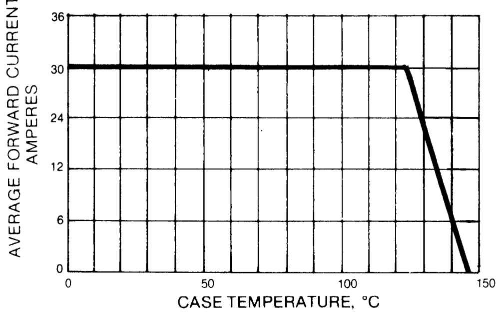


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

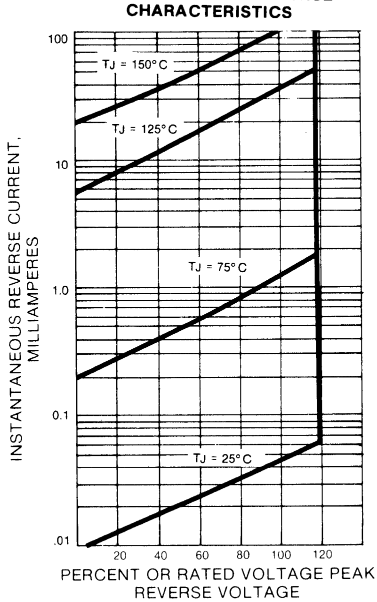


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

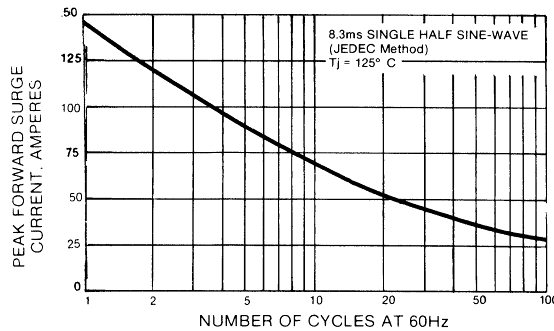


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

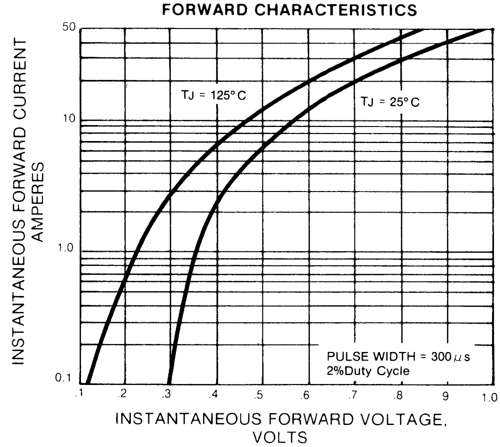
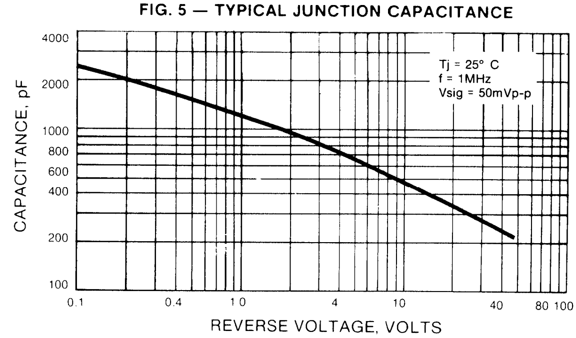


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



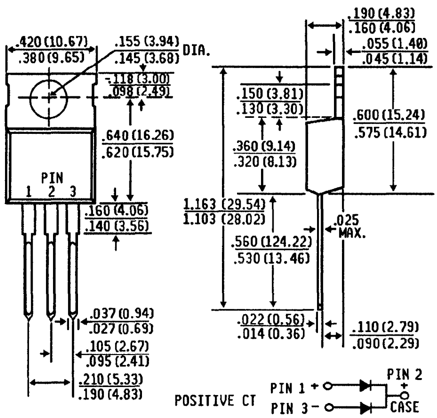
GENERAL INSTRUMENT

MBR2050CT AND MBR2060CT

SCHOTTKY RECTIFIER

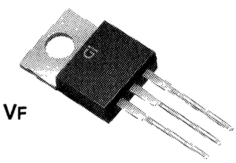
VOLTAGE RANGE - 50 and 60 Volts CURRENT - 20 Amperes

TO-220 CT



Dimensions in inches and

FEATURES



- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-220 Molded Plastic
Terminals: Leads, solderable per MIL-STD- 202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .08 ounces, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBR2050CT*	*MBR2060CT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Working Peak Reverse Voltage	V_{RM}	50	60	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	20		Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RRM}	1.0		Amps
Maximum Forward Voltage Per Leg (Note 2) I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C I_F = 20A, T_C = 25°C	V_F	0.70 0.85 0.95		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C = 125°C	I_R	15		mA
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage T_C = 25°C	I_R	0.1		mA
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		Vµs
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Junction Temperature	T_J	-65 to +150		°C
Maximum Storage Temperature	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance to Case.
2. 300 µs Pulse Width 300 us, 2% Duty Factor.
3. 2.0 µs, 1KHz.

FIG. 1—FORWARD CURRENT DERATING CURVE

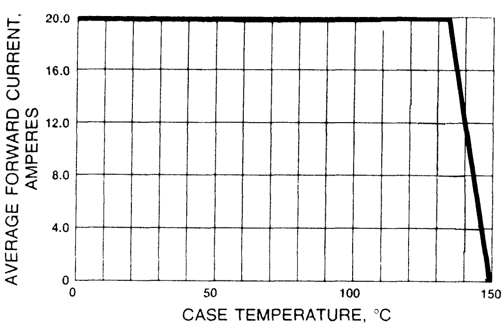


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

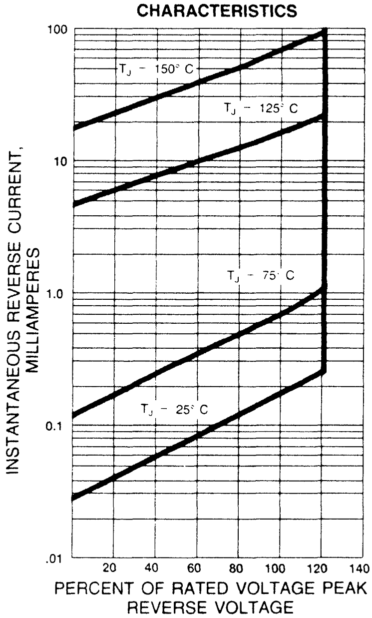


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

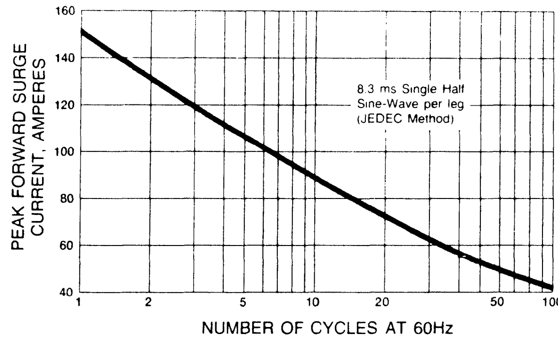


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

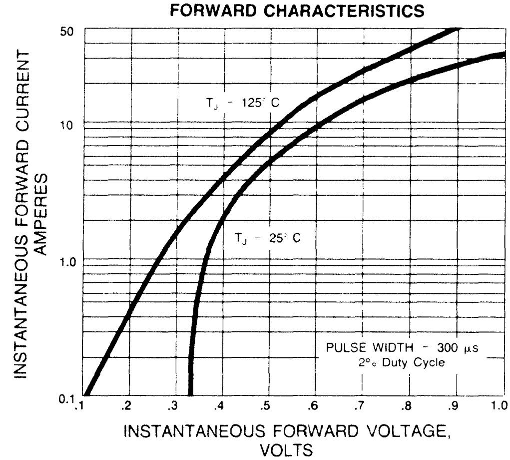
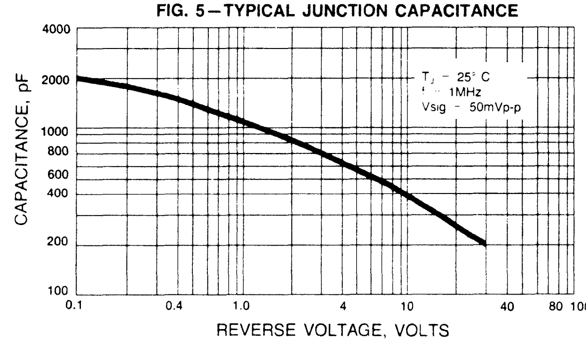


FIG. 5—TYPICAL JUNCTION CAPACITANCE

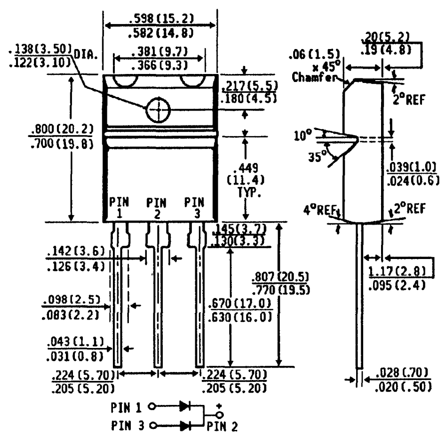


MBRF3035PT AND MBRF3045PT

SCHOTTKY RECTIFIER

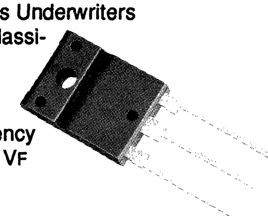
VOLTAGE RANGE - 35 and 45 Volts CURRENT - 30 Amperes

ITO-3P



Dimensions in inches and (millimeters)

FEATURES



- Dual rectifier construction, positive center-tap
- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low VF
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C, .17 (4.3mm) lead length at 5 lbs. (2.3kg) tension
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-3P Molded Plastic
Terminals: Lead solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .47 ounces, 13.2 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*MBRF3035PT*	*MBRF3045PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Maximum RMS Voltage	V_{RMS}	25	32	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current (see Fig. 1)	$I_{(AV)}$	30		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	200		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RSM}	2.0		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 20A, T_C = 125°C (Note 2) I_F = 30A, T_C =125°C I_F 30A, T_C = 25°C	V_F	0.60 0.72 0.76		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C =25°C T_C= 125°C	I_R	1.0 60		mA
Maximum Thermal Resistance (Note 1)	$R_{\theta JC}$	1.7		°C/W
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/us
Maximum Operating Temperature Range	T_C	-65 to +150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance from Junction to Case per element. 2. 300 μs Pulse Width, 2% Duty Factor.

RATINGS AND CHARACTERISTIC CURVES MBRF3035PT AND MBRF3045PT

FIG. 1—FORWARD CURRENT DERATING CURVE

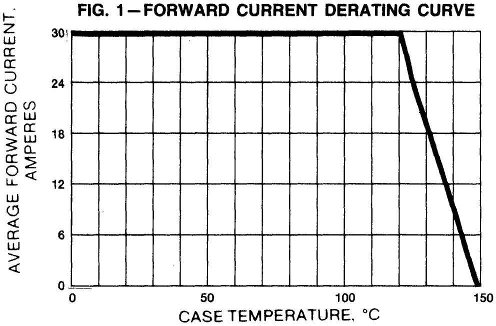


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

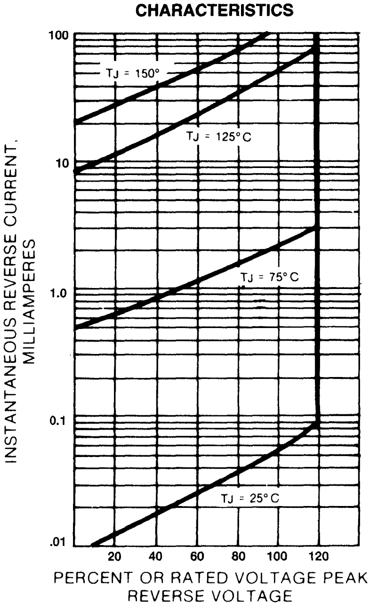


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

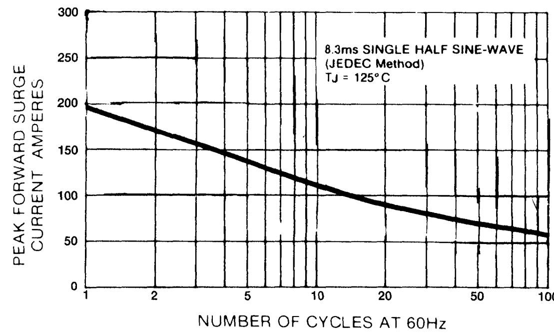


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

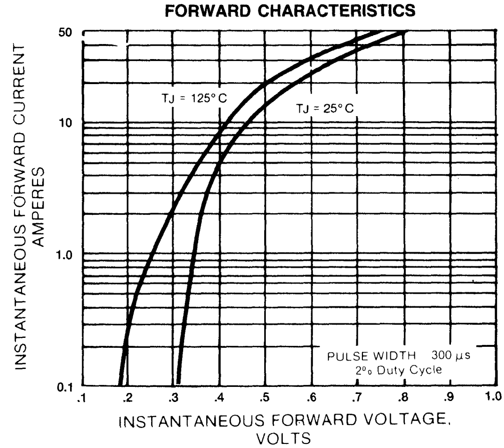
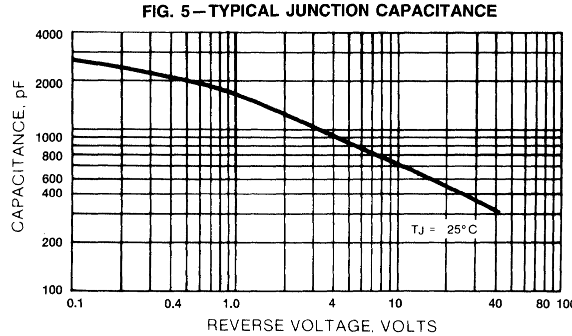


FIG. 5—TYPICAL JUNCTION CAPACITANCE



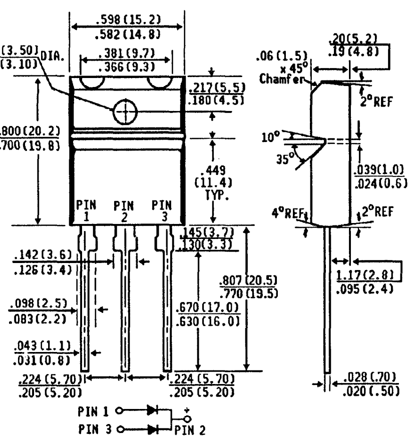
MBRF3050PT AND MBRF3060PT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 50 and 60 Volts* ***CURRENT** - 30 Amperes*

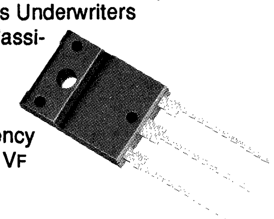
FEATURES

ITO-3P



Dimensions in inches and (millimeters)

- Dual rectifier construction, positive center-tap
- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C, .17 (4.3mm) lead length at 5 lbs. (2.3kg) tension
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-3P Molded Plastic
Terminals: Lead solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 lb. - in. max.
Weight: .47 ounces, 13.2 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBRF3050PT*	*MBRF3060PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current (see Fig. 1)	$I_{(AV)}$	30		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	300		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RSM}	2.0		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 15A, T_C =125°C I_F 15A, T_C = 25°C	V_F	.65 .75		Volts
Maximum Instantaneous Reverse Current at Rated DC Blocking Voltage per element T_C =25°C T_C= 125°C	I_R	5.0 100		mA
Maximum Thermal Resistance (Note 1)	$R_{\theta JC}$	1.7		°C/W
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/us
Maximum Operating Temperature Range	T_C	-65 to +150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance from Junction to Case per element. 2. 300 μs Pulse Width, 2% Duty Factor.

FIG. 1—FORWARD CURRENT DERATING CURVE

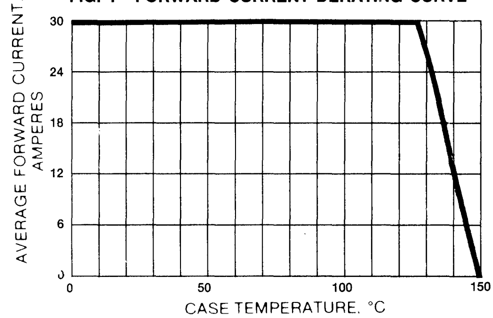


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

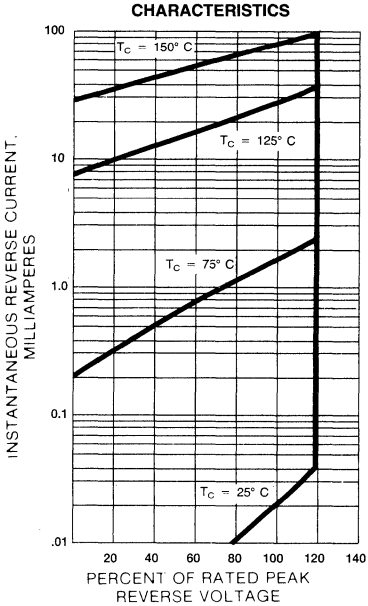


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

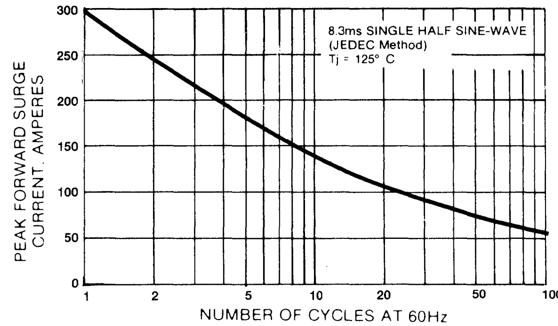


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

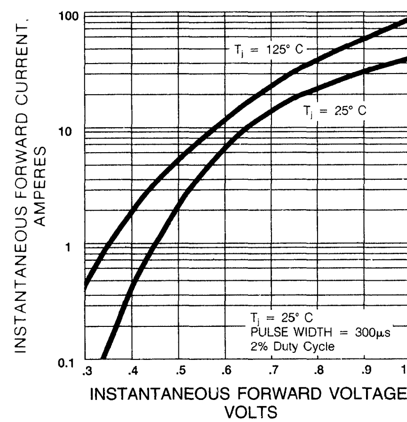
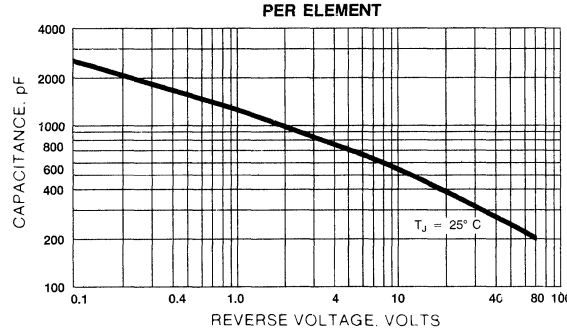


FIG. 5—TYPICAL JUNCTION CAPACITANCE PER ELEMENT



GENERAL INSTRUMENT

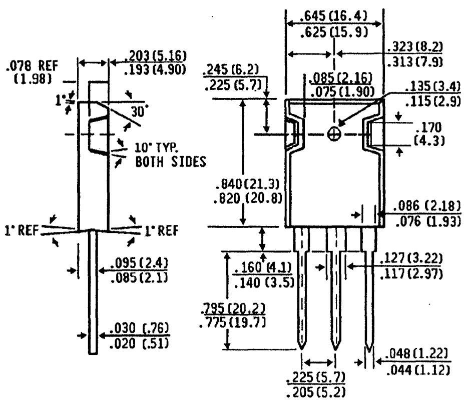
MBR3035PT AND MBR3045PT

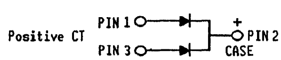
SCHOTTKY RECTIFIER

VOLTAGE RANGE - 35 and 45 Volts *CURRENT - 30 Amperes*

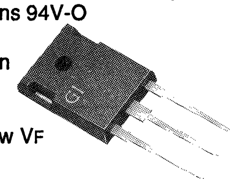
FEATURES

TO-3P





Dimensions in inches and (millimneters)



- Dual rectifier construciton, positi ve cener-tap
- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C, .17 (4.3mm) lead length at 5 lbs. (2.3kg) tension
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO3P Molded Plastic
Terminals: Lead solderable per MIL-STD-202 Method 208
Polarity: As marked
Mounting Position: Any
Weight: .2 ounces, 5.6 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%

	SYMBOLS	*MBR3035PT*	*MBR3045PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Maximum RMS Voltage	V_{RMS}	24.5	31.5	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	30		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	200		Amps
Peak Repetitive Reverse Surge Current (Note 3)	I_{RSM}	2.0		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 20A, T_C = 125°C (Note 2) I_F = 30A, T_C = 125°C I_F = 30A, T_C = 25°C	V_F	0.60 0.72 0.76		Volts
Maximum Instantaneous Reverse Current at T_C = 25°C Rated DC Blocking Voltage pert element T_C = 125°C	I_R	1.0 60		mA
Maximum Thermal Resistance (Note 1)	$R_{\theta JC}$	1.4		°C/W
Voltage Rate of Change, (Rated V_R)	dv/dt	1000		V/us
Maximum Operating Temperature Range	T_C	-64 to +150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. Measured at 1MHz and applied reverse voltage of 4.0 volts.
3. 300 us Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

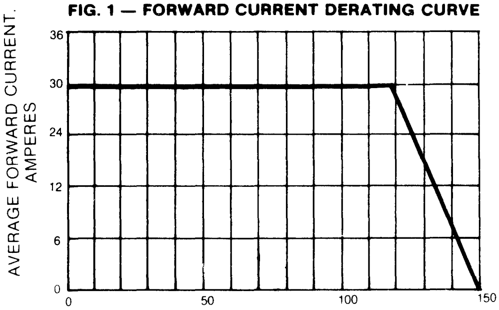


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

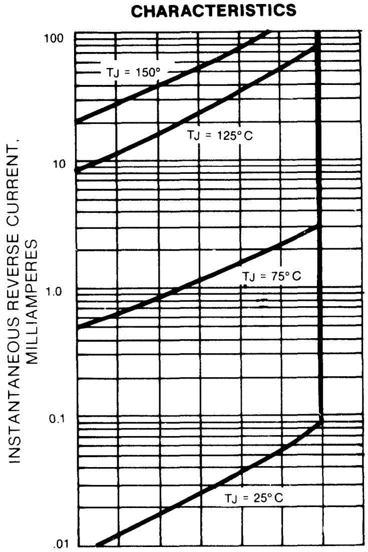


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

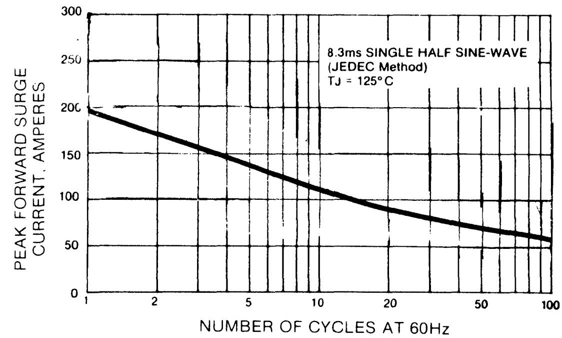


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

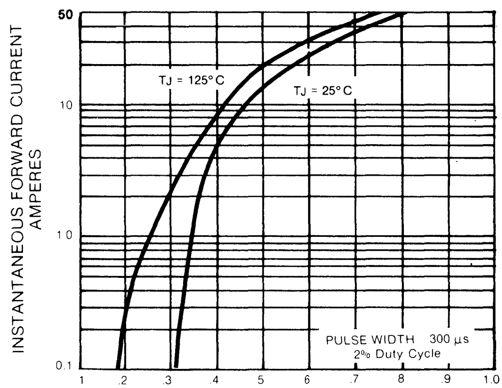
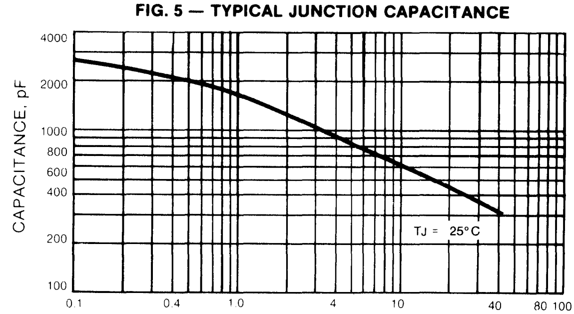


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



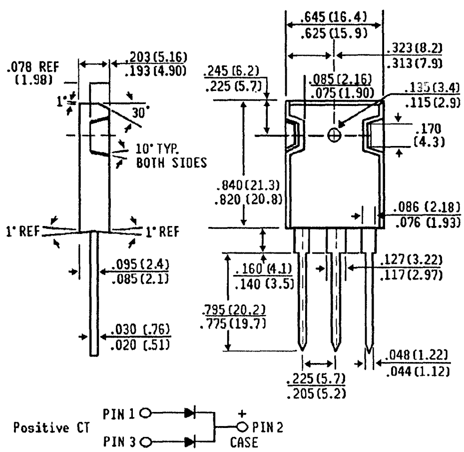
MBR3050PT AND MBR3060PT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 50 and 60 Volts CURRENT - 30 Amperes

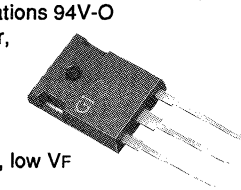
FEATURES

TO-3P



Dimensions in inches and (millimneters)

- Dual rectifier construciton, positive center-tap
- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications



MECHANICAL DATA

Case: TO-3P

Terminals: Lead solderable per MIL-STD-202 Method 208

Polarity: As marked

Mounting Position: Any

Weight: .2 ounces, 5.6 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBR3050PT*	*MBR3060PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	30		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	300		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 20A, T_C = 25°C (Note 2) I_F = 20A, TC = 25°C	V_F	.65 .75		Volts
Maximum Average Reverse Current at T_C = 25°C Rated Peak Reverse Voltage (Note 3) T_C = 100°C	I_R	5.0 100		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	2.0		°C/W
Maximum Operating Temperature Range	T_C	-65 to + 150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES:

1. Thermal Resistance from Junction to Case.
2. 300 us Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

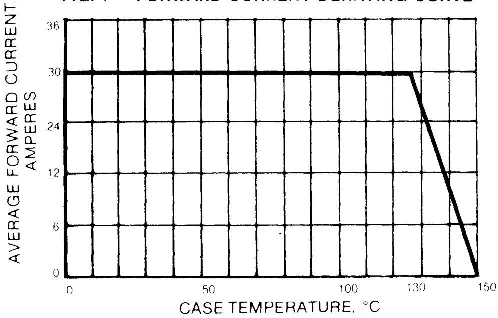


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

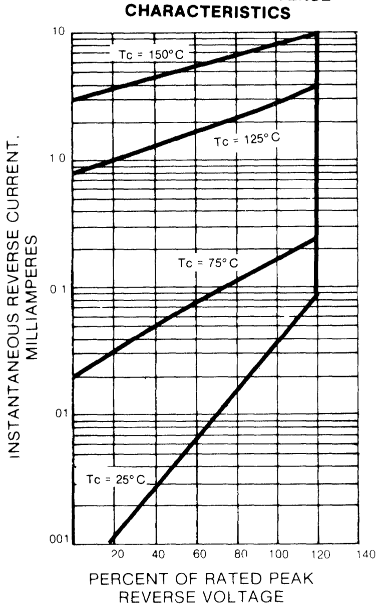


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

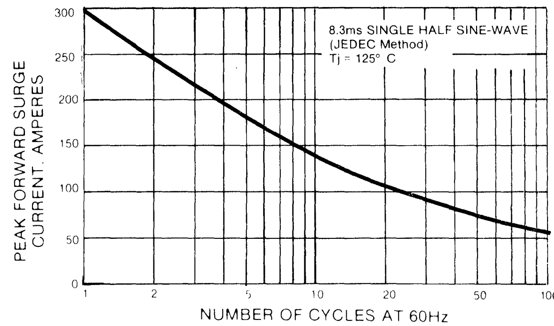


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

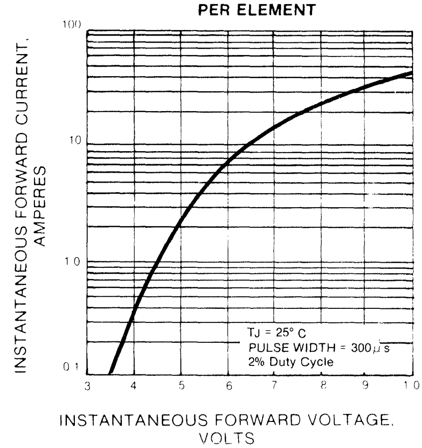
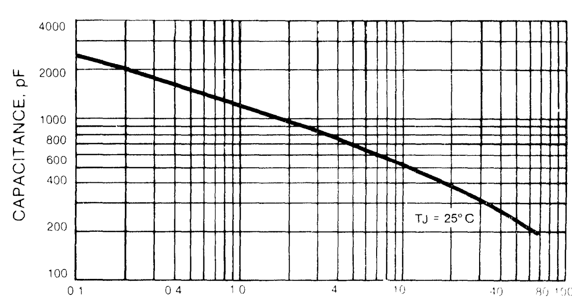


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT



GENERAL INSTRUMENT

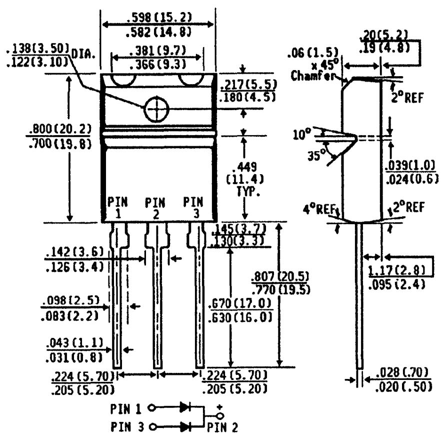
SBLF3030PT AND SBLF3040PT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 30 Amperes*

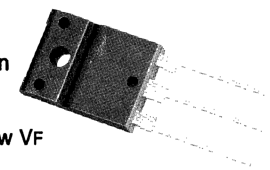
FEATURES

ITO-3P



Dimensions in inches
and
(millimeters)

- Dual rectifier construction, positive center-tap
- Isolated Plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds,17 (4.3mm) lead lengths at 5 lbs., (2.3kg) tension
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-3P Molded Plastic
Terminals: Lead solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in. - lb. max.
Weight: .47 ounces, 13.2 ounces

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*SBLF3030PT*	*SBLF3040PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current See Fig. 1	$I_{(AV)}$	30		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	275		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 15.0A, T_C = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at T_C = 25°C Rated DC Blocking Voltage per element T_C = 100°C	I_R	1.0 75		mA
Maximum Thermal Resistance (Note 1)	$R_{\theta JC}$	2.5		°C/W
Operating and Storage Temperature Range	T_C, T_{STG}	-40 to +125		°C

NOTES:
1. Thermal Resistance from Junction to Case per element.
2. 300 us Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

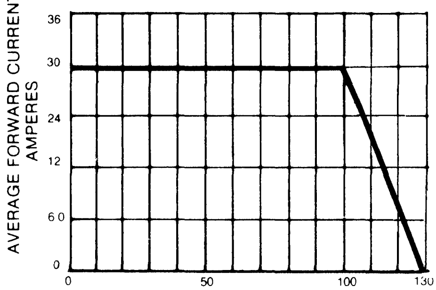


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

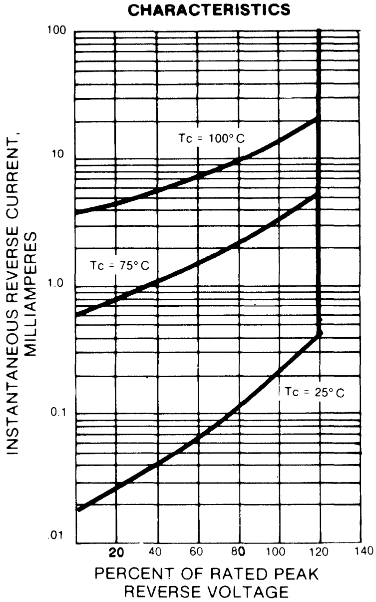


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

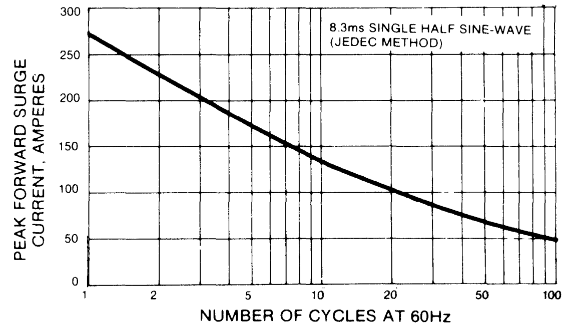


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

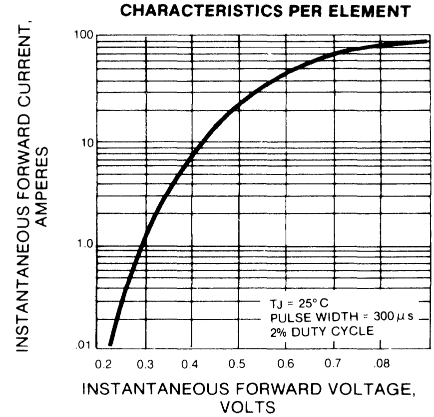
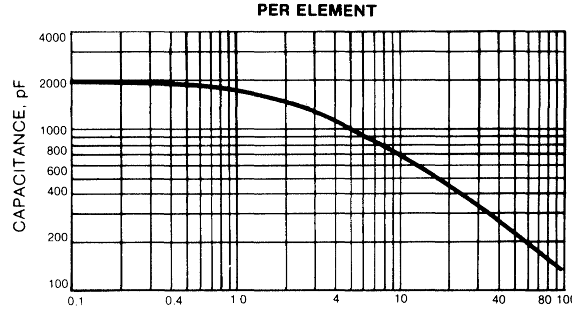


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT



GENERAL INSTRUMENT

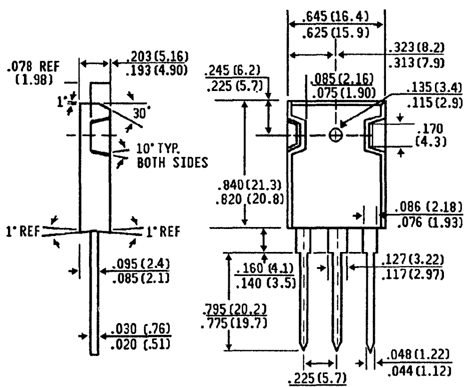
SBL3030PT AND SBL3040PT

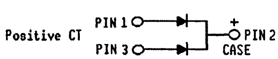
SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 30 and 40 Volts* ***CURRENT** - 30 Amperes*

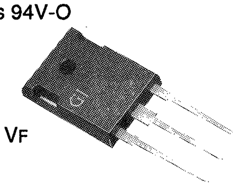
FEATURES

TO-3P





Dimensions in inches
and
(millimeters)



- Dual rectifier construction, positive center-tap
- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds,17 (4.3mm) lead lengths at 5 lbs., (2.3kg) tension
- Guard Ring for transient protection

MECHANICAL DATA

Case: TO-3P Molded Plastic
Terminals: Lead solderable per MIL-STD-202 Method 208
Polarity: As marked
Mounting Position: Any
Weight: .2 ounces, 5.6 gram

CROSS - REFERENCE GUIDE

GI	FUJI	SHINDENGEN
SBL3030PT	- - -	S30SC3M
SBL3040PT	ESAD83-004	S30SCAM

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTIC S

Ratings at °C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*SBL3030PT*	*SBL3040PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	30	40	Volts
Maximum RMS Voltage	V_{RMS}	21	28	Volts
Maximum DC Blocking Voltage	V_{DC}	30	40	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	30		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	275		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F 5 =15, T_C = 25°C (Note 2)	V_F	.55		Volts
Maximum Average Reverse Current at T_C = 25°C Rated DC Blocking Voltage per element T_C = 100°C	I_R	1.0 75		mA
Maximum Thermal Resistance (Note 1)	$R_{\theta JC}$	2.0		°C/W
Operating and Storage Temperature Range	T_C, T_{STG}	-40 to +125		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 us Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

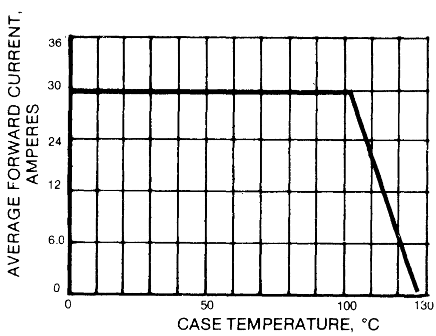


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

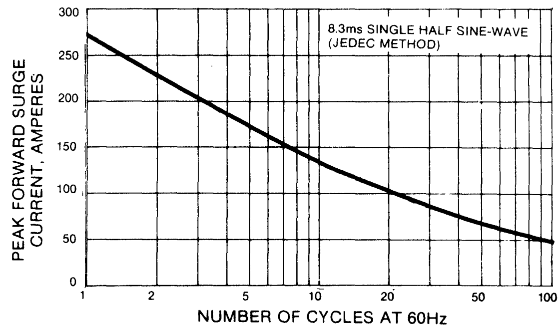


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

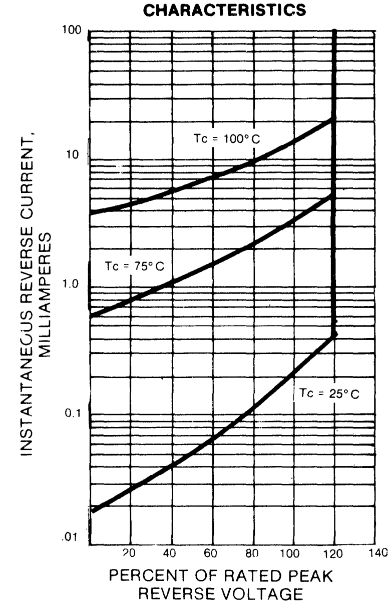


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

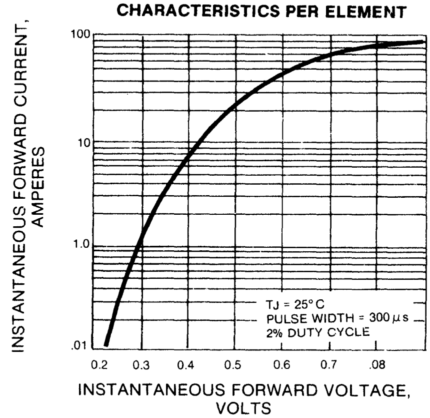
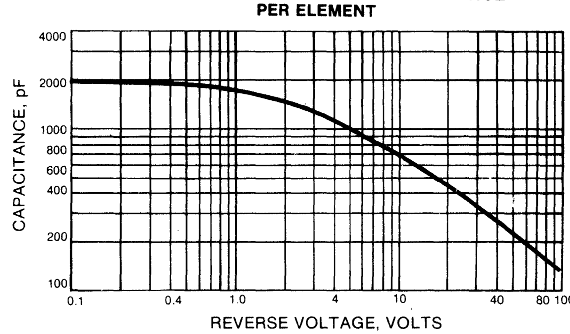


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT

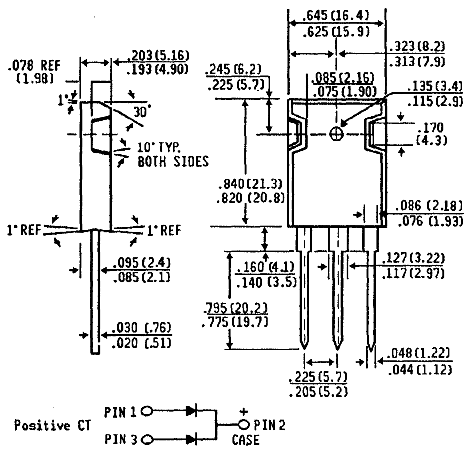


SD241P

SCHOTTKY RECTIFIERS
VOLTAGE RANGE - 45 Volts   CURRENT - 30 Amperes

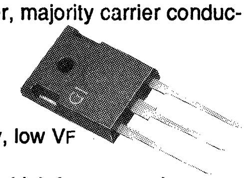
FEATURES

TO-3P



Dimensions in inches and (millimeters)

- ◆ Dual rectifier construction, positive center-tap
- ◆ Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- ◆ Metal to silicon rectifier, majority carrier conduction using an epitaxial construction
- ◆ Low power loss, high efficiency
- ◆ High current capability, low V_F
- ◆ High surge capacity
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ◆ High temperature soldering guaranteed: 300°C, .17", 4.3mm from case for 10 seconds
- ◆ Guard Ring for transient protection



MECHANICAL DATA

Case: TO-3P
Terminals: Lead solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Weight: .2 ounces, 5.6 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%

	SYMBOLS	*SD241P*	*UNITS*
Maximum Recurrent Peak Reverse Voltage at T_C= 25°C	V_{RRM}	45	Volts
Maximum Blocking Voltage at T_C = 25°C	V_{DC}	45	Volts
Maximum Average Forward Rectified Current see Fig. 1	$I_{(AV)}$	30	Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	400	Amps
Peak Repetitive Reverse Surge Current (2.0us, 1KHz)	I_{RSM}	2.0	Amps
Maximum Instantaneous Forward Voltage Pulse Width = 300 us, Duty Cycle = 1% I_F = 10A, T_C = 125°C I_F = 20A, T_C = 125°C	V_F	.47 .60	Volts
Maximum Instantaneous Reverse Current Pulse Width = 400 us, Duty Cycle = 1% at 35V T_C = 25°C T_C = 125°C	I_R	25	mA
Maximum Voltage Rate of Change at 35V	dv/dt	1000	V/µs
Package Thermal Resistance (Note 1)	$R\Theta JC$	1.4	°C
Maximum Operating TemperatureRange	T_C	-65 to +150	°C
Maximum Storage Temperature	T_{STG}	-65 to +175	°C

NOTES:
1. Thermal Resistance Junction of Case.

FIG. 1—FORWARD CURRENT DERATING CURVE

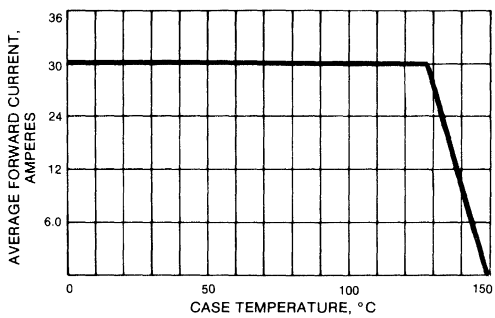


FIG. 2 — MAXIMUM NON-REPETITIVE SURGE CURRENT

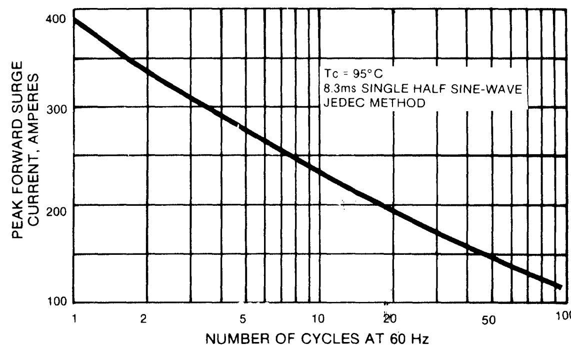


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

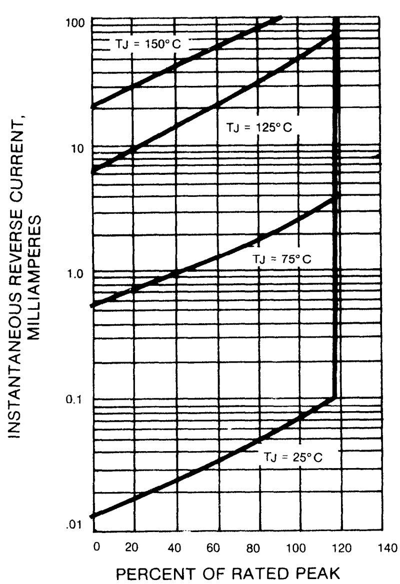


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

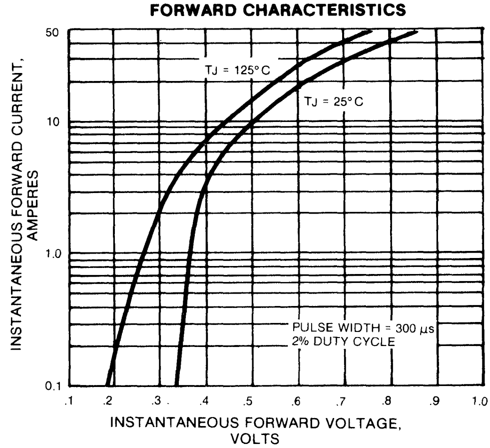
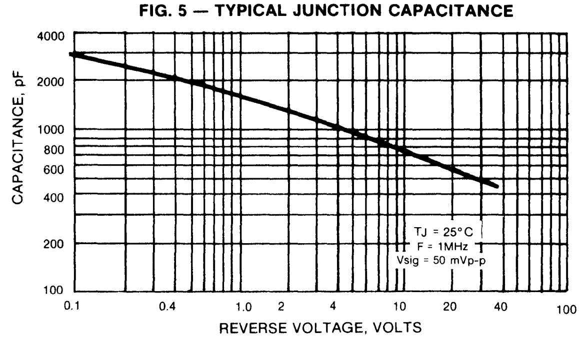


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



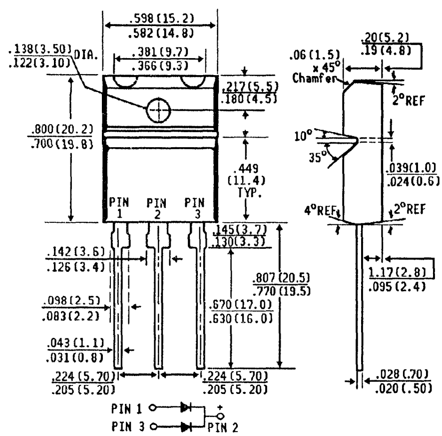
MBRF4035PT AND MBRF4045PT

SCHOTTKY RECTIFIER

***VOLTAGE RANGE** - 35 and 45 Volts* ***CURRENT** - 40 Amperes*

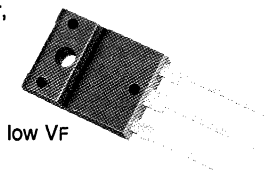
FEATURES

ITO-3P



Dimensions in inches and (millimeters)

- Dual rectifier constrution, positive center-tap
- Isolated plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction



- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}

MECHANICAL DATA

Case: ITO-3P

Terminals: Leads solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Mounting Torque: 5 in. - lb. max.

Weight: .47 ounces, 13.2 ounces

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%

	SYMBOLS	MBRF4035PT	MBRF4045PT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Maximum RMS Voltage	V_{RMS}	25	32	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	40		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	400		Amps
Maximum Instantaneous Forward Voltage Per leg I_F = 20A, T_C = 125°C (Note 2) I_F = 20A, T_C = 25°C	V_F	.60 .70		Volts
Maximum Average Reverse Current at T_C = 25°C Rated Peak Reverse Voltage (Note 2) T_C = 100°C	I_R	10 100		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	1.6		°C/W
Maximum Operating Temperature Range	T_C	-65 to +150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES: 1. Thermal Resistance from Junction to Case per element.
2. 300 μs Pulse Width, 2% Duty Factor.

RATINGS AND CHARACTERISTIC CURVES MBRF4035PT AND MBRF4045PT

FIG. 1—FORWARD CURRENT DERATING CURVE

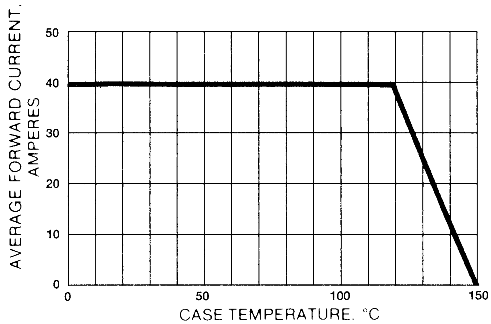


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

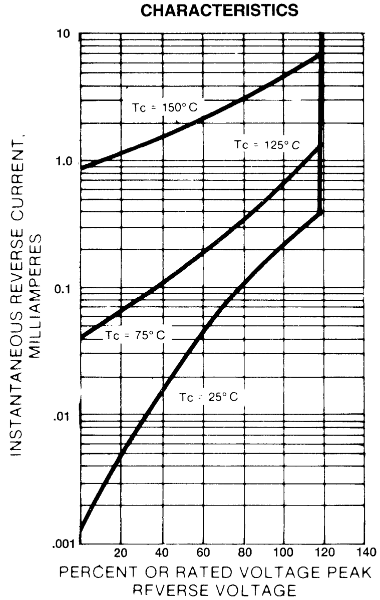


FIG. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

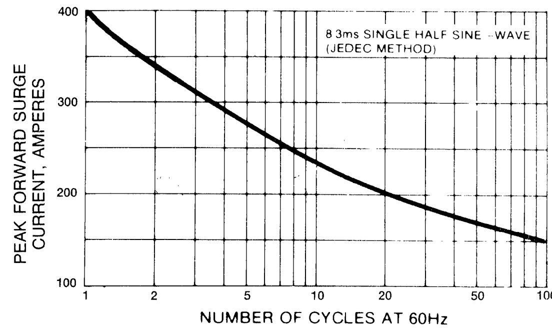


FIG. 4—TYPICAL REVERSE CHARACTERISTICS

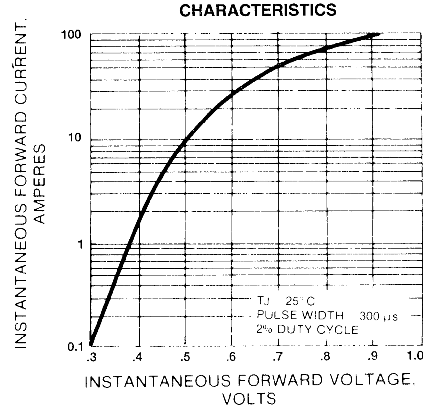
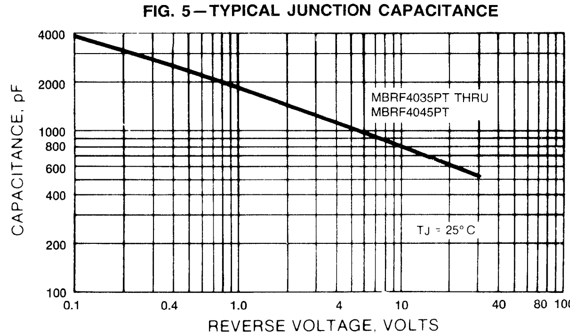


FIG. 5—TYPICAL JUNCTION CAPACITANCE



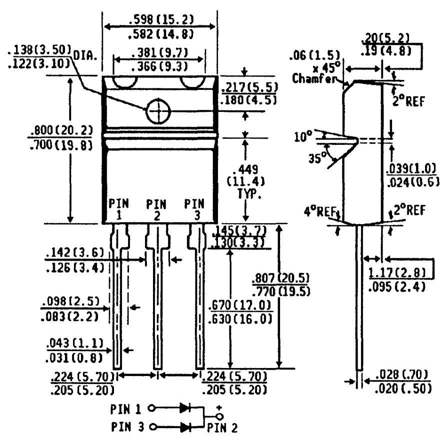
MBRF4050PT AND MBRF4060PT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 50 and 60 Volts   CURRENT - 40 Amperes

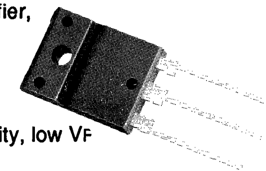
FEATURES

ITO-3P



Dimensions in inches and (millimeters)

- Dual rectifier construction, positive center-tap
- Isolated plastic package has Underwriters Laboratory Flammability Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-3P

Terminals: Leads solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Mounting Torque: 5 in. - lb. max.

Weight: .47 ounces, 13.2 ounces

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%

	SYMBOLS	*MBRF4050PT*	*MBRF4060PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	40		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	400		Amps
Maximum Instantaneous Forward Voltage Per leg I_F = 20A, T_C = 125°C (Note 2) / I_F = 20A, T_C = 25°C	V_F	.70 / .80		Volts
Maximum Average Reverse Current at T_C = 25°C / Rated Peak Reverse Voltage (Note 2) T_C = 100°C	I_R	10 / 100		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	1.6		°C/W
Maximum Operating Temperature Range	T_C	-65 to +150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance from Junction to Case per element.
2. 300 μs Pulse Width, 2% Duty Factor.

FIG. 1—FORWARD CURRENT DERATING CURVE

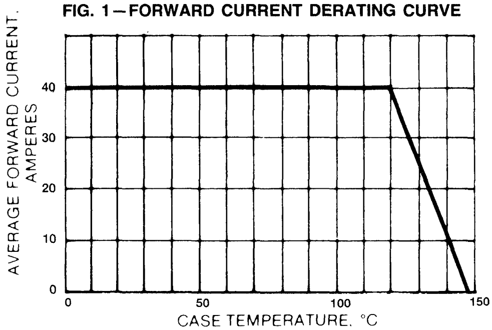


FIG. 2—MAXIMUM REVERSE CHARACTERISTICS

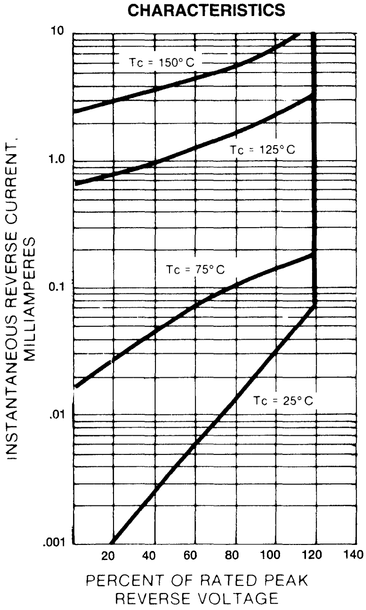


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

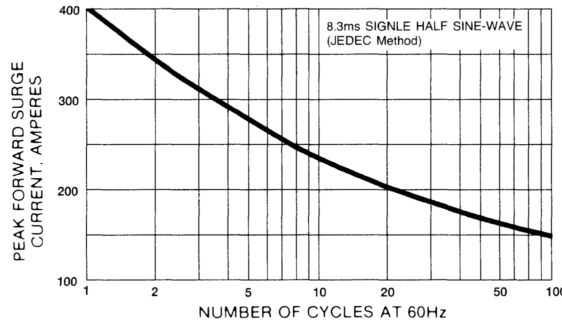


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

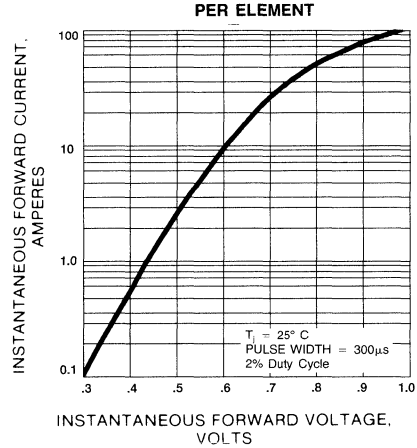
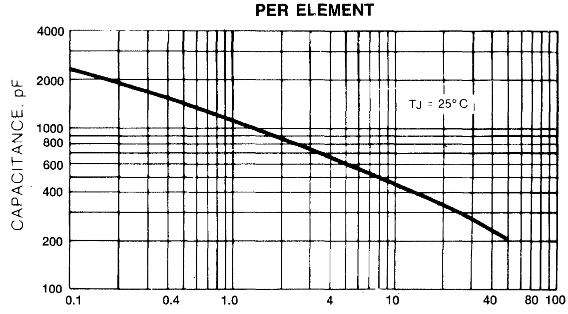


FIG. 5—TYPICAL JUNCTION CAPACITANCE PER ELEMENT



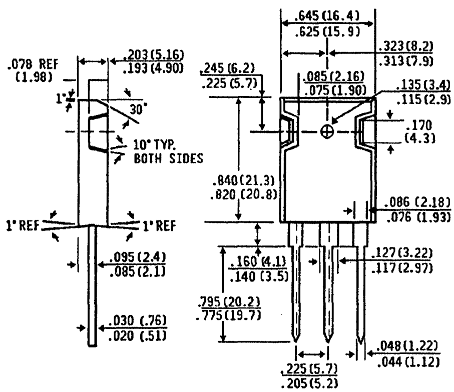
GENERAL INSTRUMENT

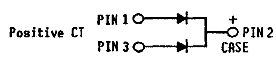
MBR4035PT AND MBR4045PT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 35 and 45 Volts   CURRENT - 40 Amperes

TO-3P

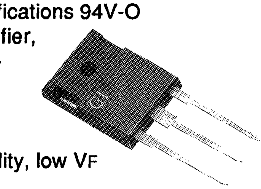




Dimensions in inches
and
(millimeters)

FEATURES

- Dual rectifier constrution, positive cneter-tap
- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-3P

Terminals: Leads solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: .2 ounces, 5.6 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%

	SYMBOLS	*MBR4035PT*	*MBR4045PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	Volts
Maximum RMS Voltage	V_{RMS}	24.5	31.5	Volts
Maximum DC Blocking Voltage	V_{DC}	35	45	Volts
Maximum Average Forward Rectified Current at T_C = 125°C	$I_{(AV)}$	40		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	400		Amps
Maximum Instantaneous Forward Voltage at T_C = 125°C 20.0 A, T_C = 25°C (Note 2)	V_F	.60 .70		Volts
Maximum Average Reverse Current at T_C = 25°C Rated Peak Reverse Voltage (Note 3) T_C = 100°C	I_R	10 100		mA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	1.4		°C/W
Maximum Operating Temperature Range	T_C	-65 to +150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 µs Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

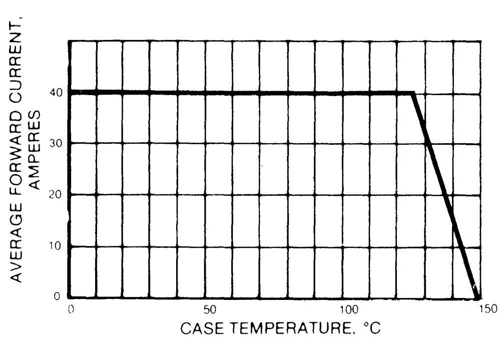


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

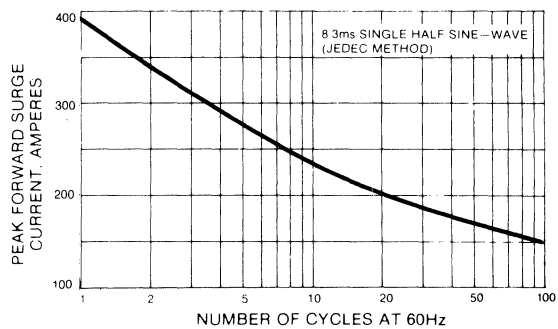


FIG.2 — MAXIMUM REVERSE CHARACTERISTICS

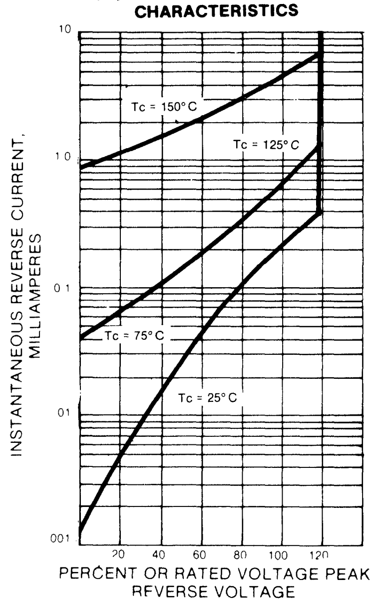


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

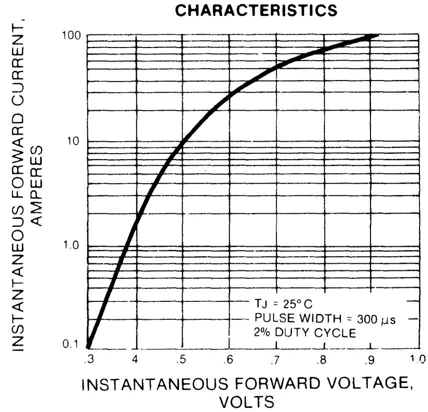
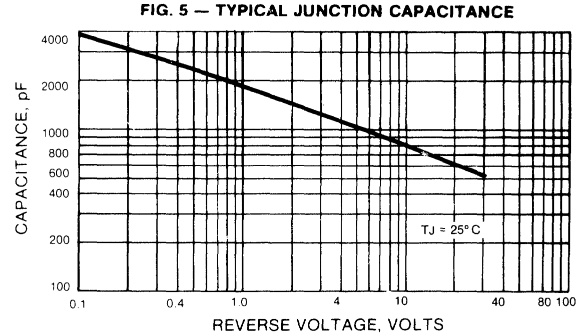


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



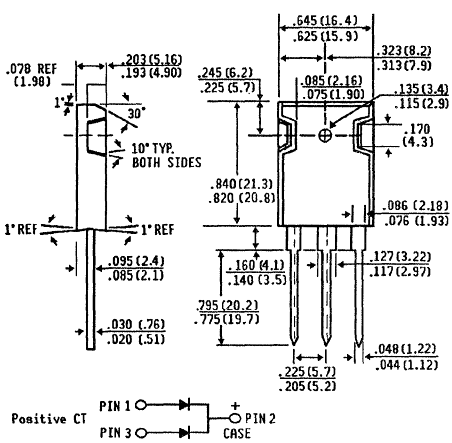
GENERAL INSTRUMENT

MBR4050PT AND MBR4060PT

SCHOTTKY RECTIFIER

VOLTAGE RANGE - 50 and 60 Volts *CURRENT - 40 Amperes*

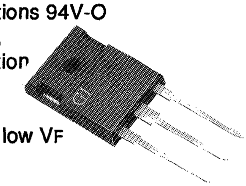
TO-3P



Dimensions in inches
and
(millimneters)

FEATURES

- Dual rectifier construciton, positive center-tap
- Plastic package has Underwriters Laboratory Flammabiltiy Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low VF
- High surge capacity
- Epitaxial construction
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guard Ring for transient protection



MECHANICAL DATA

Case: TO-3P
Terminals: Lead solderable per MIL-STD-202 Method 208
Polarity: As marked
Mounting Position: Any
Weight: .2 ounces, 5.6 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive or inductive load, derate current by 20%.

	SYMBOLS	*MBR4050PT*	*MBR4060PT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	60	Volts
Maximum RMS Voltage	V_{RMS}	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	50	60	Volts
Maximum Average Forward Rectified Current at T_C = 120°C	$I_{(AV)}$	40		Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	400		Amps
Maximum Instantaneous Forward Voltage Per Leg I_F = 20A, T_C = 25°C (Note 2) I_F = 20A, TC = 25°C	V_F	.70 .80		Volts
Maximum Average Reverse Current at T_C = 25°C Rated Peak Reverse Voltage (Note 3) T_C = 100°C	I_R	10 100		mA
Typical Thermal Resistance (Note 1)	RΘJC	1.4		°C/W
Maximum Operating Temperature Range	T_C	-65 to + 150		°C
Maximum Storage Temperature Range	T_{STG}	-65 to +175		°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. 300 us Pulse Width, 2% Duty Factor.

FIG. 1 — FORWARD CURRENT DERATING CURVE

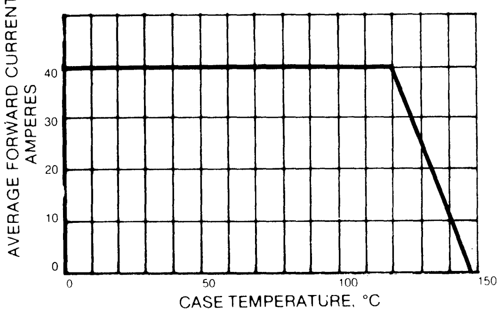


FIG. 2 — MAXIMUM REVERSE CHARACTERISTICS

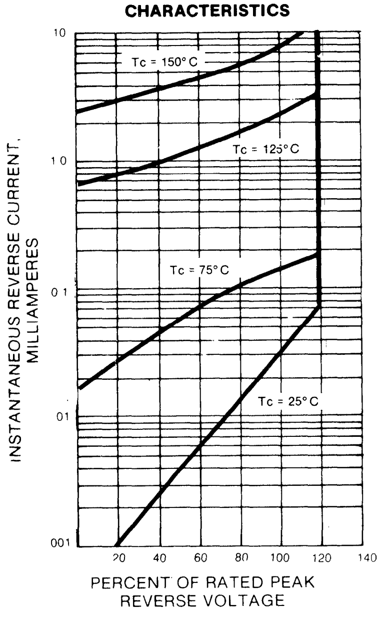


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

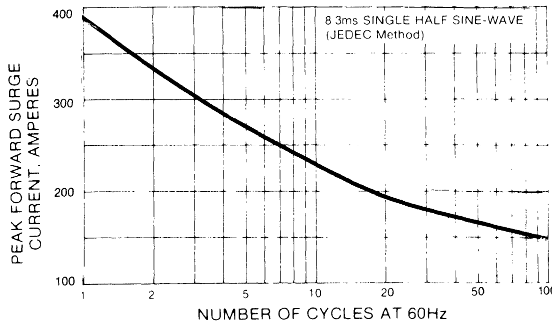


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

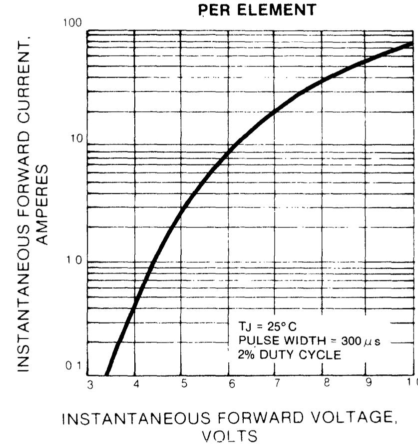
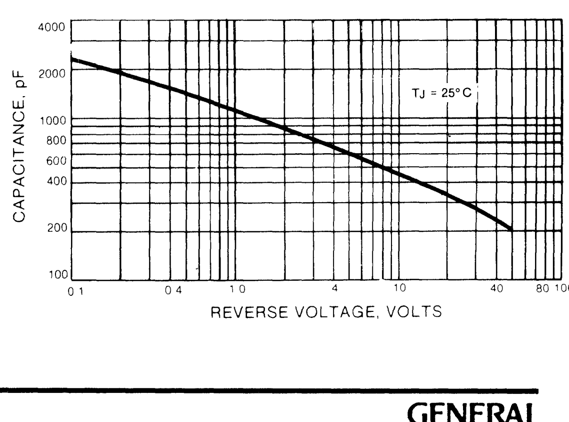


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT



GENERAL INSTRUMENT

FAST EFFICIENT RECTIFIERS

1 AMPERE TO 30 AMPERES

SEE NEW ISOLATED PACKAGES

GENERAL INSTRUMENT

LOW CURRENT AXIAL FAST EFFICIENT RECTIFIERS

TYPE	FE1A thru FE1D	GI1001 thru GI1004	FE2A thru FE2D	BYV27-50 thru BYV27-200	GI1101 thru GI1104	FE3A thru FE3D	BYV28-50 thru BYV28-200	FE5A thru FE5D	FE6A thru FE6D	GI1301 thru GI1304
PACKAGE	DO-204AP	DO-204AP	DO-240AP	DO-204AP	DO-204AP	G4	G4	G4	G4	G4
Io(A)	1	1	2	2	2.5	3.0	3.5	5.0	6.0	6.0
VR=50(V)	FE1A	GI1001	FE2A	BYV27-50	GI1101	FE3A	BYV28-50	FE5A	FE6A	GI1301
VR=100(V)	FE1B	GI1002	FE2B	BYV27-100	GI1102	FE3B	BYV28-100	FE5B	FE6B	GI1302
VR=150(V)	FE1C	GI1003	FE2C	BYV27-150	GI1103	FE3C	BYV28-150	FE5C	FE6C	GI1303
VR=200(V)	FE1D	GI1004	FE2D	BYV27-200	GI1104	FE3D	BYV28-200	FE5D	FE6D	GI1304
VR=300(V)										
VR=400(V)										
VR=500(V)										
VR=600(V)										
VR=800(V)										
VR=1000(V)										

LOW CURRENT AXIAL FAST EFFICIENT RECTIFIERS

CONT.

TYPE	EGP10A thru EGP10D	EGP20A thru EGP20D	EGP30A thru EGP30D	EGP50A thru EGP50D	UF4001 thru UF4007	UF5400 thru UF5408
PACKAGE	DO-41	DO-15	GP-20	GP-20	DO-41	DO-201AD
Io(A)	1.0	2.0	3.0	5.0	1.0	3.0
VR=50(V)	EGP10A	EGP20A	EGP30A	EGP50A	UF4001	UF5400
VR=100(V)	EGP10B	EGP20B	EGP30B	EGP50B	UF4002	UF5401
UV=150(V)	EGP10C	EGP20C	EGP30C	EGP50C		
VR=200(V)	EGP10D	EGP20D	EGP30D	EGP50D	UF4003	UF5402
VR=300(V)	EGP10F	EGP20F	EGP30F	EGP50F		UF5403
VR=400(V)	EGP10G	EGP20G	EGP30G	EGP50G	UF4004	UF5404
UV=500(V)					UF5005	UF5405
VR=600(V)					UF5006	UF5406
VR=800(V)					UF5007	UF5407
VR=1000(V)						

MEDIUM CURRENT FAST EFFICIENT RECTIFIERS

SINGLE RECTIFIERS

TYPE	FESF8AT thru FESF8JT	FES8AT thru FES8JT	GI1401 thru GI1404	BYW29-50 thru BYW29-200	FESF16AT thru FESF16JT	FES16AT thru FES16JT
PACKAGE	ITO-220	TO-220	TO-220	TO-220	ITO-220	TO-220
IO(A)	8	8	8	8	16	16
VR=50(V)	FESF8AT	FES8AT	GI1401	BYW29-50	FESF16AT	FES16AT
VR=100(V)	FESF8BT	FES8BT	GI1402	BYW29-100	FESF16BT	FES16BT
VR=150(V)	FESF8CT	FES8CT	GI1403	BYW29-150	FESF16CT	FES16CT
VR=200(V)	FESF8DT	FES8DT	GI1404	BYW29-200	FESF16DT	FES16DT
VR=300(V)	FESF8FT	FES8FT			FESF16FT	FES16FT
VR=400(V)	FESF8GT	FES8GT			FESF16GT	FES16GT
VR=500(V)	FESF8HT	FES8HT			FESF16HT	FES16HT
VR=600(V)	FESF8JT	FES8JT			FESF16JT	FES16JT

MEDIUM CURRENT FAST EFFICIENT RECTIFIERS

DUAL RECTIFIERS

TYPE	FEPF6AT THRU FEPF6DT	FEP6AT THRU FEP6DT	FEPF16AT THRU FEPF16JT	FEP16AT THRU FEP16JT	GI2401 THRU GI2404	BYV32-50 THRU BYV32-200	FEPF30AP THRU FEPF30JP	FEP30AP THRU FEP30JP
PACKAGE	ITO-220CT	TO-220CT	ITO-220CT	TO-220CT	TO-220CT	TO-220CT	ITO-3P	TO-3P
IO(A)	6	6	16	16	16	18	30	30
VR=50(V)	FEPF6AT	FEP6AT	FEPF16AT	FEP16AT	GI2401	BYV32-50	FEPF30AP	FEP30AP
VR=100(V)	FEPF6BT	FEP6BT	FEPF16BT	FEP16BT	GI2402	BYV32-100	FEPF30BP	FEP30BP
VR=150(V)	FEPF6CT	FEP6CT	FEPF16CT	FEP16CT	GI2403	BYV32-150	FEPF30CP	FEP30CP
VR=200(V)	FEPF6DT	FEP6DT	FEPF16DT	FEP16DT	GI2404	BYV32-200	FEPF30DP	FEP30DP
VR=300(V)			FEPF16FT	FEP16FT			FEPF30FP	FEP30FP
VF=400(V)			FEPF16GT	FEP16GT			FEPF30GP	FEP30GP
VR=500(V)			FEPF16HT	FEP16HT			FEPF30HP	FEP30HP
VR=600(V)			FEPF16JT	FEP16JT			FEPF30JP	FEP30JP

GLASS PASSIVATED FAST EFFICIENT RECTIFIERS

1.0 AMPERE TO 6.0 AMPERES

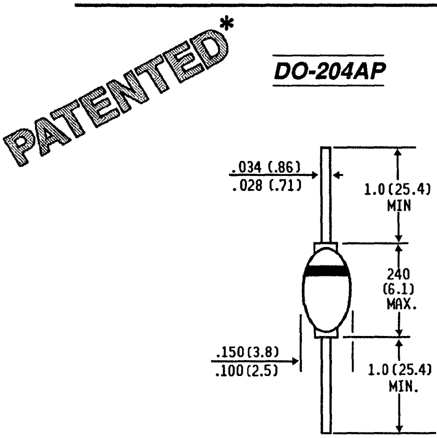
GENERAL INSTRUMENT

FE1A THRU FE1D

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 1.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.02 ounce, 0.6 gram

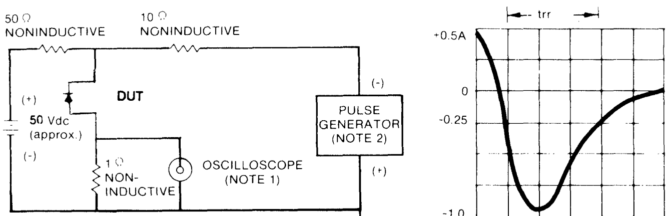
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*FE1A*	*FE1B*	*FE1C*	*FE1D*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 75°C	$I_{(AV)}$	1.0				Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 55°C	I_{FSM}	30.0				Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	0.95				Volts
Maximum DC Reverse Current T_A = 25°C		2.0				
at Rated DC Blocking Voltage T_A = 150°C	I_R	50.0				μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	35.0				Ns
Typical Junction Capacitance (Note 2)	C_J	45.0				pf
Typical Thermal Resistance (Note 3)	RΘJA	65				°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

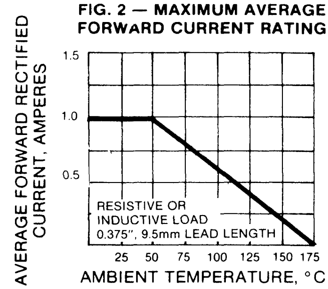


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

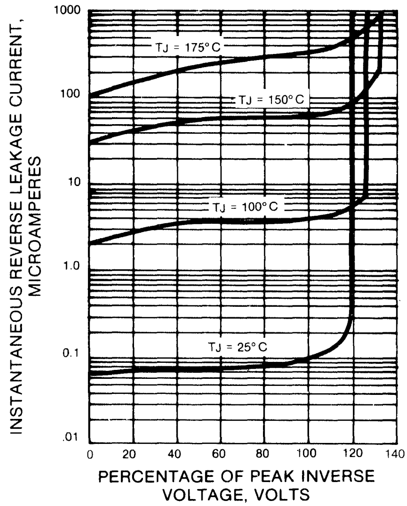


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

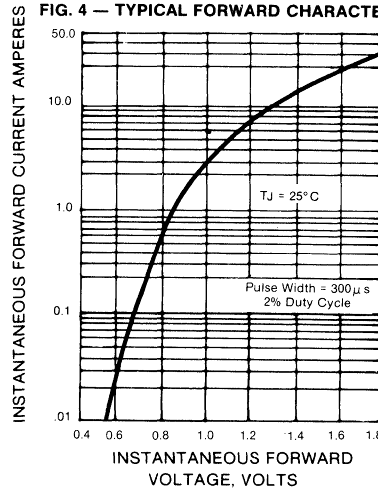


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

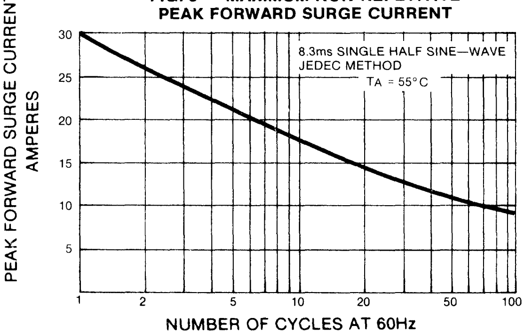
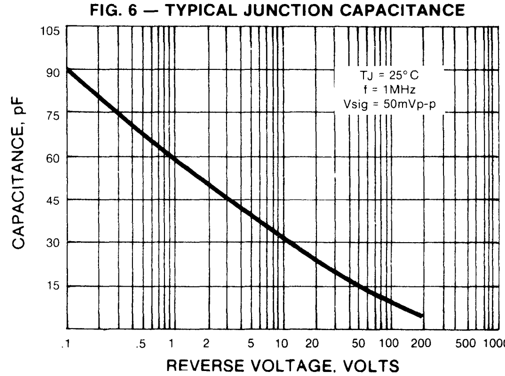


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GI1001 THRU GI1004

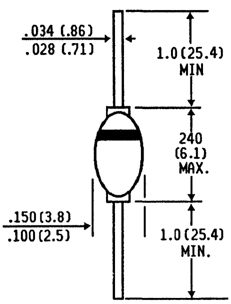
GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 1.0 Amperes*

FEATURES

PATENTED*

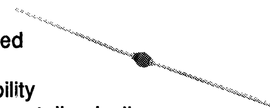
DO-204AP



Dimensions in inches and (millimeters)

* *Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.02 ounce, 0.6 gram

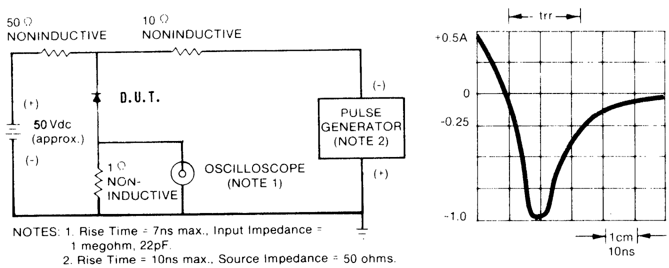
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GI1001	GI1002	GI1003	GI1004	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 75°C	$I_{(AV)}$	1.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0				Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	.975				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	2.0 50				μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	25				Ns
Typical Junction Capacitance (Note 2)	C_J	45.0				pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JL}$	20				°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHZ and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Lead at .375" (9.5mm) Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

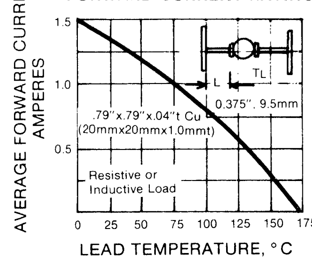


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

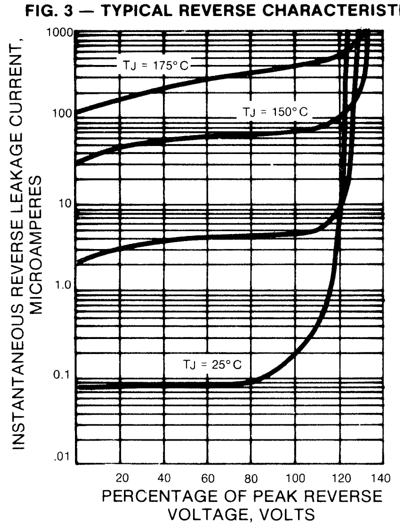


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

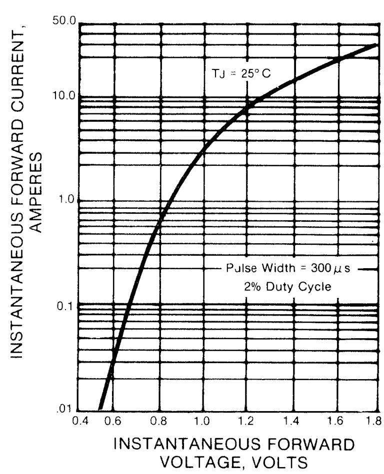


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

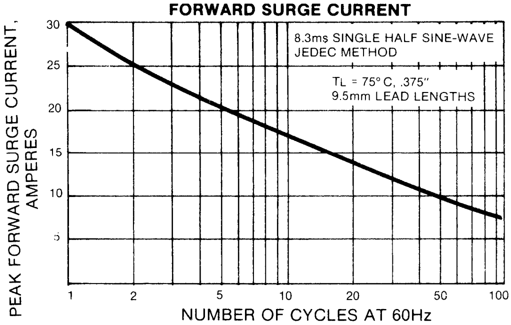
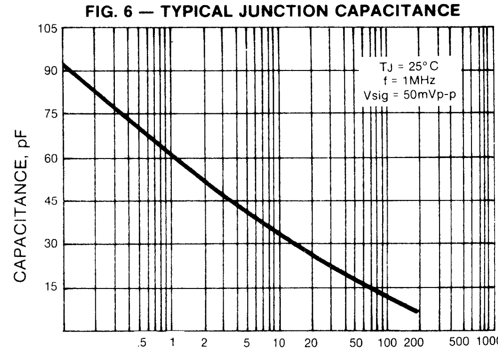


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

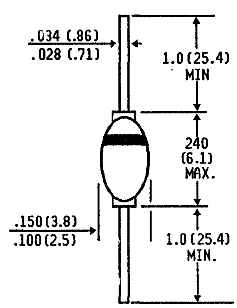
FE2A THRU FE2D

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts*   ***Current** - 2.0 Amperes*

PATENTED*

DO-204AP

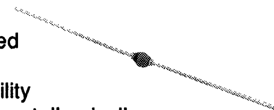


Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.02 ounce, 0.6 gram

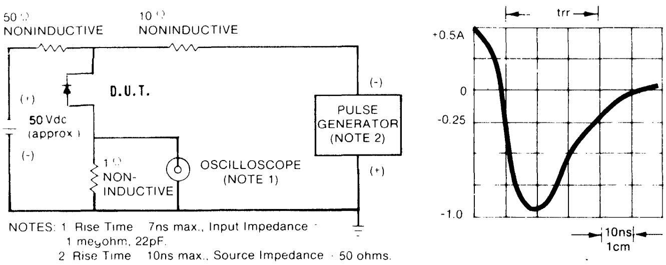
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FE2A	FE2B	FE2C	FE2D	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 75°C	$I_{(AV)}$	2.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 55°C	I_{FSM}	50.0				Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F	0.95				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	2.0 50.0				µA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	35.0				Ns
Typical Junction Capacitance (Note 2)	C_J	45.0				pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	60				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES: 1 Rise Time 7ns max., Input Impedance 1 megohm, 22pF.
2 Rise Time 10ns max., Source Impedance 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

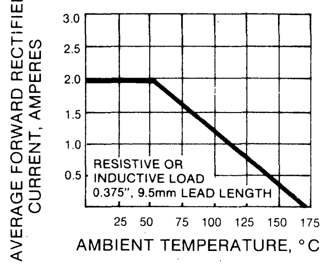
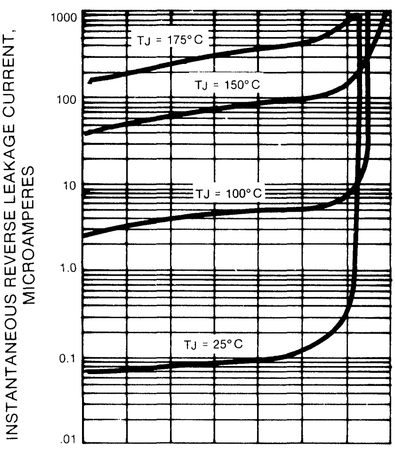


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS



— TYPICAL FORWARD CHARACTERISTICS

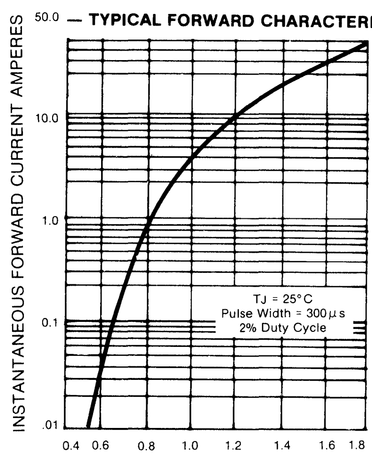


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

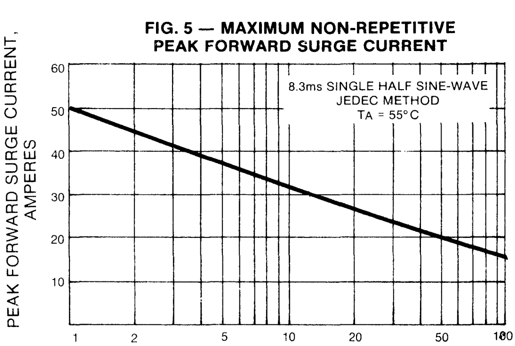
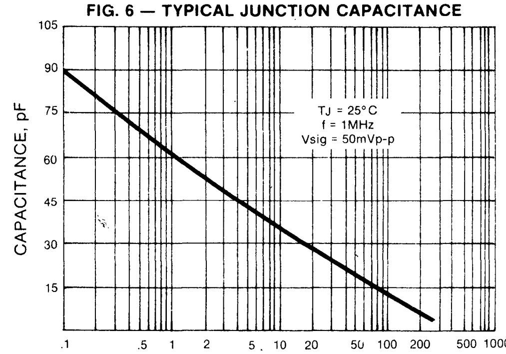


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

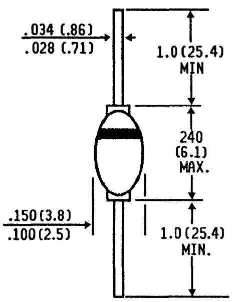
BYV27-50 THRU BYV27-200

GLASS PASSIVATED FAST EPITAXIAL RECTIFIERS

***Voltage** - 50 to 200 Volts* ***Current** - 2.0 Amperes*

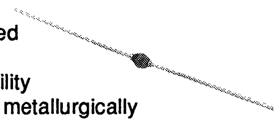
FEATURES

DO-204AP



Dimensions in inches and (millimeters)

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.02 ounce, 0.6 gram

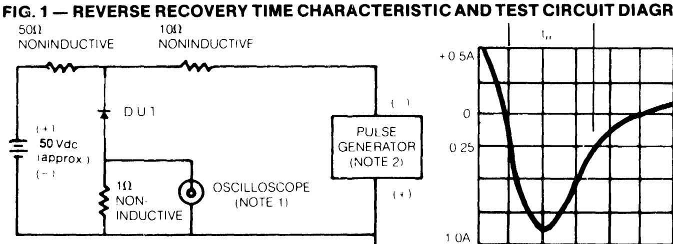
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	BYV27-50	BYV27-100	BYV27-150	BYV27-200	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Reverse Avalanche Voltage at 100 μ A	V_{PK}	55	110	165	220	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 85°C	$I_{(AV)}$	2.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 175°C	I_{FSM}	50.0				Amps
Maximum Instantaneous Forward Voltage at 3.0A T_J = 175°C / T_J=25°C	V_F	0.88 / 1.07				Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 165°C	I_R	1.0 / 150.0				μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	25.0				Ns
Typical Junction Capacitance (Note 2)	C_J	45.0				pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JL}$	20				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Lead at .375" (9.5mm) Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES 1 Rise Time = 7ns max., Input Impedance 1 megohm, 22pF
2 Rise Time = 10ns max., Source Impedance 50 ohms

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT

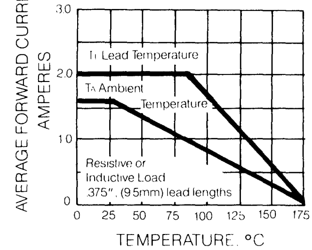


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

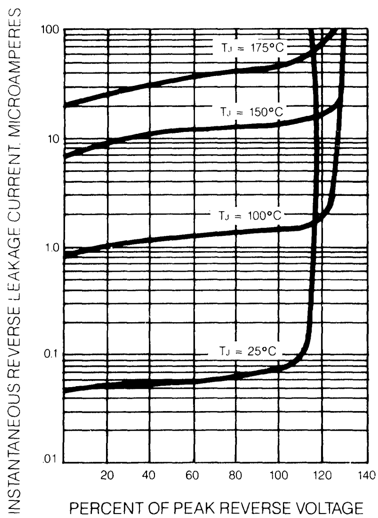


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

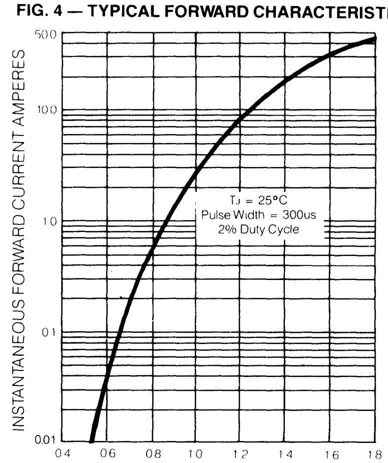


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

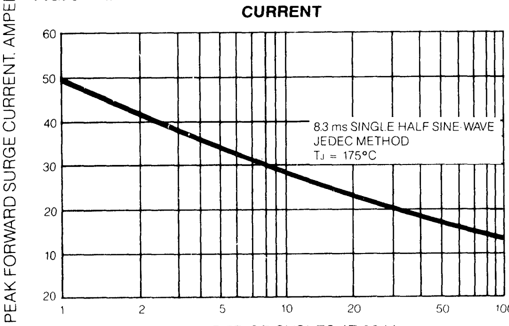
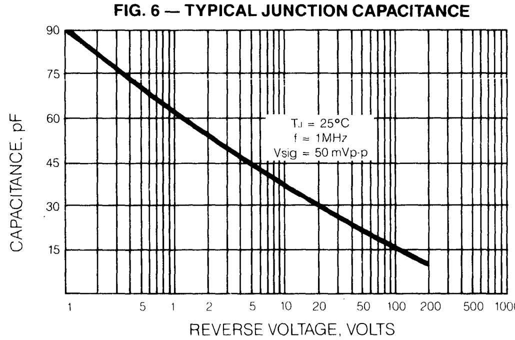


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

GI1101 THRU GI1104

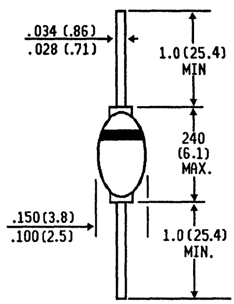
GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 2.5 Amperes*

FEATURES

PATENTED*

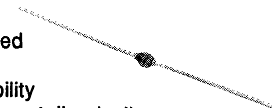
DO-204AP



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- ◆ Glass passivated cavity-free junction
- ◆ Superfast recovery times-epitaxial construction
- ◆ Low forward voltage, high current capability
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Hermetically sealed
- ◆ Low Leakage
- ◆ High surge capability
- ◆ High temperature metallurgically bonded, no compression contacts
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.02 ounce, 0.6 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

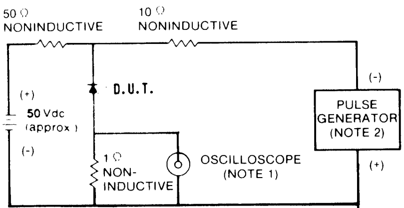
Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

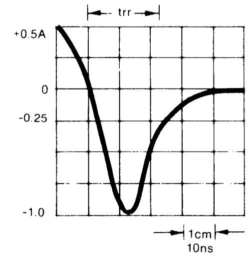
	SYMBOLS	*GI1101*	*GI1102*	*GI1103*	*GI1104*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 75°C	$I_{(AV)}$		2.5		(Note 3) 2.0	Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}		50		20	Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F		.975		(Note 4) 1.25	Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R		2.0 50.0		10.0 200	μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}		25		50	Ns
Typical Junction Capacitance (Note 2)	C		45.0			pf
Typical Thermal Resistance (Note 5)	$R_{\theta JL}$		20			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}		-65 to +175		-65 to +150	°C

NOTES:

1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. T_L = 55°C, .375" (9.5mm) Lead Length.
4. IFM = 1.0ADC.
5. Thermal Resistance from Junction to Lead at .375" (9.5mm) Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM





NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

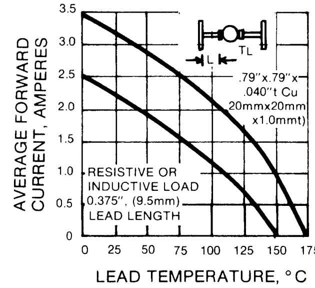


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

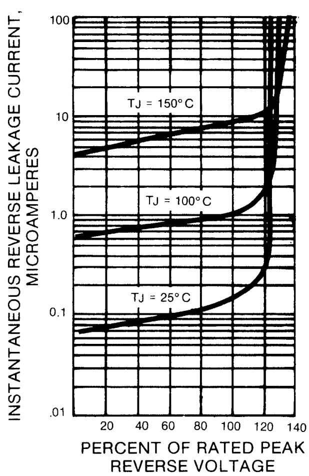


FIG. 5 — TYPICAL FORWARD CHARACTERISTICS

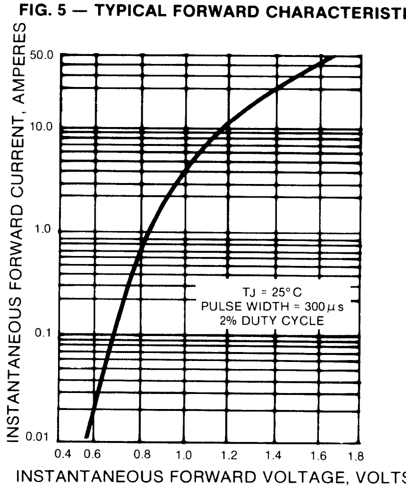


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

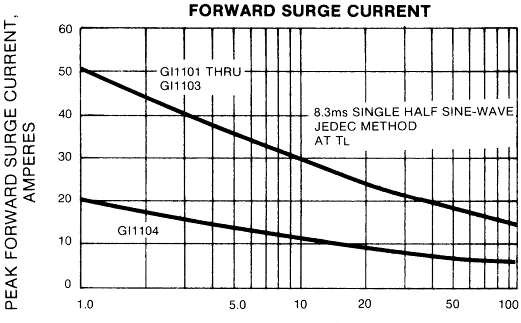
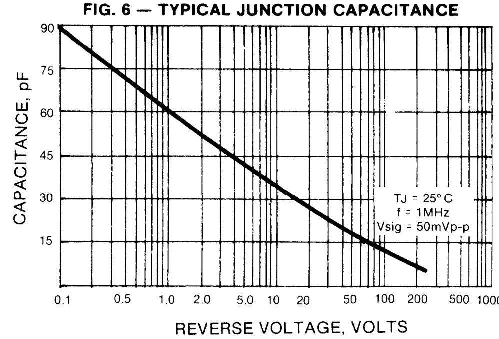


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



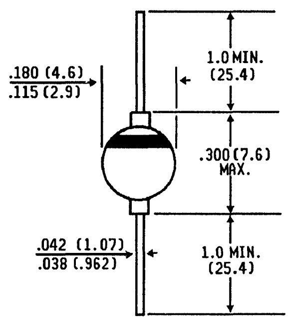
FE3A THRU FE3D

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 3.0 Amperes*

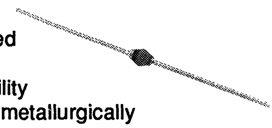
FEATURES

G4



Dimensions in inches and (millimeters)

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hemetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.037 ounce, 1.04 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

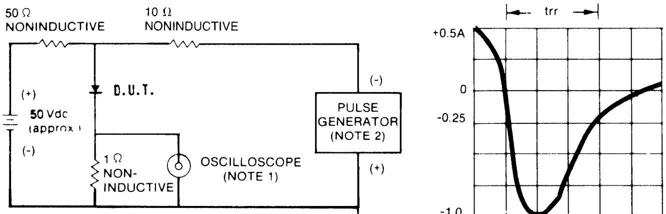
Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*FE3A*	*FE3B*	*FE3C*	*FE3D*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	3.0				Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 55°C	I_{FSM}	125.0				Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	0.95				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 50.0				µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	35.0				Ns
Typical Junction Capacitance (Note 2)	C_J	100.0				pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	55				°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175				°C

NOTES:

1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

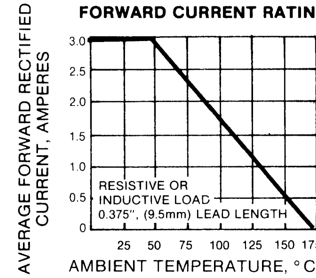


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

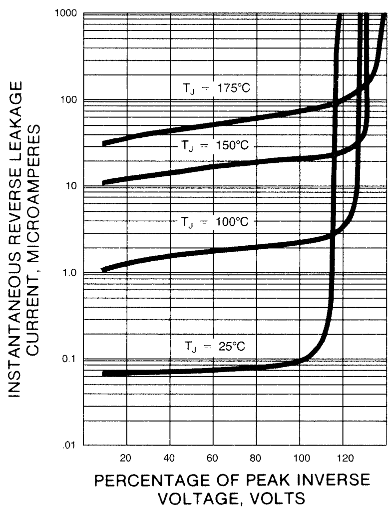


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

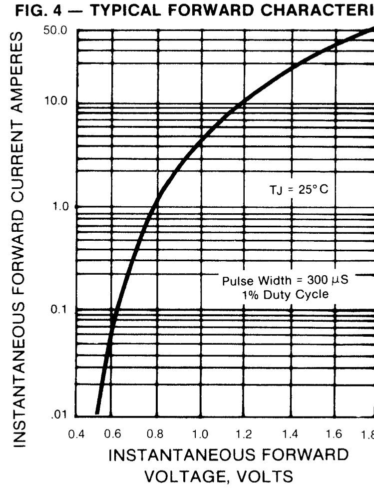


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

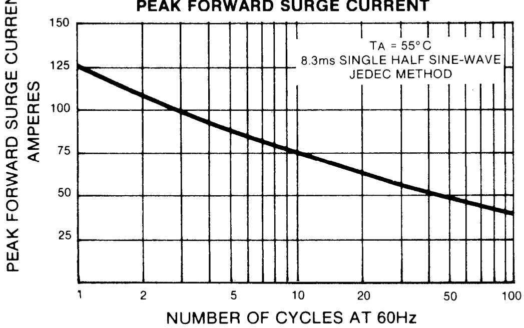
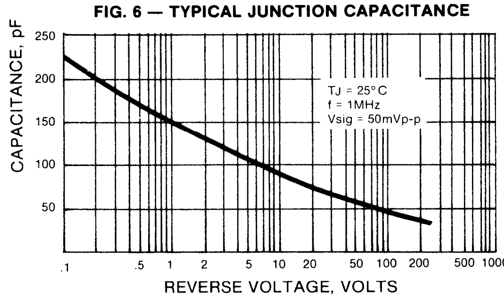


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

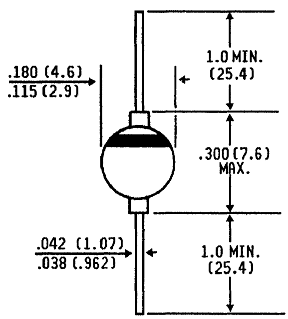
BYV28-50 THRU BYV28-200

GLASS PASSIVATED FAST EPITAXIAL RECTIFIERS

***Voltage** - 50 to 200 Volts* ***Current** - 3.5 Amperes*

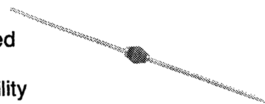
FEATURES

G4



Dimensions in inches and (millimeters)

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.037 ounce, 7.04 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

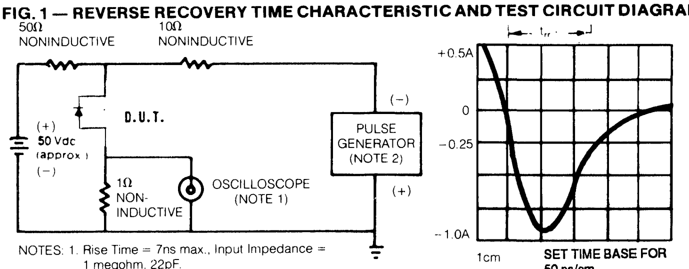
Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	BYV28-50	BYV28-100	BYV28-150	BYV28-200	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Reverse Avalanche Voltage at 100 µ A	V_{PK}	55	110	165	220	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 85°C	$I_{(AV)}$	3.5				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 175°C	I_{FSM}	90				Amps
Maximum Instantaneous Forward Voltage at 3.0A T_J = 175°C / T_J=25°C	V_F	0.89 / 1.1				Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 165°C	I_R	1.0 / 150.0				µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	30.0				Ns
Typical Junction Capacitance (Note 2)	C	100				pf
Typical Thermal Resistance (Note 3)	RΘJL	20				°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175				°C

NOTES:

1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Lead at .375" (9.5mm) Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT

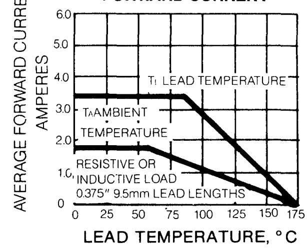


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

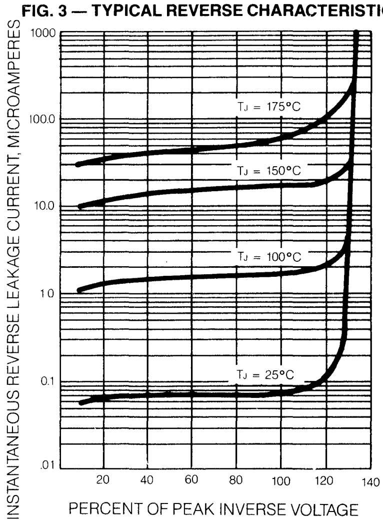


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

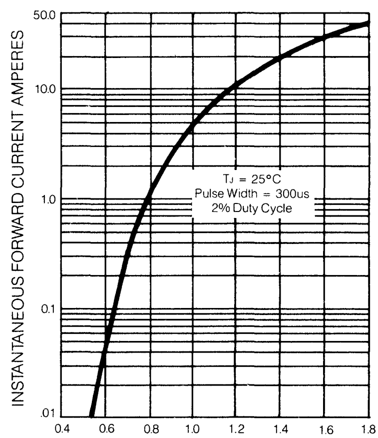


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

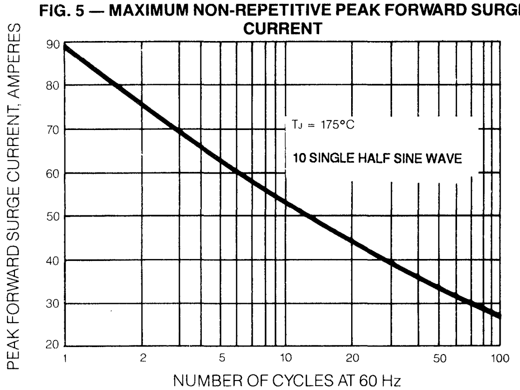
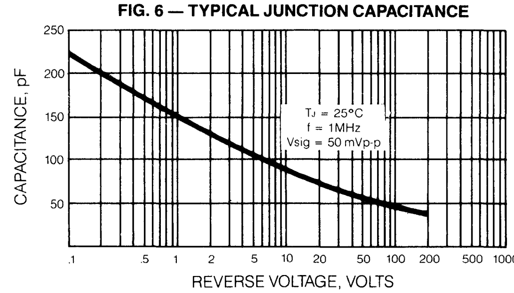


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

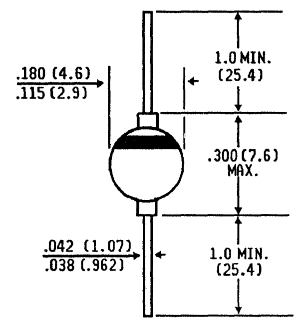
FE5A THRU FE5D

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 5.0 Amperes*

PATENTED*

G4



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.037 ounce, 1.04 gram

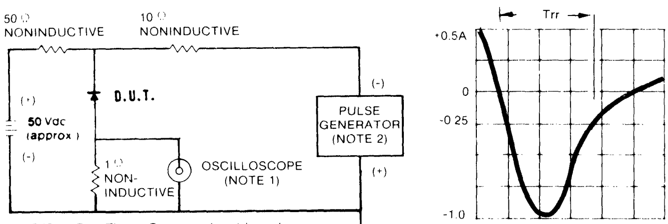
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*FE5A*	*FE5B*	*FE5C*	*FE5D*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 55°C	$I_{(AV)}$	5.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 55°C	I_{FSM}	135.0				Amps
Maximum Instantaneous Forward Voltage at 5.0A	V_F	0.95				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 50.0				µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	35.0				Ns
Typical Junction Capacitance (Note 2)	C_J	100.0				pf
Typical Thermal Resistance (Note 3)	$R\Theta JL$	20				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Lead at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES: 1. Rise Time 7ns max., Input Impedance 1 megohm, 22pF
2. Rise Time 10ns max., Source Impedance 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

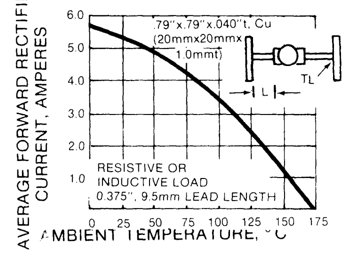


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

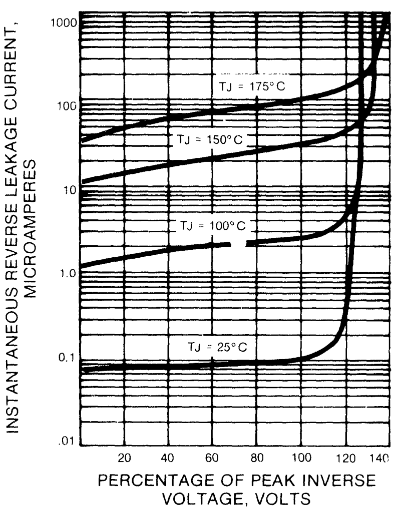


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

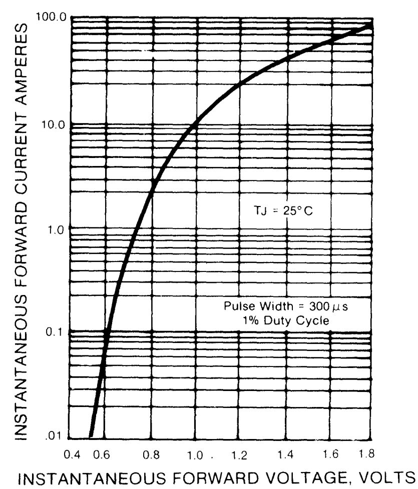


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

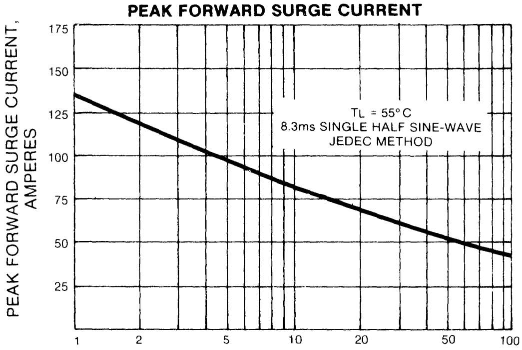
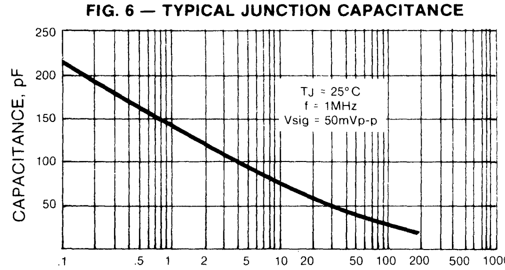


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

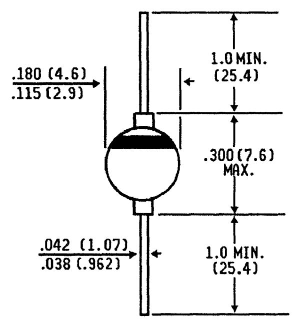
FE6A THRU FE6D

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 6.0 Amperes*

PATENTED*

G4

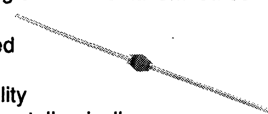


Dimensions in inches and (millimeters)

** Brazed - lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES

- Glass passivated cavity-free junction
- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed
- Low Leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.037 ounce, 1.04 gram

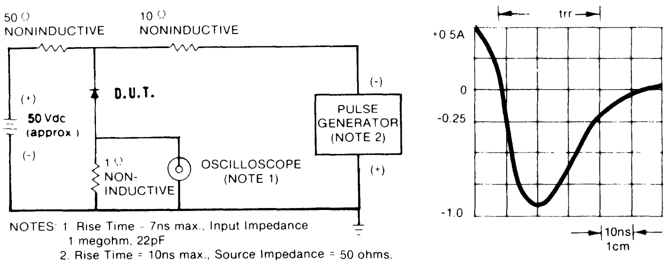
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*FE6A*	*FE6B*	*FE6C*	*FE6D*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 55°C	$I_{(AV)}$	6.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 55°C	I_{FSM}	150.0				Amps
Maximum Instantaneous Forward Voltage at 6.0A	V_F	0.975				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 50.0				μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	35.0				Ns
Typical Junction Capacitance (Note 2)	C_J	100.0				pf
Typical Thermal Resistance (Note 3)	$R\theta JL$	18.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Lead at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

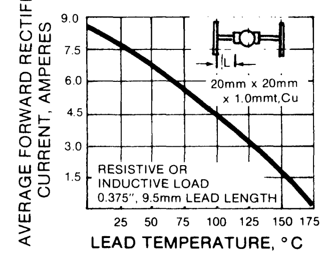


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

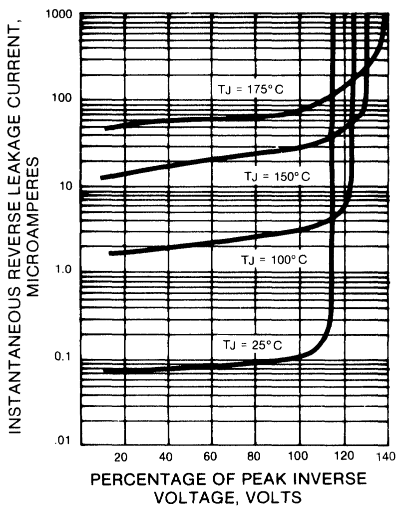


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

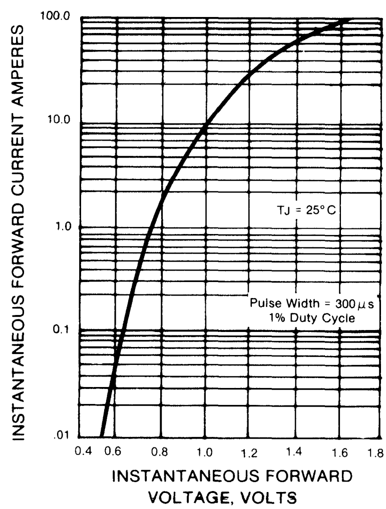


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

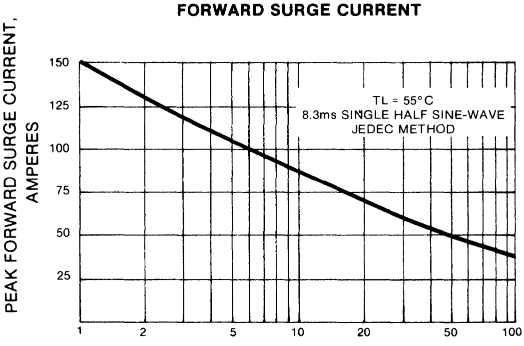
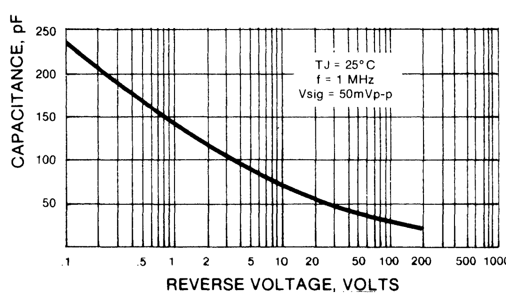


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

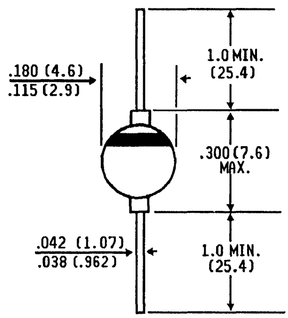
GI1301 THRU GI1304

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 6.0 Amperes*

PATENTED*

G4

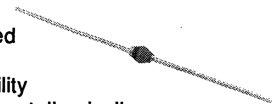


Dimensions in inches and (millimeters)

* *Brazed - lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES

- ◆ Glass passivated cavity-free junction
- ◆ Superfast recovery times-epitaxial construction
- ◆ Low forward voltage, high current capability
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Hermetically sealed
- ◆ Low Leakage
- ◆ High surge capability
- ◆ High temperature metallurgically bonded, no compression contacts
- ◆ High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Unitized glass hemetically sealed

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.037 ounce, 1.04 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GI1301	GI1302	GI1303	GI1304	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 75°C	$I_{(AV)}$	6.0			(Note 3) 5.0	Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	150			70	Amps
Maximum Instantaneous Forward Voltage at 6.0A	V_F	0.925			(Note 4) 1.25	Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 150.0			20.0 500	µA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	30			50	Ns
Typical Junction Capacitance (Note 2)	C	95				pf
Typical Thermal Resistance (Note 5)	RΘJL	18				°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175			-65 to +150	°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. T_L = 55°C, .375" (9.5mm) Lead Length.
4. IFM = 3.0ADC.
5. Thermal Resistance from Junction to Lead at .375" (9.5mm) Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

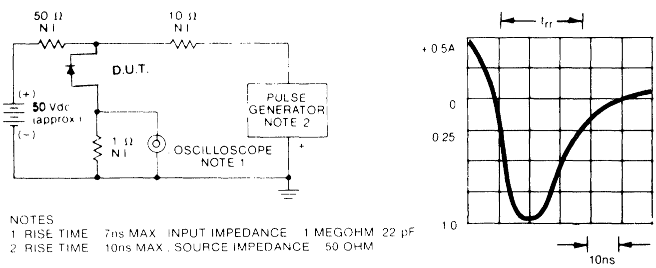


FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

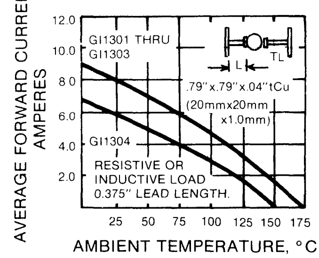


FIG. 3 — TYPICAL REVERSE CHARACTERISITCS

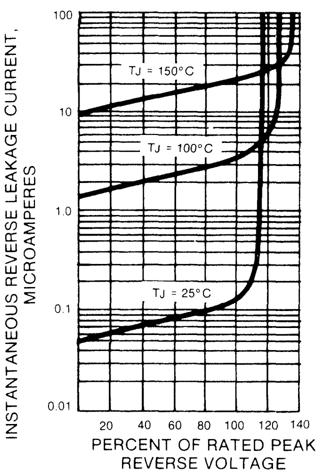


FIG. 5 — TYPICAL FORWARD CHARACTERISTICS

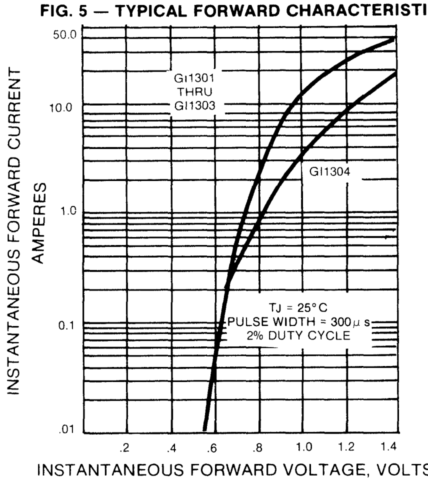


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

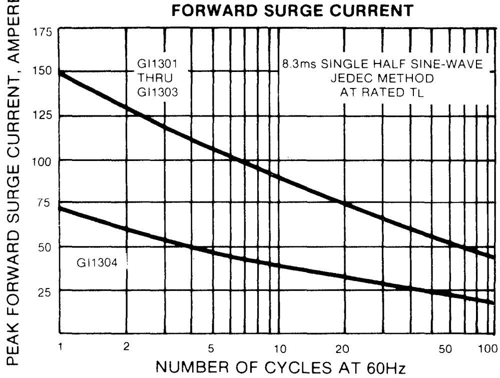
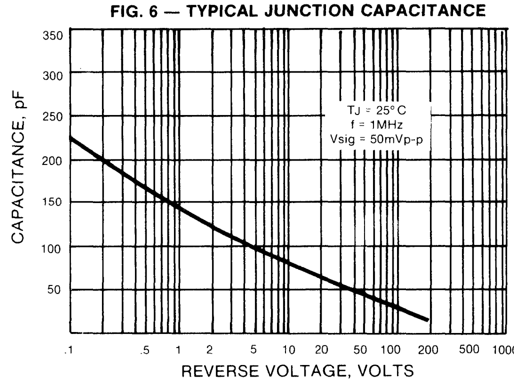


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

SUPERECTIFIER

GLASS PASSIVATED PLASTIC FAST EFFICIENT RECTIFIERS

1.0 AMPERE TO 5 AMPERES

GENERAL INSTRUMENT

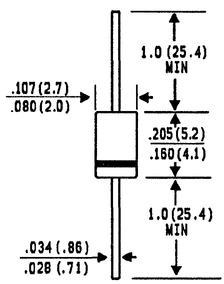
EGP10A THRU EGP10G

GLASS PASSIVATED JUNCTION FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 400 Volts* ***Current** - 1.0 Amperes*

PATENTED*

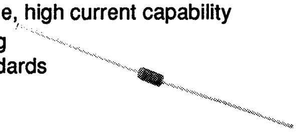
DO-41



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES



- Glass passivated cavity-free junction
- Superfast recovery times for high efficiency
- Low forward voltage, high current capability
- Capable of meeting envionmental standards of MIL-S-19500
- Low leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- Plastic package has Underwriters Laboratories Flammability Classification 94V-O
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, 0.3 gram

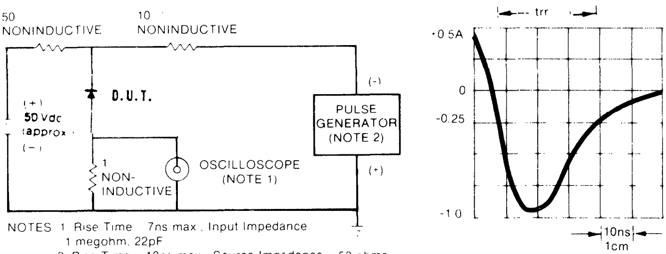
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	EGP 10A	EGP 10B	EGP 10C	EGP 10D	EGP 10F	EGP 10G	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.0						Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load T_A = 55°C	I_{FSM}	30.0						Amps
Maximum Instantaneous Forward Voltage a 1.0A	V_F	0.95				1.25		Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 50.0						μA
Typical Reverse Recovery Time (Note 1) TJ = 25°C	T_{RR}	50.0						Ns
Typical Junction Capacitance (Note 2)	C_J	20.0				10.0		pf
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150						°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = .5A, I_R = 1A, Irr = .25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES 1 Rise Time 7ns max. Input Impedance 1 megohm, 22pF
2 Rise Time 10ns max. Source Impedance 50 ohms

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

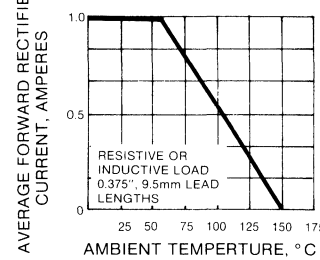


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

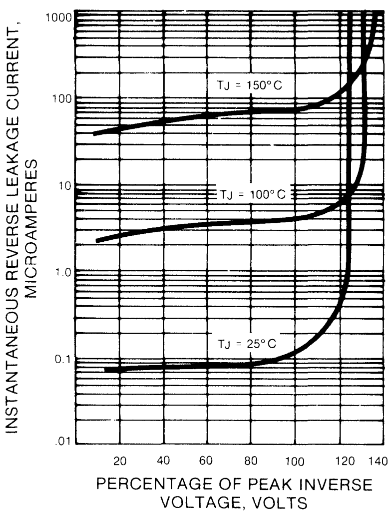


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

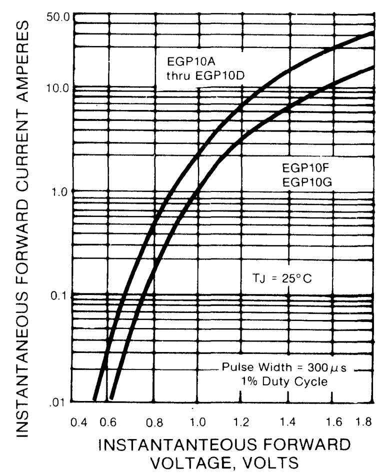


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

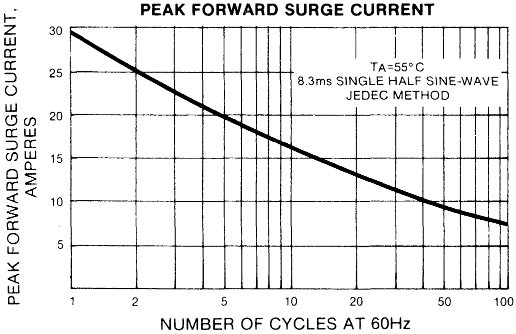
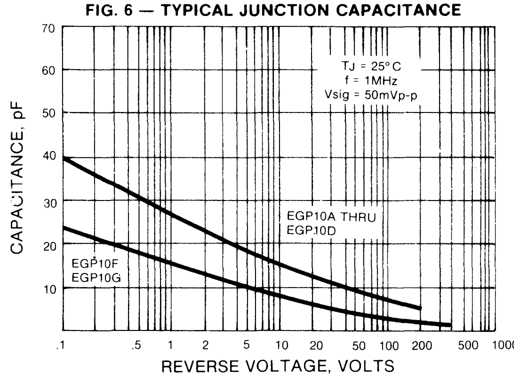


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

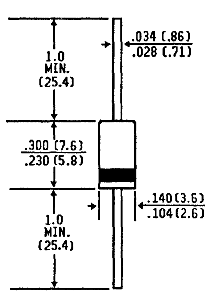
EGP20A THRU EGP20G

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 400 Volts* ***Current** - 2.0 Amperes*

PATENTED*

DO-15



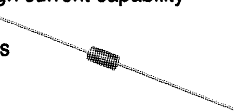
Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES

- Glass passivated cavity-free junction
- Superfast recovery times for high efficiency
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Low leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- Plastic package has Underwriters Laboratories Flammability Classification 94V-O
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce, 0.4 gram

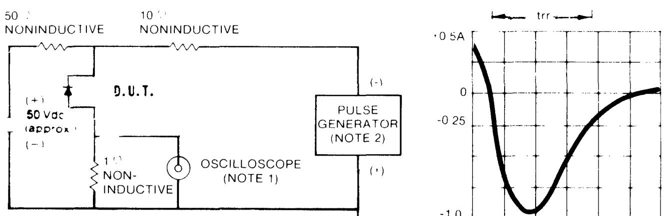
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	EGP 20A	EGP 20B	EGP 20C	EGP 20D	EGP 20F	EGP 20G	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	2.0						Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load T_A = 55°C	I_{FSM}	75.0						Amps
Maximum Instantaneous Forward Voltage a 2.0A	V_F	0.95				1.25		Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 50.0						µA
Typical Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	50.0						Ns
Typical Junction Capacitance (Note 2)	C_J	70.0				40.0		pf
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150						°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = .5A, I_R = 1A, Irr = .25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES: 1 Rise Time 7ns max., Input Impedance 1 megohm, 22pF
2 Rise Time 10ns max., Source Impedance 50 ohms

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

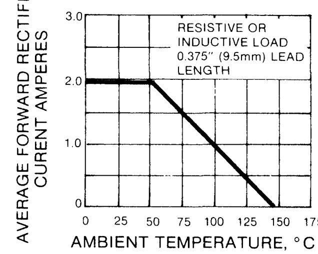


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

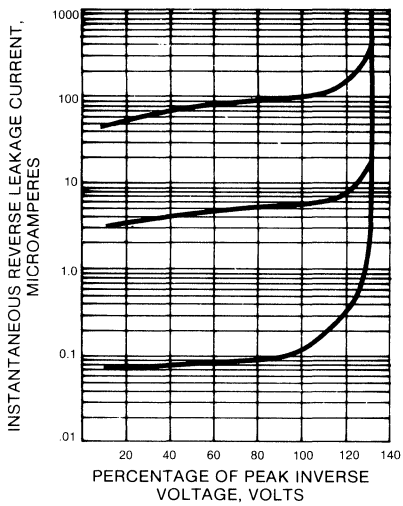


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

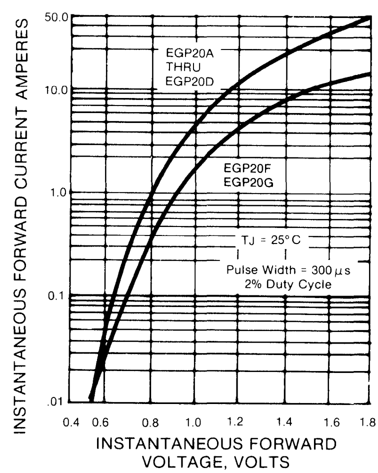


FIG. 5 — MAXIMUM NON-REPETITIVE SURGE CURRENT

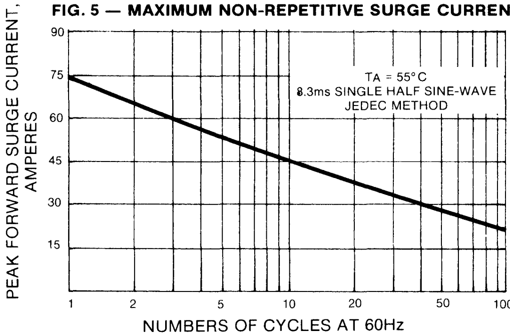
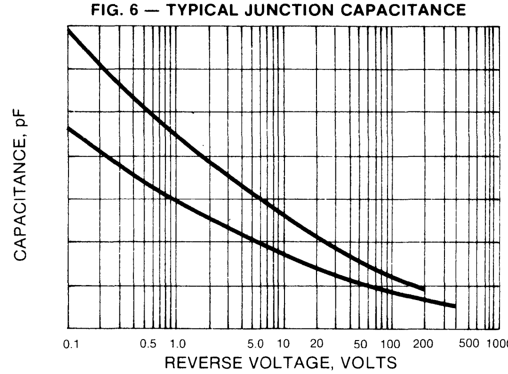


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

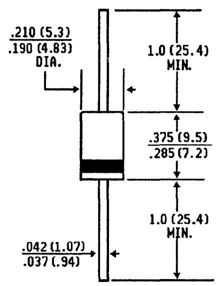
EGP30A THRU EGP30G

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 400 Volts* ***Current** - 3.0 Amperes*

PATENTED*

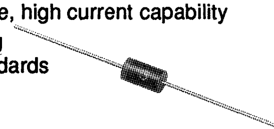
GP-20



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES



- Glass passivated cavity-free junction
- Superfast recovery times for high efficiency
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Low leakage
- High surge capability
- High temperature metallurgically bonded, no compression contacts
- Plastic package has Underwriters Laboratories Flammability Classification 94V-O
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.03 ounce, 0.8 gram

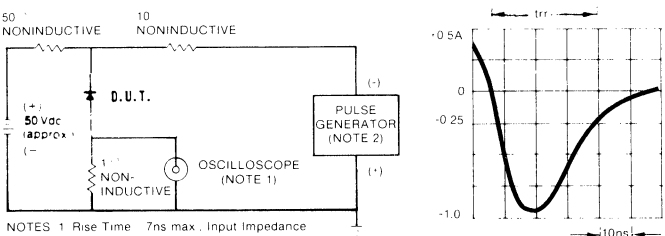
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	EGP 30A	EGP 30B	EGP 30C	EGP 30D	EGP 30F	EGP 30G	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	3.0						Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load T_A = 55°C	I_{FSM}	125.0						Amps
Maximum Instantaneous Forward Voltage a 3.0A	V_F	0.95				1.25		Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 50.0						μA
Typical Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	50.0						ns
Typical Junction Capacitance (Note 2)	C_J	90.0				55.0		pf
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150						°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = .5A, I_R = 1A, Irr = .25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES 1 Rise Time 7ns max. Input Impedance 1 megohm. 22pF
2 Rise Time 10ns max. Source Impedance 50 ohms

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

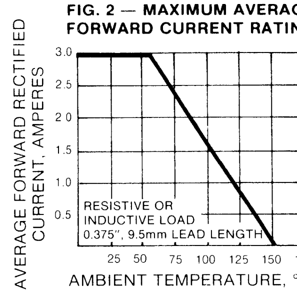


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

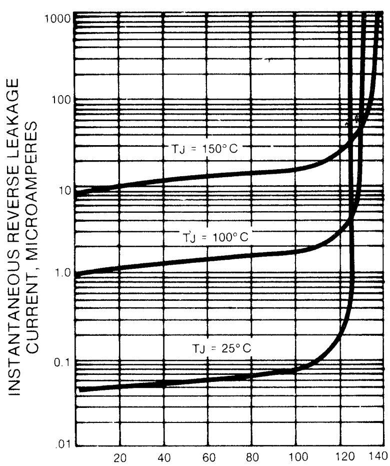


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

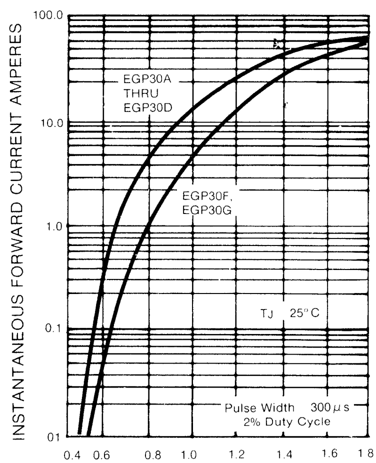


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

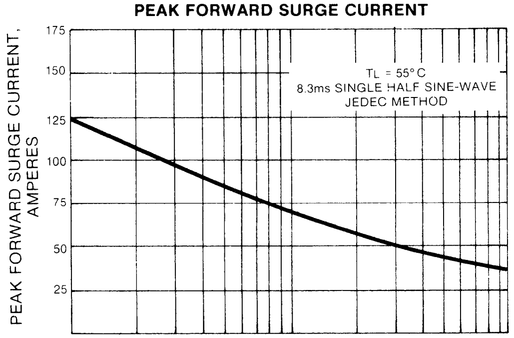
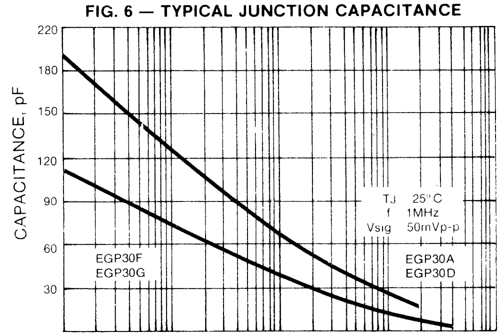


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

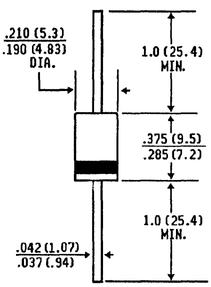
EGP50A THRU EGP50G

GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 400 Volts* ***Current** - 5.0 Amperes*

PATENTED*

GP-20



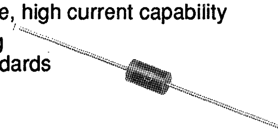
Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES

- ◆ Glass passivated cavity-free junction
- ◆ Superfast recovery times for high efficiency
- ◆ Low forward voltage, high current capability
- ◆ Capable of meeting environmental standards of MIL-S-19500



- ◆ Low leakage
- ◆ High surge capability
- ◆ High temperature metallurgically bonded, no compression contacts
- ◆ Plastic package has Underwriters Laboratories Flammability Classification 94V-O
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.03 ounce, 0.8 gram

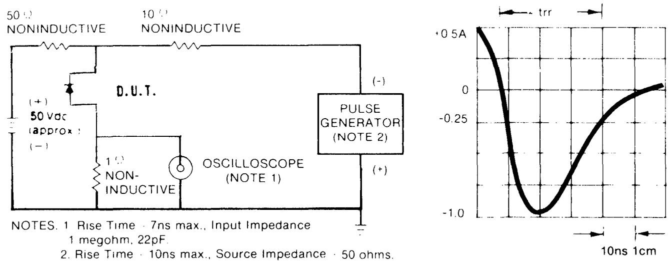
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	EGP 50A	EGP 50B	EGP 50C	EGP 50D	EGP 50F	EGP 50G	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_L = 55°C	$I_{(AV)}$	5.0						Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load T_L = 55°C	I_{FSM}	150.0						Amps
Maximum Instantaneous Forward Voltage a 5.0A	V_F	0.95				1.25		Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 50.0						µA
Typical Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	50.0						Ns
Maximum Thermal Resistance (Note 3)	$R\Theta J L$	20						°C\W
Typical Junction Capacitance (Note 2)	C_J	100						pf
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150						°C

NOTES: 1. Reverse Recovery Test Conditions : I_F = .5A, I_R = 1A, Irr = .25A.
2. Measured at 1.0 MHZ and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Lead at .375", 9.5mm Lead Lengths.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES. 1 Rise Time · 7ns max., Input Impedance · 1 megohm, 22pF.
2. Rise Time · 10ns max., Source Impedance · 50 ohms.

FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

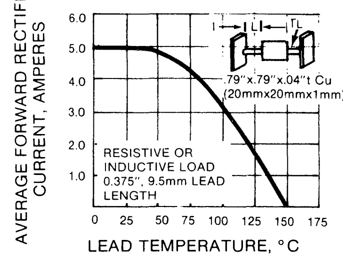


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

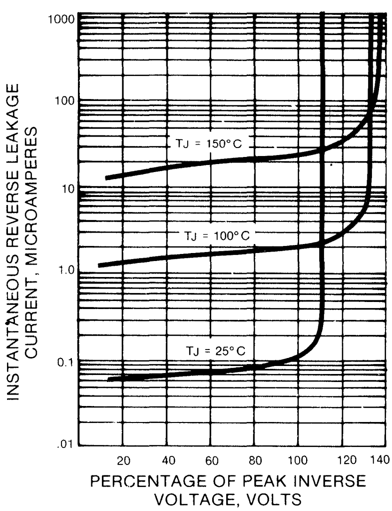


FIG. 4 — TYPICAL FORWARD CHRACTERISTICS

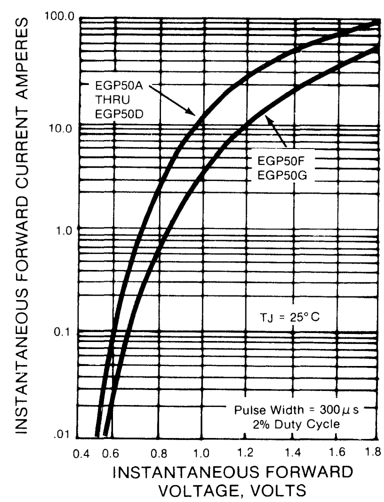


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

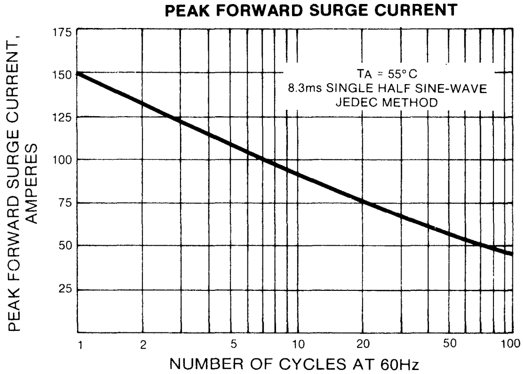
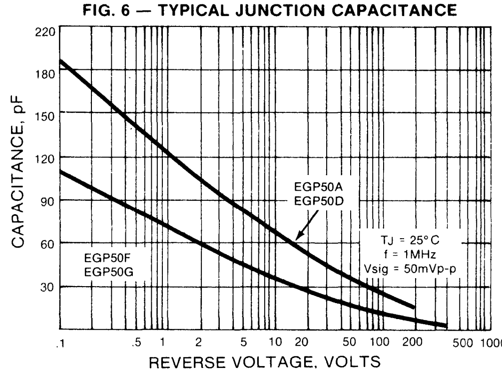


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



PLASTIC FAST EFFICIENT RECTIFIERS

1 AND 3 AMPERES

GENERAL INSTRUMENT

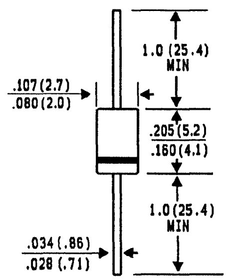
UF4001 THRU UF4007

ULTRAFAST MINIATURE PLASTIC SILICON RECTIFIER

VOLTAGE *- 50 to 1000 Volts* ***CURRENT*** *- 1.0 Ampere*

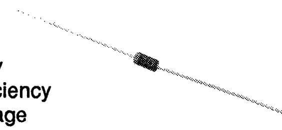
FEATURES

DO-41



Dimensions in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- 1.0 Ampere operation at TA = 55°C with no thermal runaway
- Low cost
- Ultrafast Recovery Times for high efficiency
- Low Forward Voltage
- Low Leakage
- High Suge Capability
- High temperature soldering guaranteed 375°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-41 Molded plastic
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes Cathode End
Weight: 0.012 ounce, 0.3 gram
Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*UF 4001*	*UF 4002*	*UF 4003*	*UF 4004*	*UF 4005*	*UF 4006*	*UF 4007*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375" (9.5mm) Lead Length T_A = 55°C	$I_{(AV)}$	1.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.0				1.4			Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 50.0							μA
Maximum Reverse Recovery Time (Note 1) TJ = 25°C	Trr	50.0				75.0			Ns
Typical Junction Capacitnance (Note 2)	C_J	20				15			pF
Typical Thermal Resistance (Note 3)	RθJA	25.0							°C/W
Operating and Storage Temperature Range,	T_J, T_{STG}	-65 to +150							°C

NOTES:
1. Reverse Recovery Test Conditions: I_F =.5A, I_R = 1A, Irr = .25A.
2. Meaasured at 1 MHz and applied reverse voltage of 4.0 Volts.,
3. Thermal Resistance from Junction to Ambient, .375", 9.5mm Lead Lengths.

FIG. 1 — MAXIMUM AVERAGE FORWARD CURRENT RATING

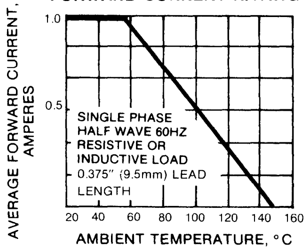


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

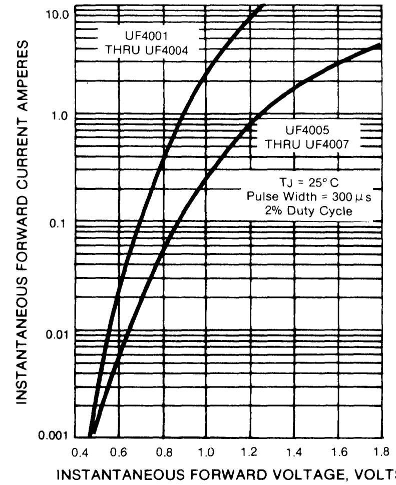


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

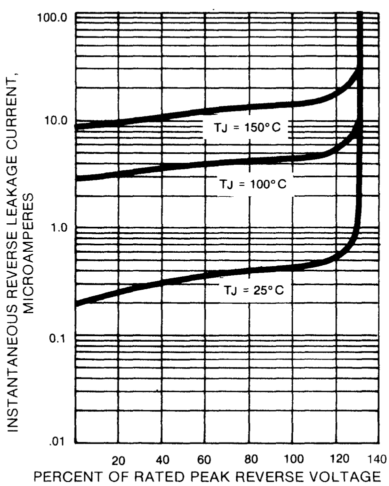


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

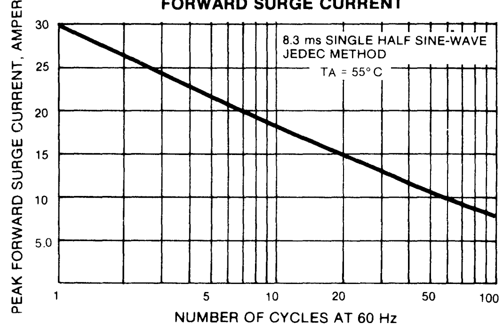


FIG. 6 — TYPICAL JUNCTION CAPACITANCE

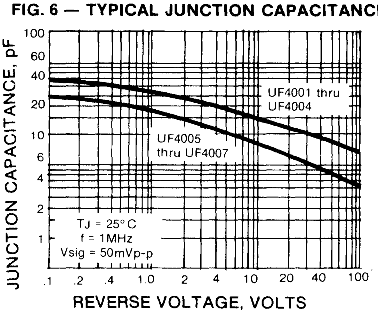
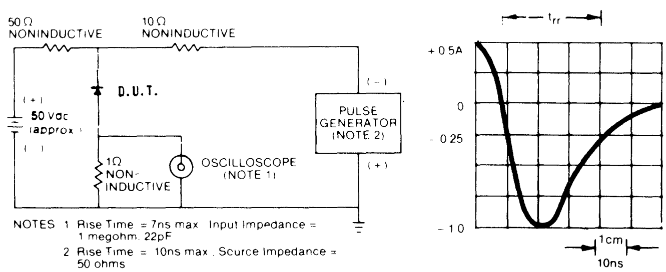


FIG. 5 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



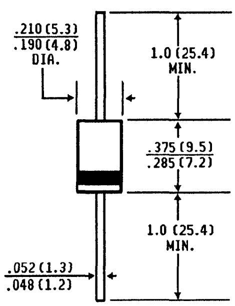
UF5400 THRU UF5408

ULTRAFAST PLASTIC SILICON RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 3.0 Amperes*

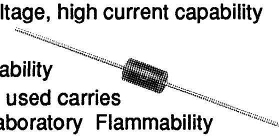
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- Low cost
- Ultrafast recovery times for high efficiency
- Low forward voltage, high current capability
- Low leakage
- High surge capability
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering guaranteed 250°C,.25", 6.35mm from case for 10 seconds



MECHANICAL DATA

Case: JEDEC DO-201AD, molded plastic

Terminals: Axial Leads solderable per MIL-STD-202, Method 208

Polarity: Color Band denotes Cathode

Mounting Position: Any

Weight: 0.04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*UF 5400*	*UF 5401*	*UF 5402*	*UF 5403*	*UF 5404*	*UF 5405*	*UF 5406*	*UF 5407*	*UF 5408*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	300	400	500	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	210	280	350	420	560	710	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	300	400	500	600	800	1000	Volts
Maximum Average Forward Rectified Current, .375", (9.5 mm) Lead Length at T_A = 55°C	$I_{(AV)}$	3.0									Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 55°C	I_{FSM}	150.0									Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.0						1.4			Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 50.0									μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	50.0						75.0			Ns
Typical Junction Capacitance (Note 2)	C_J	75						50.0			pf
Maximum Thermal Resistance (Note 3)	$R_{\theta JL}$	20.0									°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150									°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measure at 1MHz and applied reverse voltage of 4.0 volts.
3. Thermal Resistance Junction to Lead.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

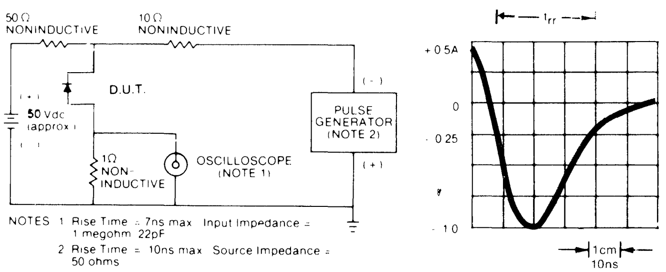


FIG. 2 — MAXIMUM AVERAGE FORWARD CURRENT RATING

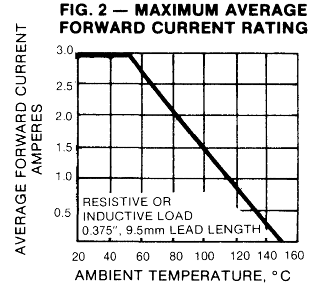


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

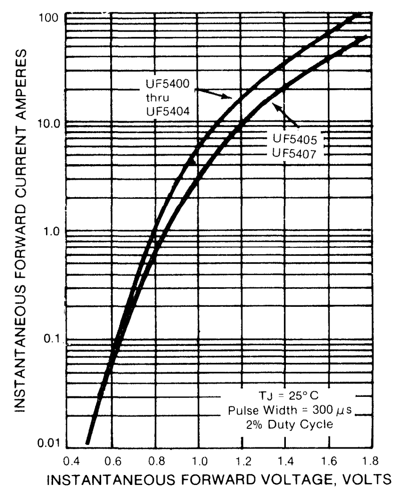


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

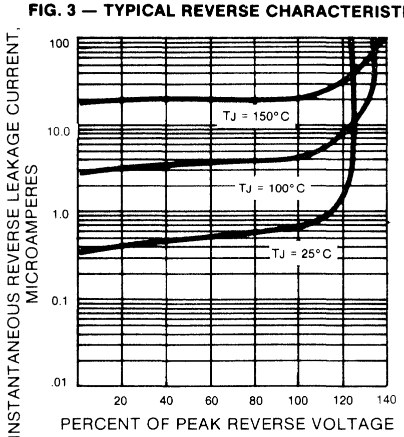


FIG. 6 — TYPICAL JUNCTION CAPACITANCE

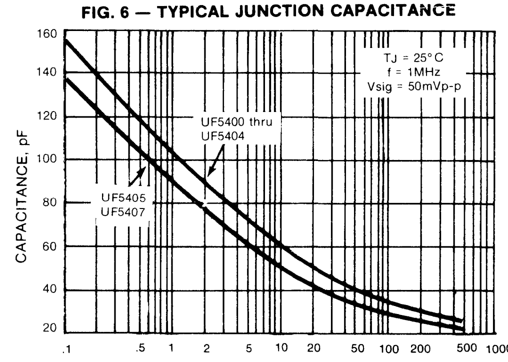
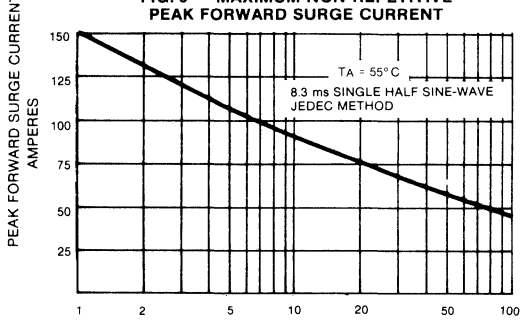


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



GENERAL INSTRUMENT

MEDIUM CURRENT FAST EFFICIENT RECTIFIERS

6 TO 30 AMPERES

SEE NEW ISOLATED PACKAGES

GENERAL INSTRUMENT

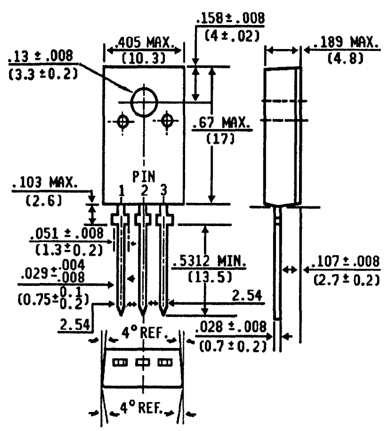
FEPF6AT THRU FEPF6DT

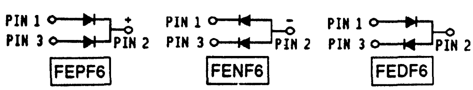
FAST EFFICIENT GLASS PASSIVATED RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 6.0 Amperes*

FEATURES

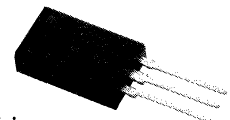
ITO-220 CT





Dimensions in inches and (millimeters)

- Dual rectifier construction, positive center-tap
- Isolated plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Superfast recovery times, high voltage
- Low power loss, high efficiency
- Low forward voltage, high current capability
- For use in low voltage, high frequency inverters, free wheeling and polarity protection applications
- High temperature soldering guaranteed: 250°C, .25", 6.35mm from case for 10 seconds
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 Fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Mounting Torque: 5 in.-lb. max.

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*FEPF6AT*	*FEPF6BT*	*FEPF6CT*	*FEPF6DT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	6.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100.0				Amps
Maximum Instantaneous Forward Voltage at 6.0A	V_F	0.950				Volts
Maximum DC Reverse Current Tc = 25°C at Rated DC Blocking Voltage Tc = 100°C	I_R	5.0 50.0				μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	35.0				Ns
Typical Thermal Resistance (Note 2)	$R\theta JC$	5.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150				°C

NOTES: 1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Thermal Resistance from Junction to Case per element.

FIG. 1 — FORWARD CURRENT DERATING CURVE

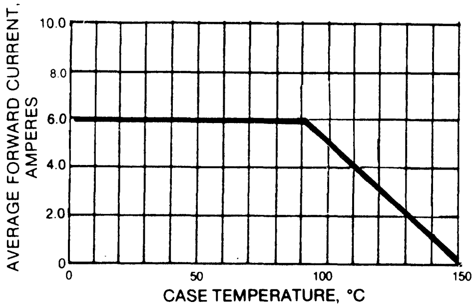


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

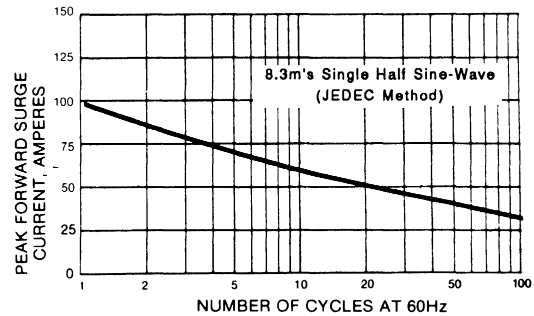


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

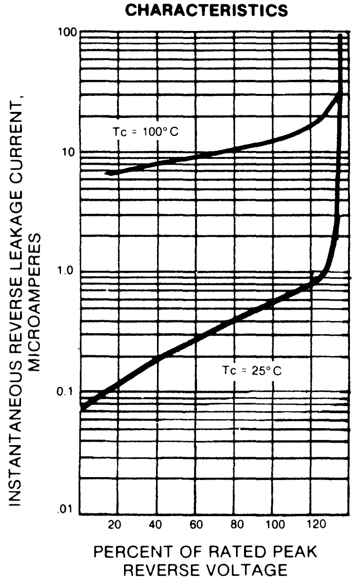


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

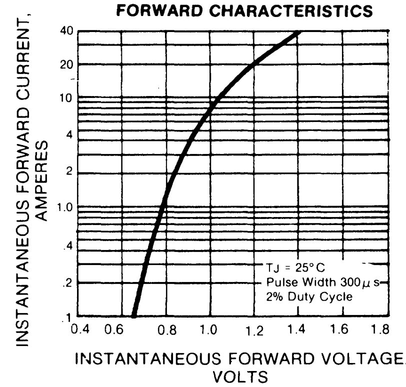
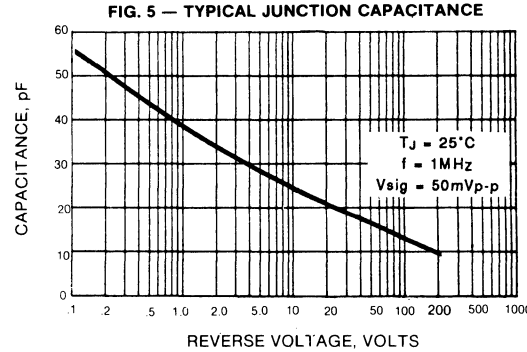


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



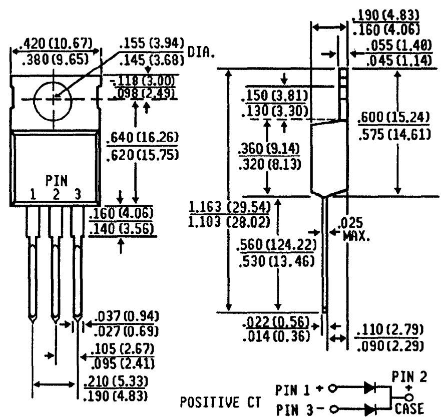
FEP6-T SERIES

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

Voltage* - *50 to 200 Volts* *Current* - *16 Amperes

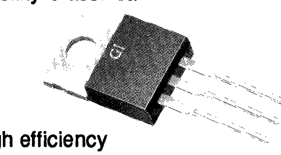
FEATURES

TO-220 CT



Dimensions in inches and (millimeters)

- Dual rectifier constrsuction, positive center-tap
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Superfast recovery times, high voltage
- Low power loss, high efficiency
- Low forward voltage, high current capability
- For use in low voltage, high frequency inverters, free wheeling and polarity protection applications
- High temperature soldering guaranteed: 250°C, .25", 6.35mm from case for 10 seconds



MECHANICAL DATA

Case: TO-220 CT Fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*FEP6AT*	*FEP6BT*	*FEP6CT*	*FEP6DT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at 100°C	$I_{(AV)}$	6.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100.0				Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	0.975				Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 100°C$	I_R	5.0 50.0				µA µA
Maximum Reverse Recovery Time (Note 1) $T_J = 25°C$	T_{RR}	35.0				Ns
Typical Thermal Resistance (Note 3)	RθJC	5.5				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150				°C

NOTES:
1. Reverse Recovery Test Conditions : $I_F = 5.0A$, $I_R = 1.0A$, $I_{RR} = 25A$.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Thermal Resistance from Junction to Case.

GENERAL INSTRUMENT

FIG. 1 — FORWARD CURRENT DERATING CURVE

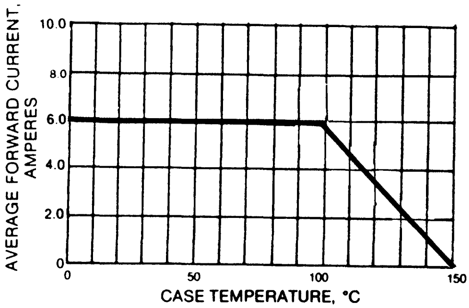


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

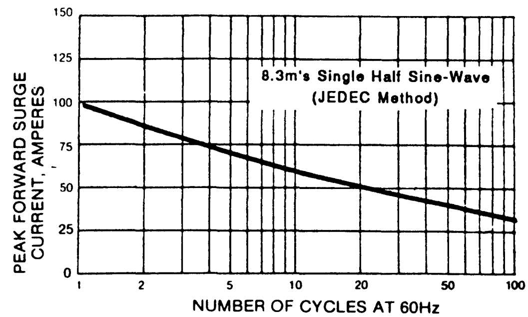


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

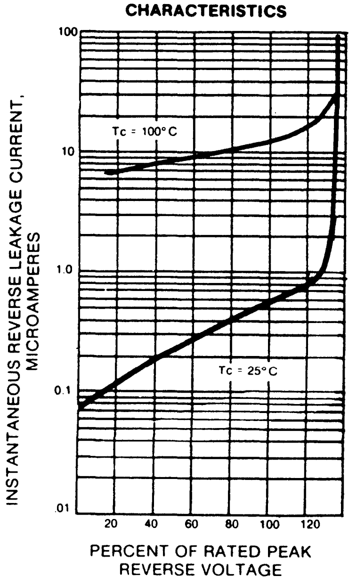


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

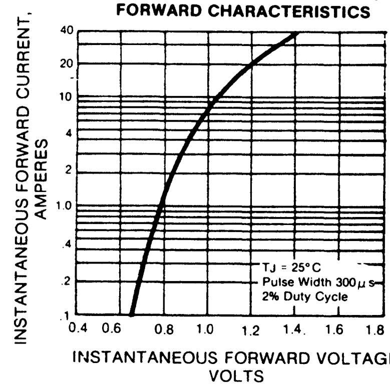
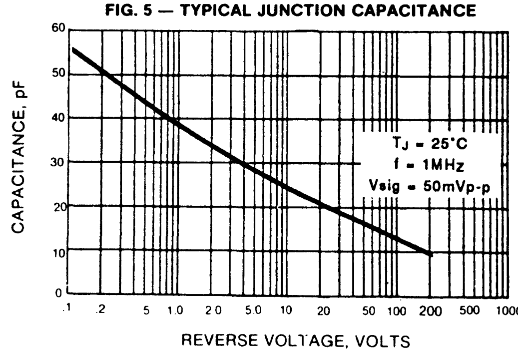


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



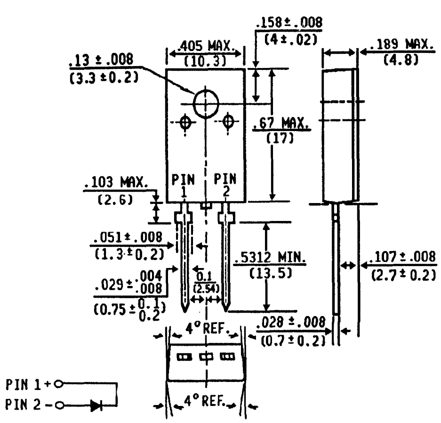
FESF8AT THRU FESF8JT

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 8.0 Amperes*

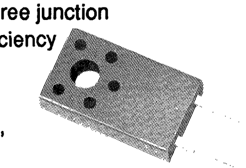
FEATURES

ITO-220



Dimensions in inches and (millimeters)

- Isolated plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power loss, high efficiency
- Low leakage
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed: 250°C, .25", 6.35mm from case for 10 seconds
- Internal Insulation: 1.5K V_{RMS}



MECHANICAL DATA

Case: ITO-220 fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Mounting Torque: 5 in.- lbs. max.

Weight: 0.08 ounce, 2.24

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FESF 8AT	FESF 8BT	FESF 8CT	FESF 8DT	FESF 8FT	FESF 8GT	FESF 8HT	FESF 8JT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	8.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125								Amps
Maximum Instantaneous Forward Voltage at 8.0A	V_F	0.95				1.3		1.5		Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500								µA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	65								pf
Typical Thermal Resistance (Note 3)	$R\theta JC$	2.2								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES:

1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to Case.

FIG. 1 — FORWARD CURRENT DERATING CURVE

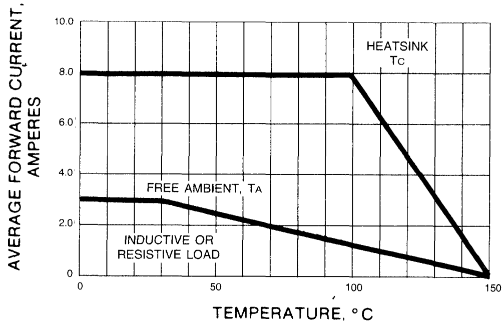


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

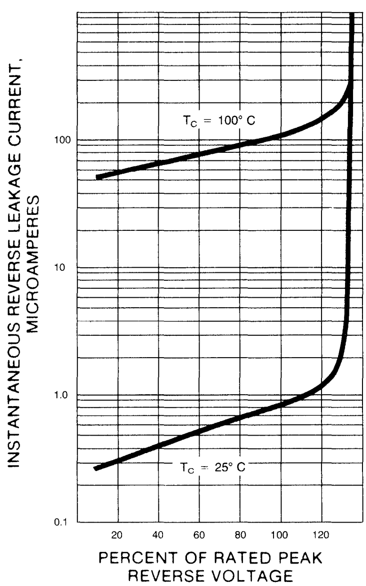


FIG. 3—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

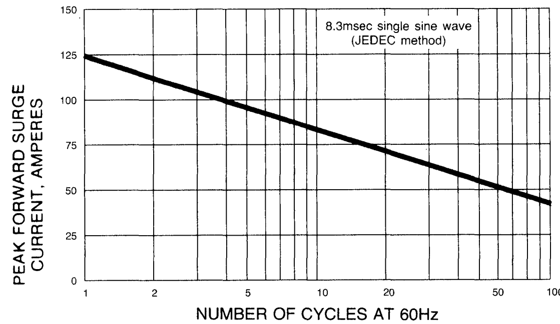


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

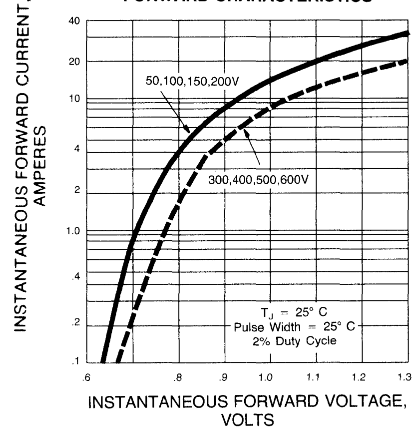
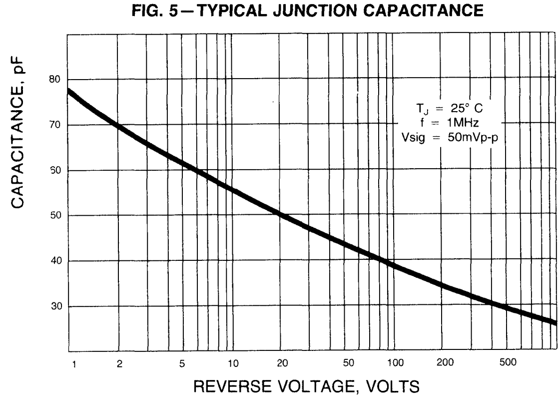


FIG. 5—TYPICAL JUNCTION CAPACITANCE

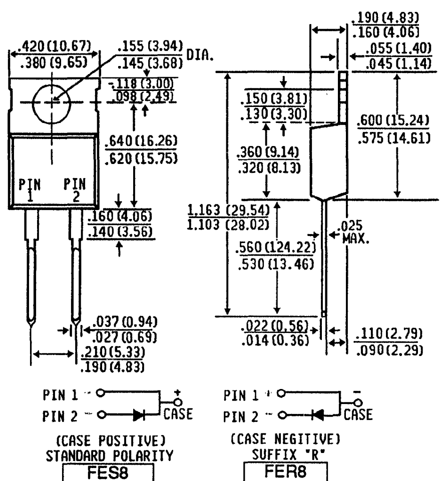


FES8AT THRU FES8JT

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

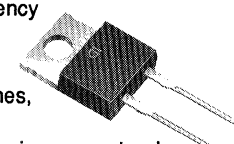
***Voltage** - 50 to 600 Volts* ***Current** - 8.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power, high efficiency
- Low Leakage
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed 250°C,.25", 6.35mm from case for 10 seconds



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FES 8AT	FES 8BT	FES 8CT	FES 8DT	FES 8FT	FES 8GT	FES 8HT	FES 8JT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	8.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125								Amps
Maximum Instantaneous Forward Voltage at 8.0A	V_F	0.95				1.3		1.5		Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500								μA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	65								pf
Typical Thermal Resistance (Note 3)	RθJC	3.0								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2.. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to CASE.

FIG. 1 — FORWARD CURRENT DERATING CURVE

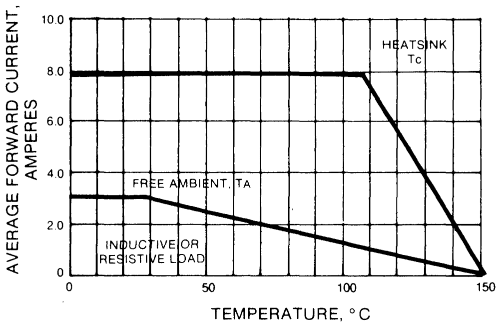


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

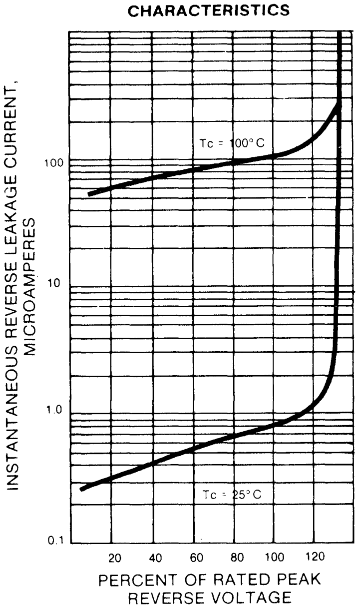


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

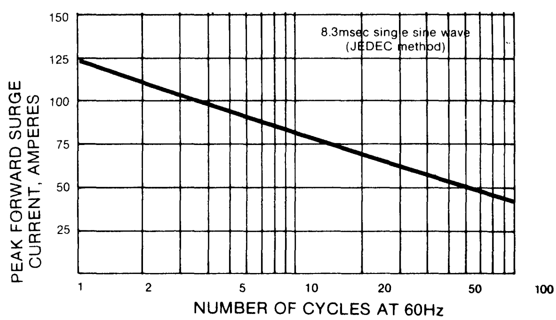


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

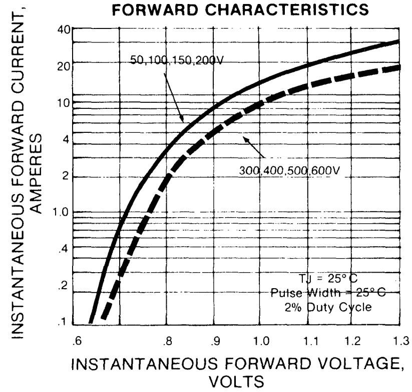
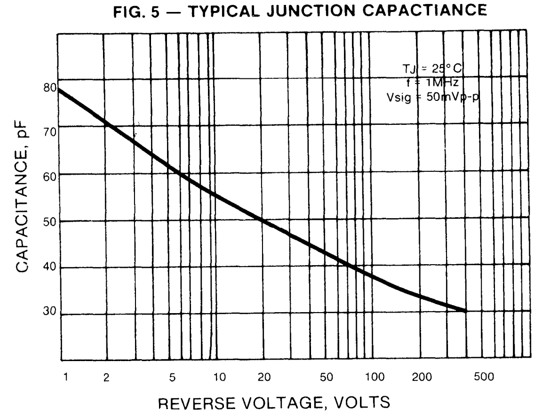


FIG. 5 — TYPICAL JUNCTION CAPACTIANCE

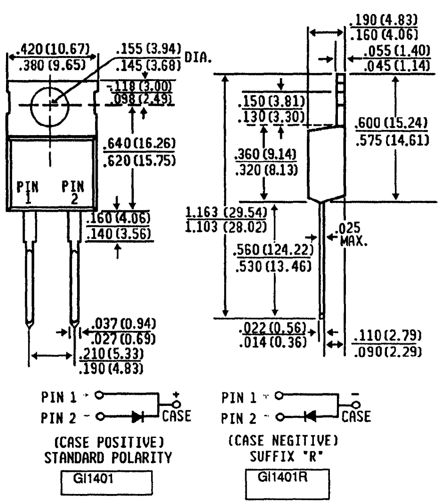


GENERAL INSTRUMENT

GI1401 THRU GI1404

8.0 AMPERE GLASS PASSIVATED FAST EFFICIENT RECTIFIER

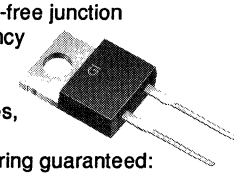
***Voltage** - 50 to 200 Volts* ***Current** - 8.0 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power, high efficiency
- Low Leakage
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed: 250°C,.25", 6.35mm from case for 10 seconds



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GI1401	GI1402	GI1403	GI1404	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current at T_C = 125°C	$I_{(AV)}$	8.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125				Amps
Maximum Instantaneous Forward Voltage I_F = 4A, T_J = 100°C I_F = 8A, T_J = 100°C I_F = 4A, T_J = 25°C I_F = 8A, T_J = 25°C	V_F	 .800 .895 .900 .975				Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	5.0 150				µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	35				Ns
Typical Junction Capacitance (Note 2)	C_J	42				pf
Typical Thermal Resistance (Note 3)	$R_{\theta JC}$	2.50				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150				°C

NOTES:

1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Thermal Resistance Junction to CASE.

Fig. 1—FORWARD CURRENT DERATING CURVE

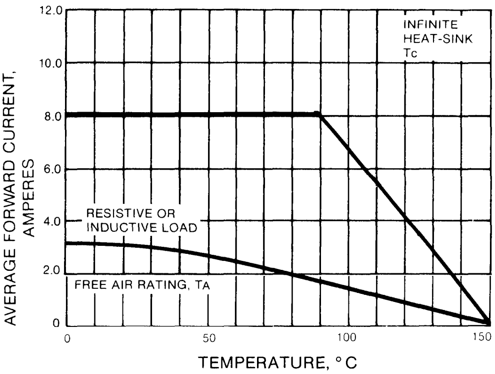


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

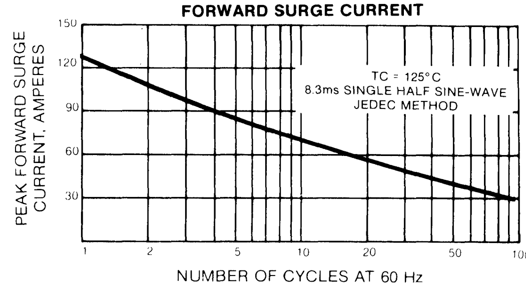


Fig. 3 — TYPICAL REVERSE CHARACTERISTICS

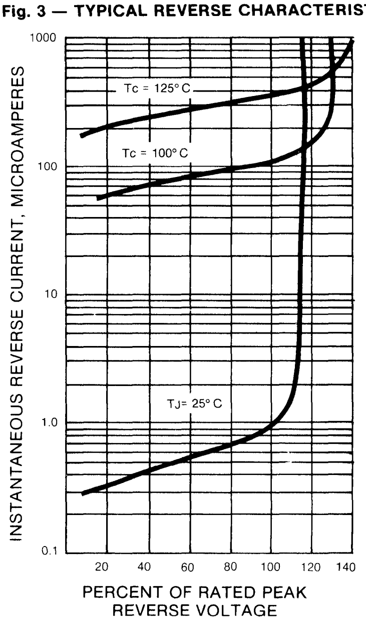


Fig. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

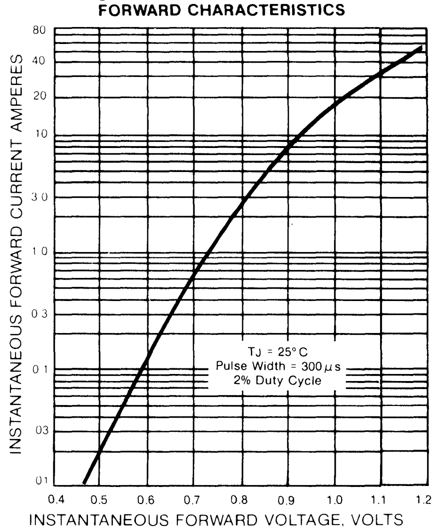
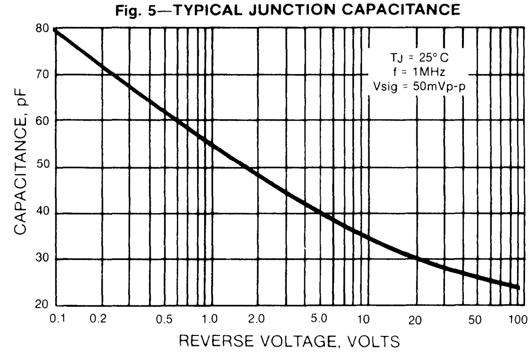


Fig. 5—TYPICAL JUNCTION CAPACITANCE



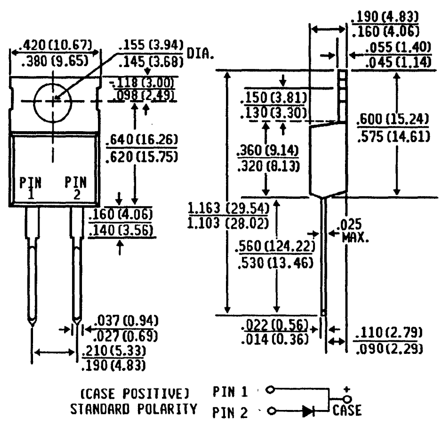
GENERAL INSTRUMENT

BYW29-50 THRU BYW29-200

8.0 AMPERE GLASS FAST EFFICIENT PASSIVATED RECTIFIER

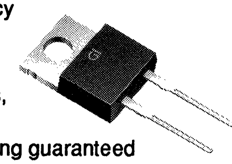
***Voltage** - 50 to 200 Volts* ***Current** - 8.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power, high efficiency
- Low Leakage
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed 300°C, 6.35mm from case for 10 seconds



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*BYW29-50*	*BYW29-100*	*BYW29-150*	*BYW29-200*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current at T_C = 125°C	$I_{(AV)}$	8.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed T_J = 150°C	I_{FSM}	100				Amps
Maximum Instantaneous Forward Voltage I_F = 20A, T_J = 25°C I_F = 8A, T_J = 150°C	V_F	1.3 0.8				Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500				µA
Maximum Reverse Recovery Time (Note 2)	T_{RR}	25				Ns
Typical Junction Capacitance (Note 1)	C_J	45				pf
Maximum Thermal Resistance (Note 3)	RθJC	3.0				°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +150				°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 1A to 30V, with -di/dt = 100A/µs.
3. Thermal Resistance Junction to CASE.

FIG. 1 — FORWARD CURRENT DERATING CURVE

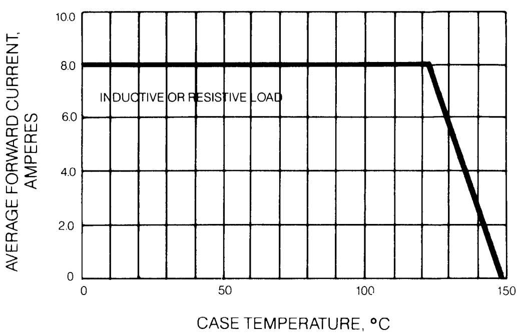


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

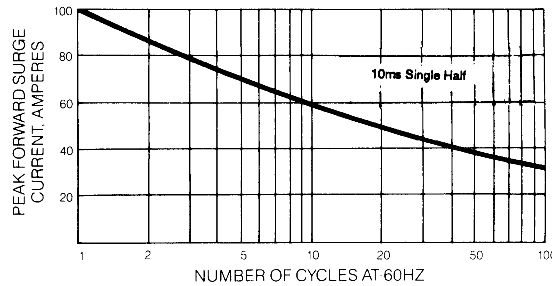


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

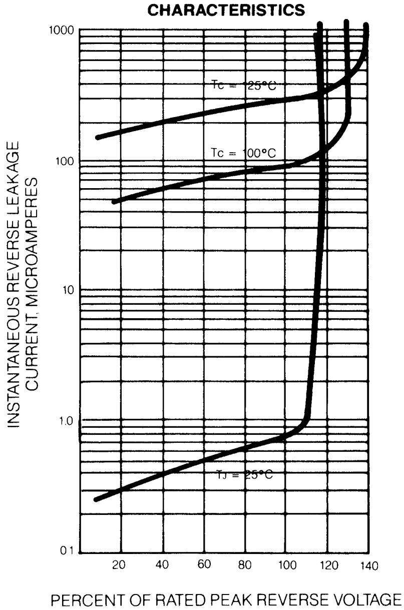


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

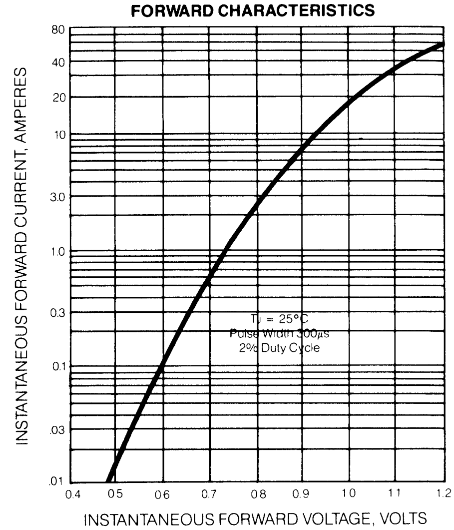
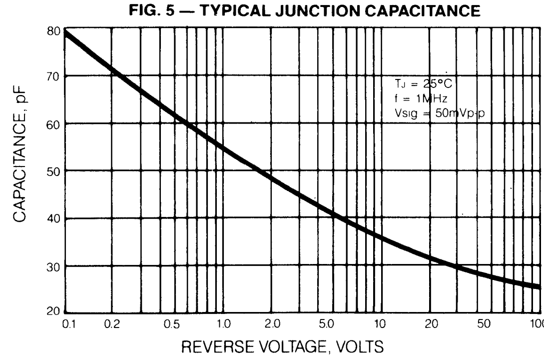


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

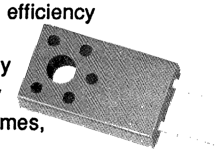
FESF16AT THRU FESF16JT

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

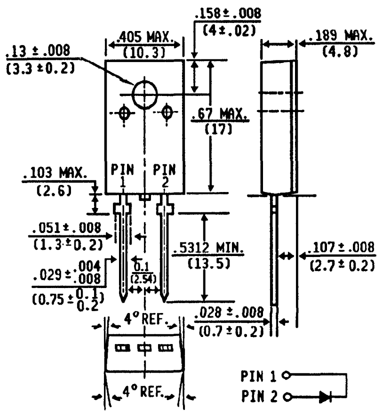
***Voltage** - 50 to 600 Volts* ***Current** - 16 Amperes*

FEATURES

- Isolated plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power loss, high efficiency
- Low forward voltage, high current capability
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed: 250°C, .25", 6.35mm from case for 10 seconds
- Internal Insulation: 1.5k V_{RMS}



ITO-220



Dimensions in inches and (millimeters)

MECHANICAL DATA

Case: ITO-220 Fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202 Method 208

Polarity: As marked

Mounting Position: Any

Mounting Torque: 5 in. - lb. max.

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FESF 16AT	FESF 16BT	FESF 16CT	FESF 16DT	FESF 16FT	FESF 16GT	FESF 16HT	FESF 16JT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	16.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	250								Amps
Maximum Instantaneous Forward Voltage at 16A	V_F	.95				1.3		1.5		Volts
Maximum DC Reverse Current $T_C = 25°C$ at Rated DC Blocking Voltage $T_C = 100°C$	I_R	10.0 500								µA
Maximum Reverse Recovery Time (Note 2) $T_J = 25°C$	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	65								pf
Thermal Resistance (Note 3)	$R_{\theta JC}$	1.7								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES: 1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to Case.

FIG. 3 — MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

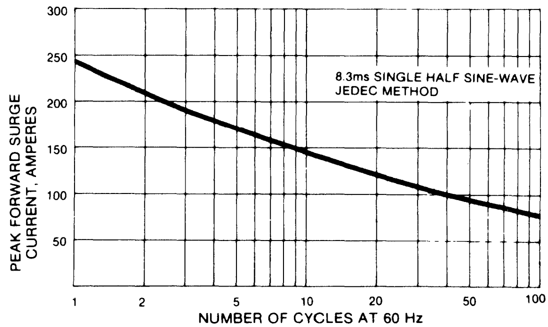


Fig. 1 — FORWARD CURRENT DERATING CURVE

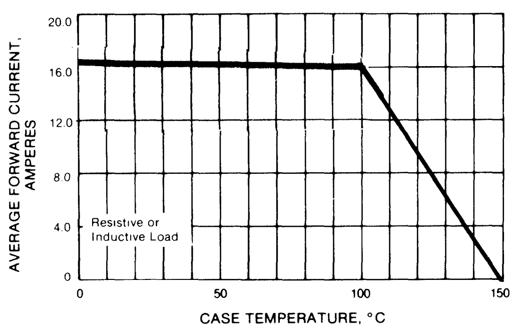


Fig. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

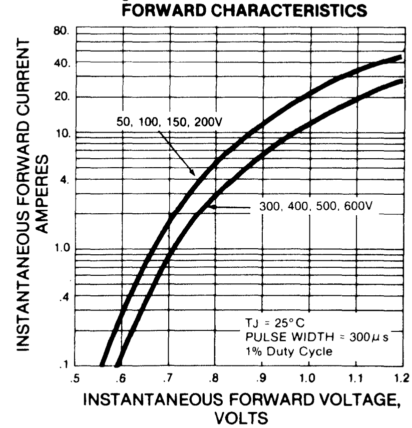


FIG. 2—TYPICAL REVERSE CHARACTERTISTICS

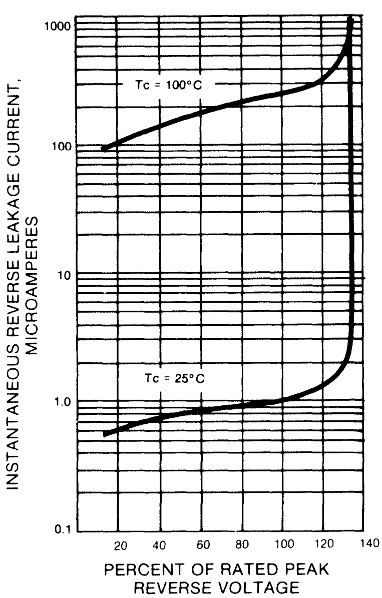
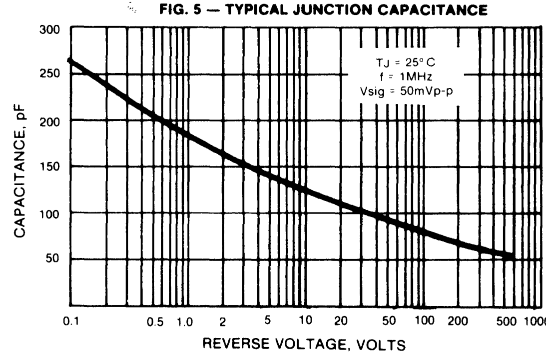


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

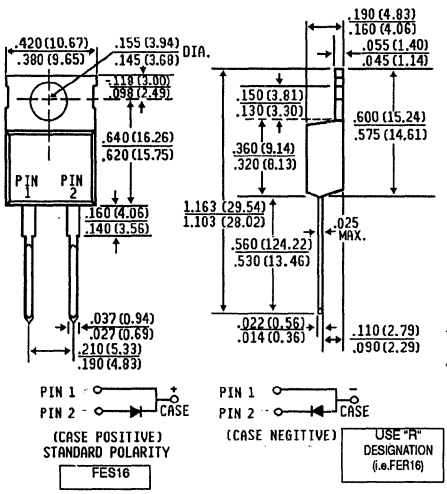


FES16AT THRU FES16JT

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

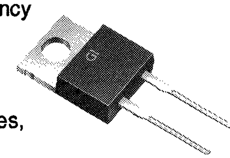
***Voltage** - 50 to 600 Volts*   ***Current** - 16 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power, high efficiency
- Low forward voltage, high current capability
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed: 250°C, .25" (6.35mm) from case for 10 seconds



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FES 16AT	FES 16BT	FES 16CT	FES 16DT	FES 16FT	FES 16GT	FES 16HT	FES 16JT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	16.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	250								Amps
Maximum Instantaneous Forward Voltage at 16A	V_F	.975				1.3		1.5		Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500								µA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	65								pf
Thermal Resistance (Note 3)	$R\theta JC$	1.50								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to CASE.

Fig. 1 — FORWARD CURRENT DERATING CURVE

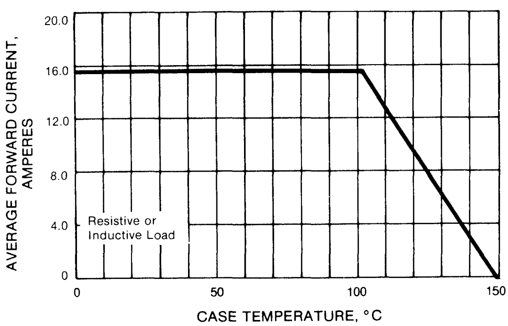


FIG. 2—TYPICAL REVERSE CHARACTERTISTICS

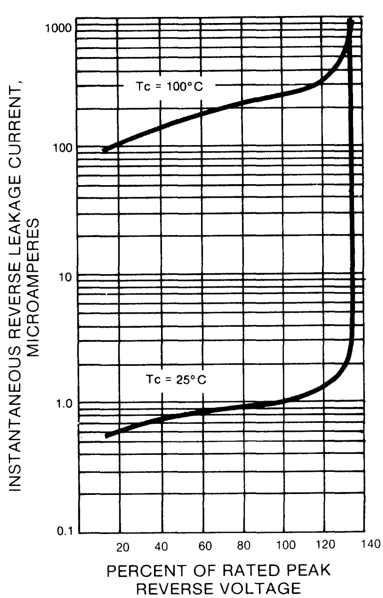


FIG. 3 — MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

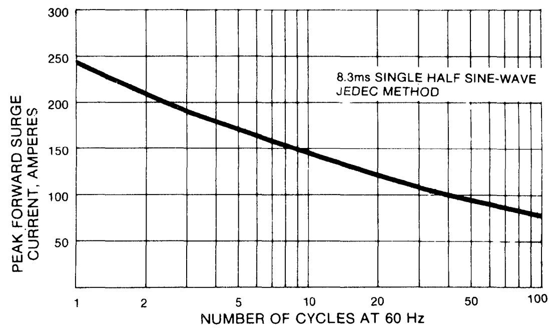


Fig. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

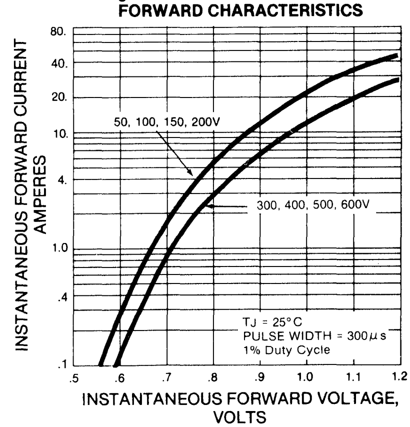
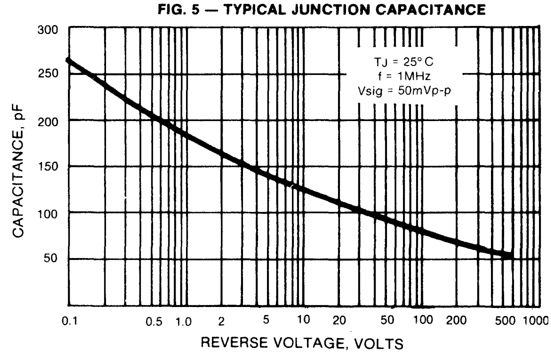


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



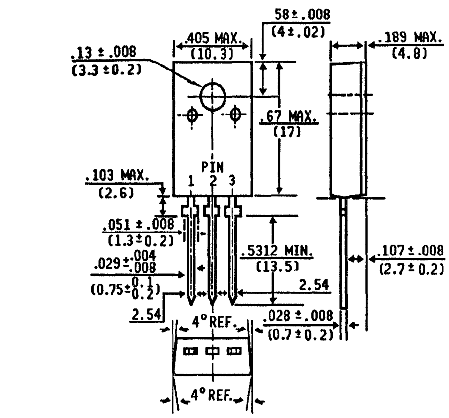
FEPF16AT THRU FEPF16JT

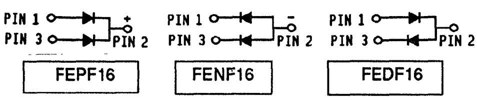
FAST EFFICIENT GLASS PASSIVATED RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 16 Amperes*

FEATURES

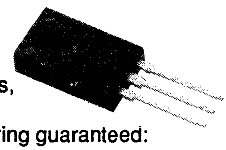
ITO-220 CT





Dimensions in inches and (millimeters)

- Dual rectifier construction, positive centertap
- Isolated plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power loss, high efficiency
- Low forward voltage, high current capability
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed: 250°C,.25", 6.35mm from case for 10 seconds
- Internal Insulation: 1.5K V_{RMS}



MECHANICAL DATA

Case: ITO-220 fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Mounting Torque: 5 in. - lbs. max.

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FEPF 16AT	FEPF 16BT	FEPF 16CT	FEPF 16DT	FEPF 16FT	FEPF 16GT	FEPF 16HT	FEPF 16JT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	16.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	200								Amps
Maximum Instantaneous Forward Voltage at 8.0A per element	V_F	.950				1.3		1.5		Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500								μA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	65								pf
Thermal Resistance (Note 3)	$R_{\theta JC}$	2.2								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES: 1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to Case per element.

FIG. 1 — FORWARD CURRENT DERATING CURVE

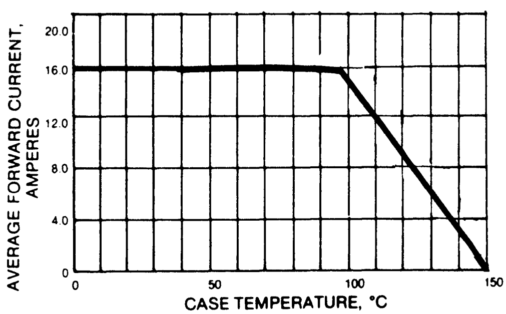


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

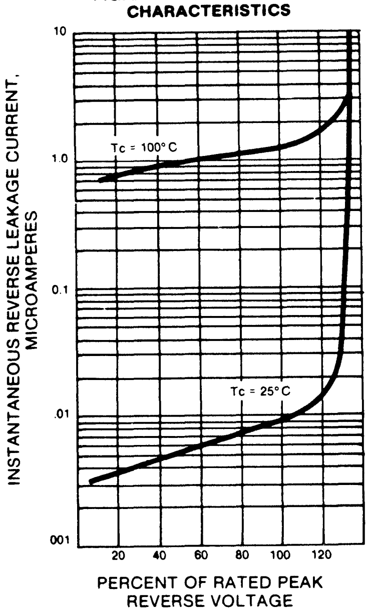


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

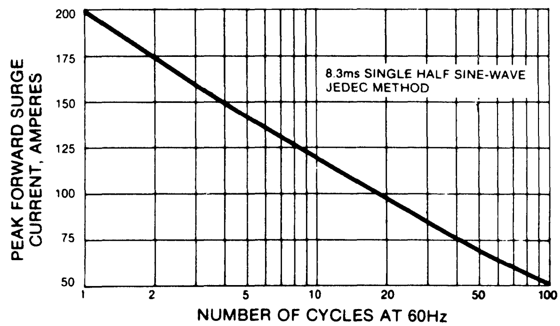


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

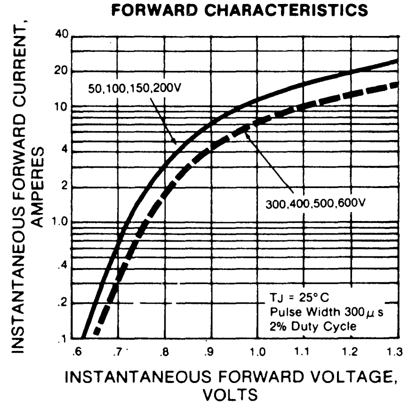
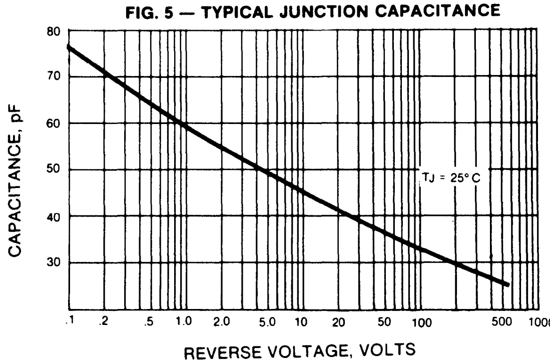


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



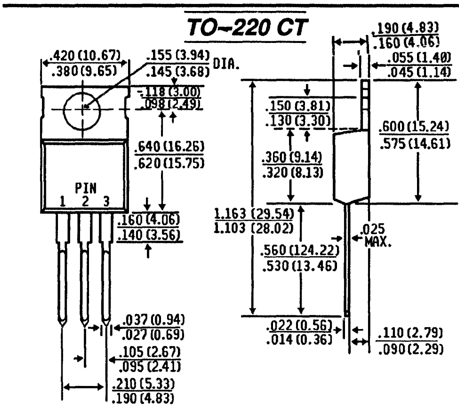
GENERAL INSTRUMENT

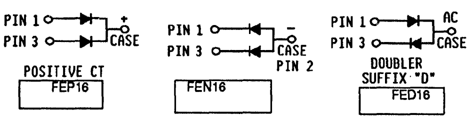
FEP16AT THRU FEP16JT

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 16 Amperes*

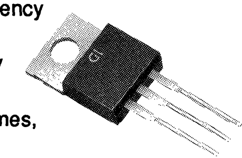
FEATURES





Dimensions in inches and (millimeters)

- Dual rectifier construciton, positive centertap
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power, high efficiency
- Low forward voltage, high current capability
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed 250°C,.25", 6.35mm from case for 10 seconds



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FEP 16AT	FEP 16BT	FEP 16CT	FEP 16DT	FEP 16FT	FEP 16GT	FEP 16HT	FEP 16JT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	16.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	200								Amps
Maximum Instantaneous Forward Voltage at 8.0A	V_F	.975				1.3		1.5		Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500								µA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	65								pf
Thermal Resistance (Note 3)	$R_{\theta JC}$	3.0								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2.. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to CASE.

FIG. 1 — FORWARD CURRENT DERATING CURVE

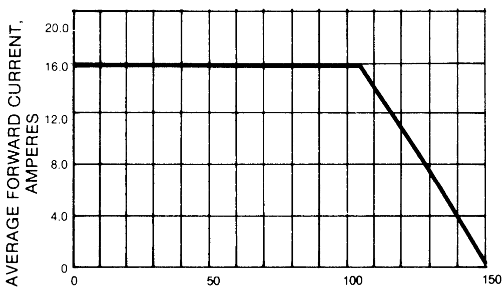


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

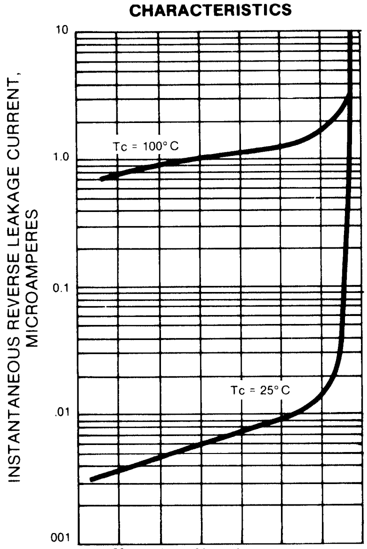


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

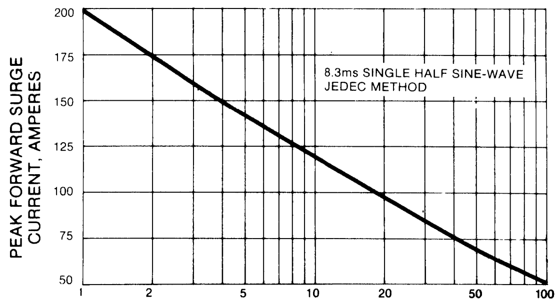


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

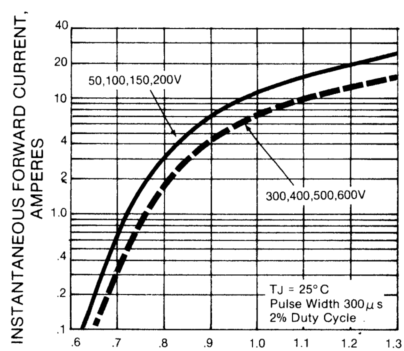
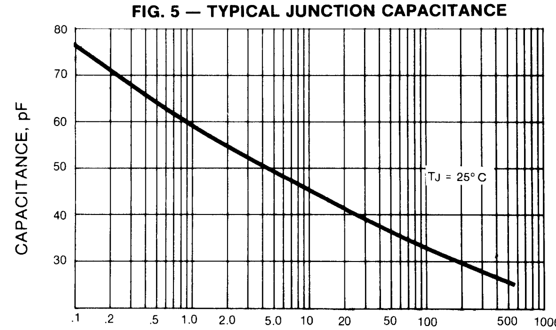


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

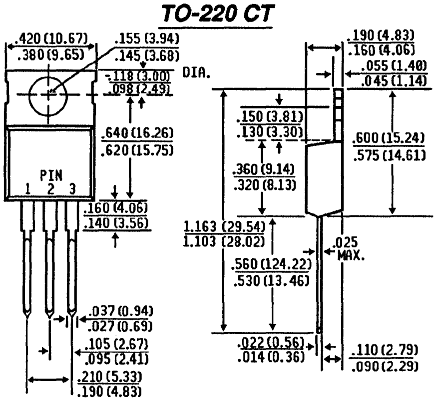
GI2401 THRU GI2404

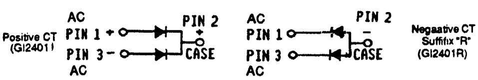
GLASS PASSIVATED FAST EFFICIENT RECTIFIER

***Voltage** - 50 to 200 Volts* ***Current** - 16 Amperes*

FEATURES

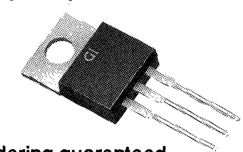
TO-220 CT





Dimensions in inches and (millimeters)

- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power, high efficiency
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guarenteed 250°C, .25",6.35mm from CASE for 10 seconds



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*GI2401*	*GI2402*	*GI2403*	*GI2404*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current at T_C = 125°C	$I_{(AV)}$	16.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125				Amps
Maximum Instantaneous Forward Voltage I_F = 4A, T_J = 100°C I_F = 8A, T_J = 100°C I_F = 4A, T_J = 25°C I_F = 8A, T_J = 25°C	V_F	 .800 .895 .900 .975				Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	5.0 150			5.0 500	μA
Maximum Reverse Recovery Time (Note2)	T_{RR}	35				Ns
Msximum Junction Capacitance (Note 1)	C_J	65				pf
Maximum Thermal Resistance (Note 3)	$R_{\theta JC}$	1.75				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150				°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2.. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to CASE.

Fig. 1—FORWARD CURRENT DERATING CURVE

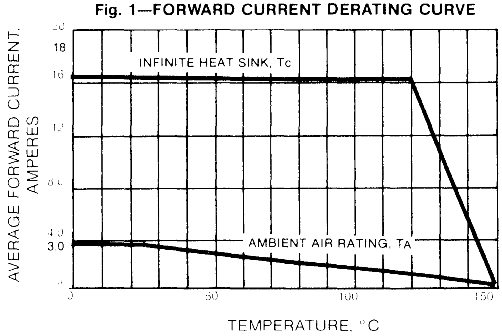


Fig. 2 — MAXIMUM NON-REPETITIVE SURGE CURRENT

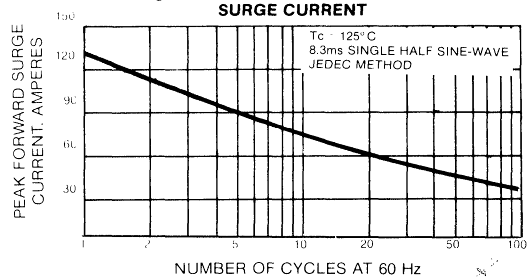


Fig. 3 — TYPICAL REVERSE CHARACTERISTICS

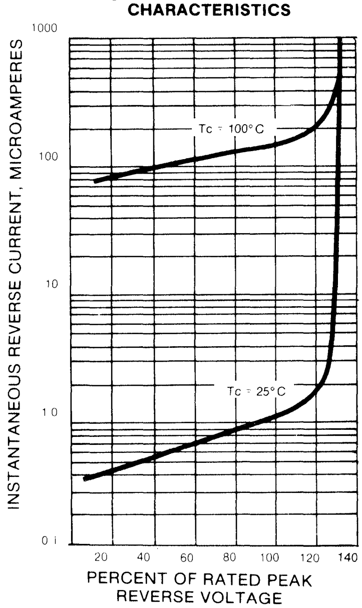


Fig. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

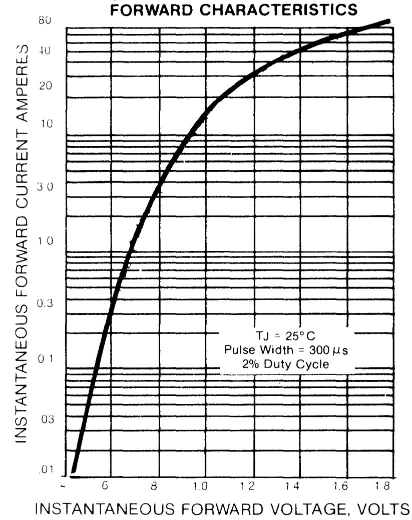
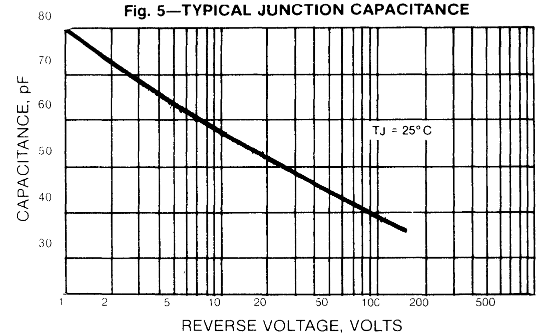


Fig. 5—TYPICAL JUNCTION CAPACITANCE

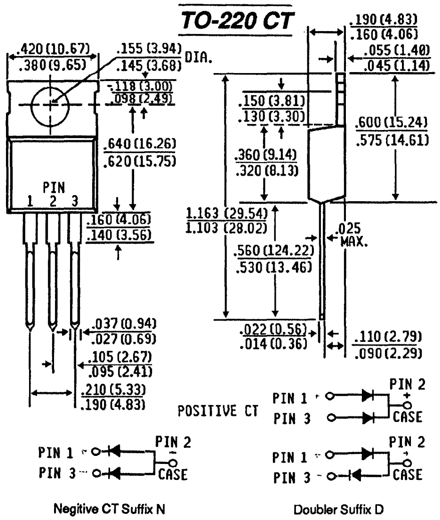


BYV32-50 THRU BYV32-200

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

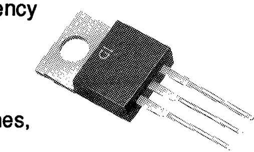
***Voltage** - 50 to 150 Volts* ***Current** - 18 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated cavity-free junction
- Low power, high efficiency
- Low forward voltage high current capability
- High surge capability
- Superfast recovery times, high voltage
- High temperature soldering guaranteed 300°C, 6.35mm from case for 10 seconds



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: 0.08 ounce, 2.24 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*BYV32-50*	*BYV32-100*	*BYV32-150*	*BYV32-200*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Rectified Current at T_C = 120°C	$I_{(AV)}$	18.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed T_J = 150°C	I_{FSM}	150				Amps
Maximum Instantaneous Forward Voltage I_F = 20A, I_F = 5,0A, T_J = 100°C	V_F	1.15 0.85				Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 600				µA
Maximum Reverse Recovery Time (Note 2) TJ = 25°C	T_{RR}	25				Ns
Typical Junction Capacitance (Note 1)	C_J	45				pf
Maximum Thermal Resistance per diode (Note 3)	RθJC	3.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150				°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 1A to 30V, with -di/dt = 100A/µs.
3. Thermal Resistance Junction to CASE.

FIG. 1 — FORWARD CURRENT DERATING CURVE

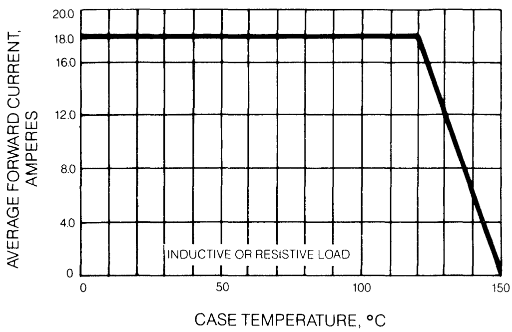


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

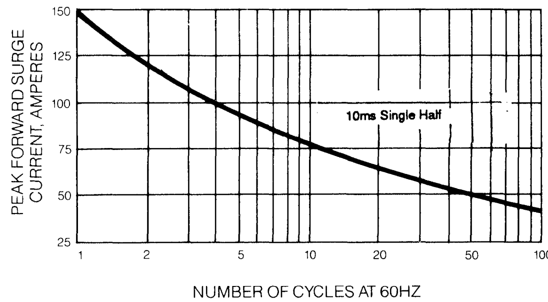


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

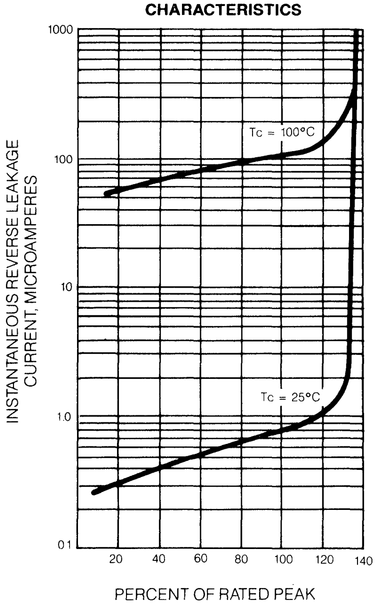


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

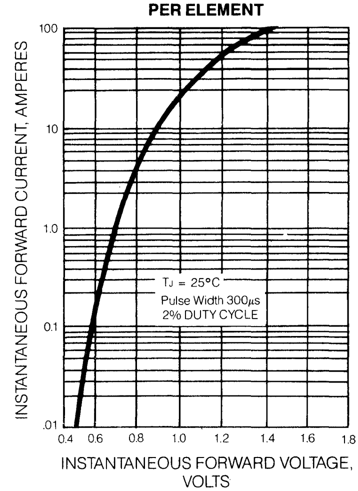
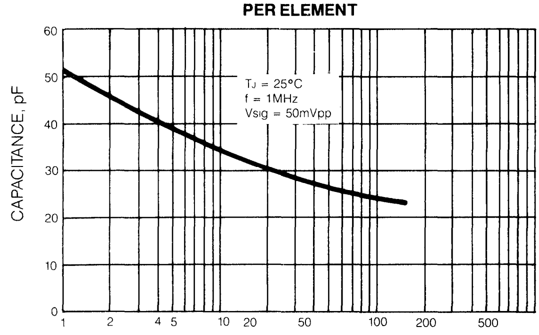


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT



GENERAL INSTRUMENT

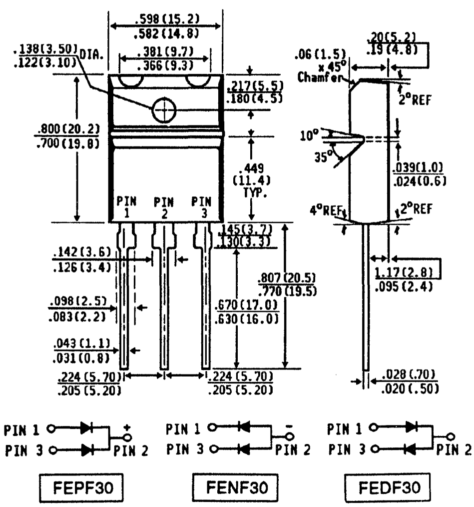
FEPF30AP THRU FEPF30JP

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 30 Amperes*

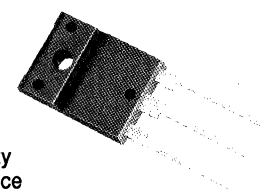
FEATURES

ITO-3P



Dimensions in inches and (millimeters)

- Dual rectifier construction, positive centertap
- Isolated plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junctions
- Superfast recovery times,high voltage
- Low forward voltage, high current capability
- Low thermal resistance
- Low power loss, high efficiency
- High temperature soldering guaranteed: 250°C, .17", 4.3mm from case for 10 seconds
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-3P Fully overmolded plastic
Terminals: Lead solderable per MIL-STD-202, Method 208
Polarity: As marked
Mounting Position: Any
Mounting Torque: 5 in.-lb. max.
Weight: 0.037 ounce, 1.04 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FEPF 30AP	FEPF 30BP	FEPF 30CP	FEPF 30DP	FEPF 30FP	FEPF 30GP	FEPF 30HP	FEPF 30JP	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current See Fig.1	$I_{(AV)}$	30.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	300								Amps
Maximum Instantaneous Forward Voltage at 15.0A per element	V_F	0.95				1.3		1.5		Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500								μA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	150								pf
Thermal Resistance (Note 3)	$R_{\theta JC}$	1.5								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES: 1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to Case per element.

FIG. 1 — FORWARD CURRENT DERATING CURVE

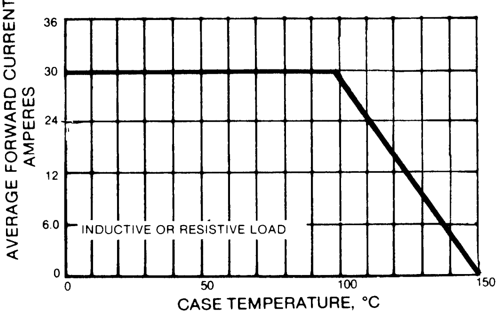


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

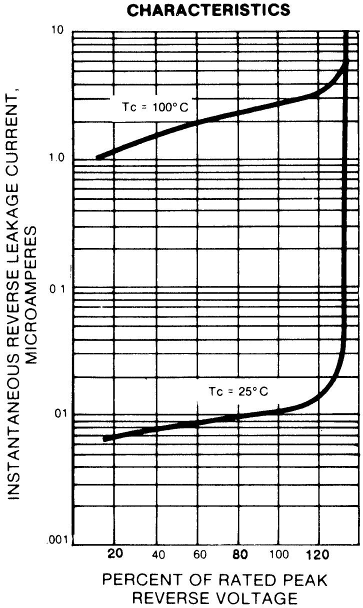


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

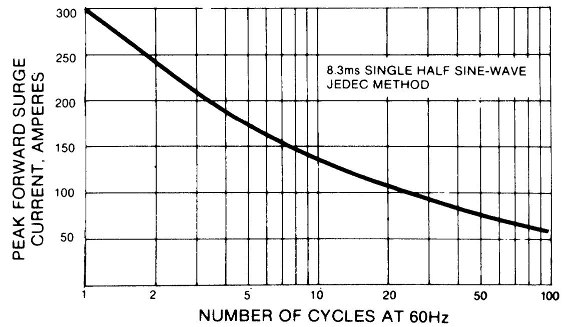


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

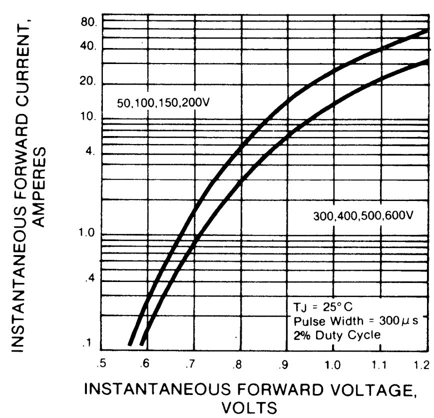
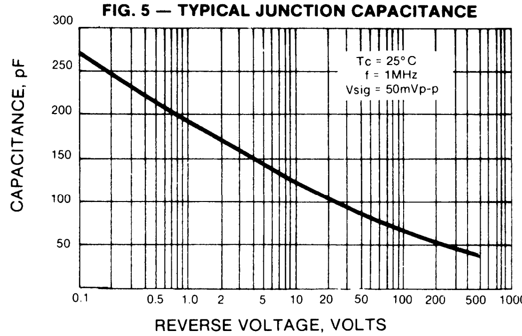


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

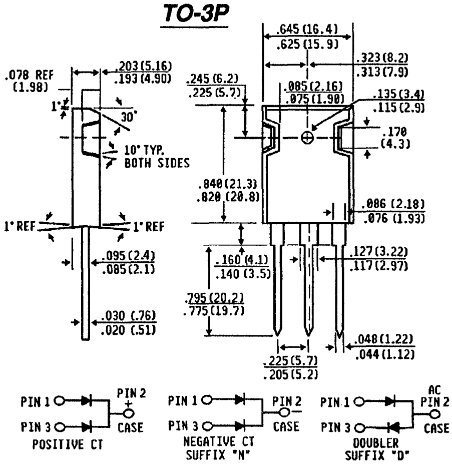
FEP30AP THRU FEP30JP

FAST EFFICIENT GLASS PASSIVATED RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 30 Amperes*

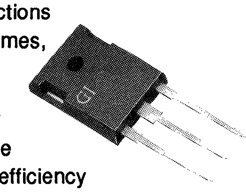
FEATURES

TO-3P



Dimensions in inches and (millimeters)

- Dual rectifier construction, positive centertap
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junctions
- Superfast recoveary times, high voltage
- Low forward voltage, high current capability
- Low thermal resistance
- Low power loss, high efficiency
- High temperature soldering guaranteed: 250°C,.17", 4.3mm from case for 10 seconds



MECHANICAL DATA

Case: TO-3P

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Mounting Position: Any

Weight: .2 ounces, 5.6 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	FEP 30AP	FEP 30BP	FEP 30CP	FEP 30DP	FEP 30FP	FEP 30GP	FEP 30HP	FEP 30JP	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	30.0								Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	300								Amps
Maximum Instantaneous Forward Voltage at 15.0A	V_F	0.95				1.3		1.5		Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 500								µA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	35				50				Ns
Typical Junction Capacitance (Note 1)	C_J	150								pf
Thermal Resistance (Note 3)	$R_{\theta JC}$	1.0								°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150								°C

NOTES:

1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance Junction to CASE per element..

FIG. 1 — FORWARD CURRENT DERATING CURVE

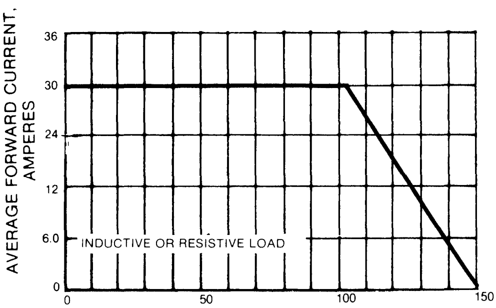


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

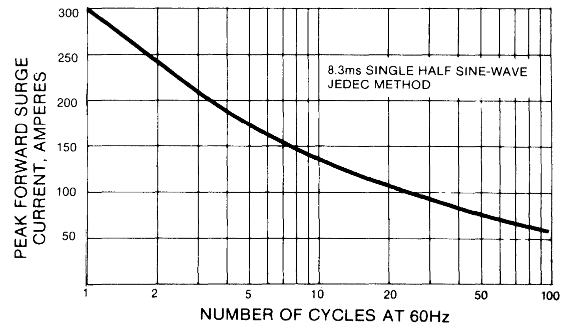


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

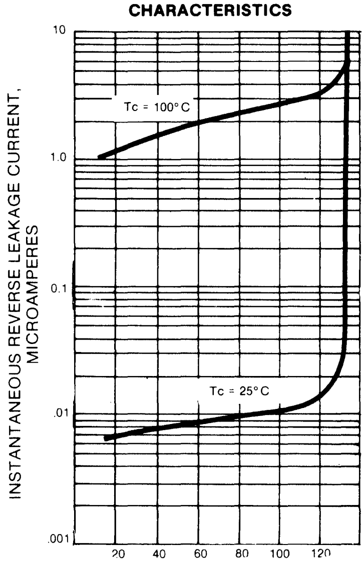


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

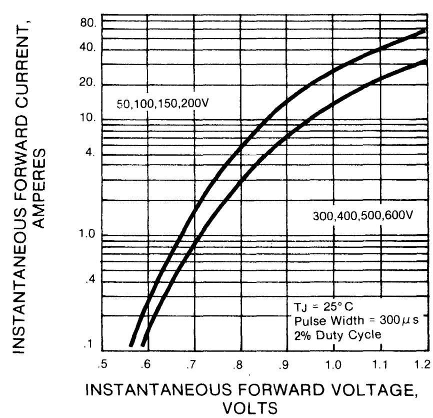
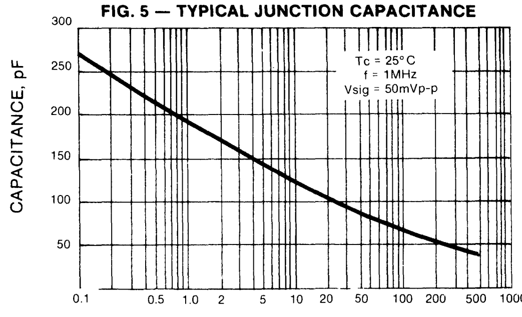


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

SUPERECTIFIERS

0.25 TO 3.0 AMPERES
50 VOLTS TO 4000 VOLTS

GENERAL INSTRUMENT

SUPERECTIFIER
.25 to 3.0 Amperes 50 Volts to 4000 Volts

Introduction

No other .25 to 3.0 Ampere rectifiers of any kind— plastic, glass, or metal— can match (or even approach) SUPERECTIFIER's combination of features...the result of General Instrument's unique glass-plastic construction:

- Brazed at greater than 600°C at both leads and cell – eliminates all soft solders
- Exclusive UL recognized *flame-retardant* epoxy molding compound rated 94V-0, the highest available
- Patented glass passivation
- Reliability proved equal to military requirements
- Hermetically sealed construction
- Cost effective construction at plastic prices

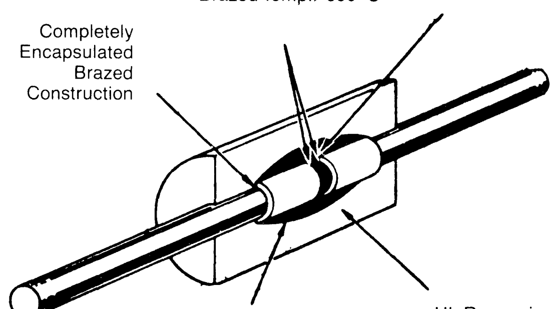
General Instrument's SUPERECTIFIER is exactly that...a super rectifier. There is nothing else in the world like it.

In cell construction, most other rectifiers rated up to 3.0 Amperes are soft soldered or are only pressure contacted. SUPERECTIFIER is made into an entirely solid unit with its leads and cell brazed at temperatures greater than 600°C. All other rectifiers fail at half that temperature.

In cell protection, conventional plastic rectifiers use either varnish, silicon rubber or a thin film of silicon oxide to protect the junction. SUPERECTIFIER uses a patented glass passivation to seal its junction hermetically.

In device encapsulation, again SUPERECTIFIER is the only one that won't go up in flames. It is one of the few rectifiers using an exclusive flame-RETARDANT molding compound, rated UL 94V-0, the highest rating available. Other plastic rectifiers use flame-ENHANCING compounds. Here again, SUPERECTIFIER's superiority is manifest. With this construction it exceeds environmental standards of MIL-S-19500.

In summary, SUPERECTIFIER is the world's only rectifier with totally brazed construction, with a patented glass passivated junction, and with flame-retardant molding encapsulation.



GENERAL INSTRUMENT

FAMILIES OF GENERAL INSTRUMENT SUPERECTIFIER

Glass Passivated Junction Plastic Rectifiers 0.25 to 1.75 AMPERES

Types:

1N3611GP	thru 1N3614GP	BY126GP	and BY127GP		
1N4001GP	thru 1N4007GP	BY126GP	and BY227GP		
1N4245GP	thru 1N4249GP	BY133GP	thru BY135GP		
1N5059GP	thru 1N5062GP	BYW27-50GP	thru BYW27-1000GP		
1N5391GP	thru 1N5399GP	BYX10GP			
GI250-1	thru GI250-4				
GP02-20	thru GP02-40				
GP08A	thru GP08J				
GP10A	thru GP10Y				
GP15A	thru GP15M				

Features:
- High Temperature Metallurgically Bonded
- Plastic Package has Underwriters Laboratory Classification 94V-0
- Glass Passivated Junction overmolded in epoxy packages for easy handling
- I_O rated current operation at 55°C Ambient Temperature with no Thermal Runaway.
- Capable of meeting Environmental Standards of MIL-S-19500
- High Temperature Soldering Guaranteed 350°C/10 Second/.375" 9.5mm Lead Length at 5 lbs. 2.25 kg Tension
- Tin Plated Axial Leads, Solderable per MIL-STD-202 method 208

Glass Passivated Junction Plastic Rectifiers 2.0 to 3.0 AMPERES

Types:

1N5624GP	thru 1N5627GP
GP20A	thru GP20J
GP25A	thru GP25M
GP30A	thru GP30M

Features:
- High Temperature Metallurgically Bonded
- Plastic Package has Underwriters Laboratory Classification 94V-0
- Glass Passivated Junction overmolded in epoxy packages for easy handling
- I_O rated current operation at 55°C Ambient Temperature with no Thermal Runaway
- Typical I_R less than 0.1 μA
- Capable of meeting Environmental Standards of MIL-S-19500
- Tin Plated Axial Leads, Solderable per MIL-STD-202 method 208
- High Temperature Soldering Guaranteed 350°C/10 Second/.375" 9.5mm Lead Length at 5 lbs. 2.25 kg Tension

Fast Recovery Glass Passivated Junction Plastic Rectifiers 0.50 to 3.0 AMPERES

Types:

1N4942GP	thru 1N4948GP	RGP30A	thru RGP30M
RGPO2-12	thru RGPO2-20	BA157GP	thru BA159GP
RGP10A	thru RGP10M	BY206GP	and BY207GP
RGP15A	thru RGP15M		
RGP20A	thru RGP20J		
RGP25A	thru RGP25M		

Features:
- High Temperature Metallurgically Bonded
- Fast switching for High Rectification Efficiency to 100kHz
- Plastic Package has Underwriters Laboratory Classification 94V-0
- Capable of meeting Environmental Standards of MIL-S-19500
- Includes all Advantages of the SUPERECTIFIER Design
- Tin Plated Axial Leads, Solderable per MIL-STD-202 method 208
- High Temperature Soldering Guaranteed: 350°C/10 Second/.375" 9.5mm Lead Length at 5 lbs. 2.25 kg Tension

GENERAL INSTRUMENT

QUICK GUIDE TO SUPERECTIFIERS

TYPE	RGP01* -12 thru -20	GP02 -20 thru -40	GI250 -1 thru -4	BYX10GP		BY206GP* thru BY207GP*	BA157GP* thru BA159GP*	GP08A thru GP08J	GP10A thru GP10M	1N3611GP thru 1N3614GP	1N4001GP thru 1N4007GP	1N4245GP thru 1N4249GP	1N4933GP* thru 1N4937GP*
CASE	DO41	DO41	DO41	DO41		DO41	DO41	DO41	DO41	DO41	DO41	DO41	DO41
I_o (A)	0.5	0.25	0.25	.36		0.4	0.5	0.8	1.0	1.0	1.0	1.0	1.0
@T_A (C°)	55	55	75	40		55	55	55	55	100	75	55	75
V_R = 1000 (V)			GI250-1		V_R = 50 (V)			GP08A	GP10A		1N4001GP		1N4933GP
V_R = 1200 (V)	**RGO2-12**				V_R = 100 (V)			GP08B	GP10B		1N4002GP		1N4934GP
V_R = 1400 (V)	**RGO2-14**				V_R = 200 (V)			GP08D	GP10D	1N3611GP	1N4003GP	1N4245GP	1N4935GP
V_R = 1600 (V)	**RGO2-16**			BYX10GP	V_R = 300 (V)			GP08G					
V_R = 1800 (V)	**RGO2-18**				V_R = 400 (V)	BY206GP	BA157GP		GP10G	1N3612GP	1N4004GP	1N4246GP	1N4936GP
V_R = 2000 (V)	**RGO2-20**	GP02 -20	GI250 -2		V_R = 500 (V)			GP08J					
V_R = 2500 (V)		GP02 -25			V_R = 600 (V)	BY207GP	BA158GP		GP10J	1N3613GP	1N4005GP	1N4247GP	1N4937GP
V_R = 3000 (V)		GP02 -30	GI250 -3		V_R = 800 (V)		BA159DGP		GP10K	1N3614GP	1N4006GP	1N4248GP	
V_R = 3500 (V)		GP02 -35			V_R = 1000 (V)		BA159GP		GP10M	1N3957GP	1N4007GP	1N4249GP	
V_R = 4000 (V)		GP02 -40	GI250 -4										
SURGE (A)	20	15	15	15		15	20	25	30	30	30	25	30
V_F (V)	**1.8**	3.0	3.5	1.6		1.3	1.3	1.3	1.1	1.1	1.1	1.2	1.2

*Fast Recovery

QUICK GUIDE TO SUPERECTIFIERS

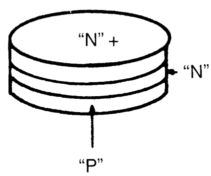
TYPE	1N4383GP thru 1N4586GP	1N5059GP thru 1N5062GP	AGP15-200 thru AGP15-800	GP15A thru GP15M	1N5391GP thru 1N5399GP	BY126GP thru BY127GP	RGP15A* thru RGP15M*	BY226GP thru BY227GP	GP20A thru GP20J	RGP20A thru RGP20J *	RGP25A thru RGP25M*	1N5624GP thru 1N5627GP	GP30A thru GP30M	RGP30A* thru RGP30M*
CASE	DO15	DO15	DO15	DO15	DO15	DO201AE	DO15	DO201AE	GP20	GP20	DO201AD	DO201AD	DO201AD	DO201AD
I_o (A)	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.75	2.0	2.0	2.5	3.0	3.0	3.0
@T_A (°C)	5	55	55	55	70	55	55	55	55	55	55	70	55	55
V_R = 50 (V)				GP15A	1N5391GP		RGP15A		GP20A	RGP20A	RGP25A		GP30A	RGP30A
V_R = 100 (V)				GP15B	1N5392GP		RGP15B		GP20B	RGP20B	RGP25B		GP30B	RGP30B
V_R = 200 (V)	1N4383GP	1N5059GP	AGP15-200	GP15D	1N5393GP		RGP15D		GP20D	RGP20D	RGP25D	1N5624GP	GP30D	RGP30D
V_R = 300 (V)					1N5394GP									
V_R = 400 (V)	1N4384GP	1N5060GP	AGP15-400	GP15G	1N5395GP		RGP15G		GP20G	RGP20G	RGP25G	1N5625GP	GP30G	RGP30G
V_R = 500 (V)					1N5396GP									
V_R = 600 (V)	1N4384GP	1N5061GP	AGP15-600	GP15J	1N5397GP	BY126GP	RGP15J	BY226GP	GP20J	RGP20J	RGP25J	1N5626GP	GP30J	RGP30J
V_R = 800 (V)	1N4585GP	1N5062GP	AGP15-800	GP15K	1N5398GP		RGP15K				RGP25K	1N5627GP	GP30K	RGP30K
V_R = 1000 (V)	1N4586GP			GP15M	1N5399GP		RGP15M				RGP25M		GP30M	RGP30M
V_R > 1000 (V)						BY127GP		BY227GP						
SURGE (A)	50	50	50	50	50	50	50	60	65	65	100	125	125	125
V_R (V)	1.2	1.2	1.2	1.1	1.4	1.3	1.3	1.3	1.1	1.3	1.3	1.0	1.1	1.3

*Fast Recovery

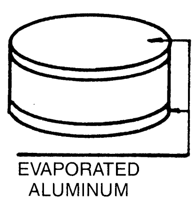
GENERAL INSTRUMENT

GLASS RECTIFIER PROCESS

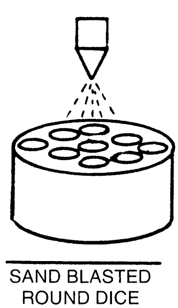
Diffused Slice



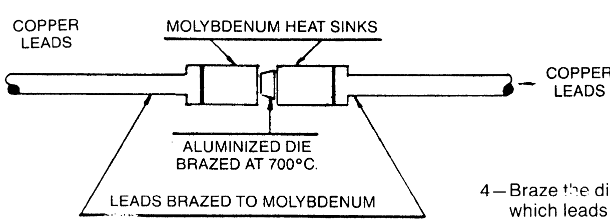
1 — Diffuse a PN junction into a slice of silicon.



2 — Evaporate aluminum on both sides of the slice to make metallurgical contact.



3 — Sandblast the slice to produce a round beveled die.

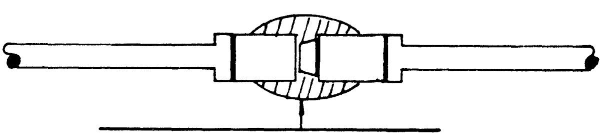


4 — Braze the die between two molybdenum heat sinks to which leads have been attached at approximately 700°C.

5—Clean the assembly by chemically etching, washing and drying.

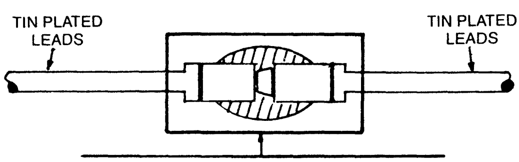
6—Apply glass in the form of a frit to the die and molybdenum assembly.

7—Melt the glass by heating in an oven to approximately 600°C.



GLASS BODY AND PASSIVATION FIRED AT 600°C.

8—Overmold glass passivated construction with UL recognized flame-retardant 94V-0 classification epoxy.



OVERMOLDED FLAME-RETARDANT EPOXY

9—Perform finishing operations such as lead tinning, electrical testing and marking.

Package Design

The small size of the superectifier package with its capability up to 3 Amperes permits greater packing densities in electronic assemblies and equipment, while increasing reliability. Furthermore, only high temperature brazing operations are used to withstand the 600°C required to melt and fuse the glass. This technique eliminates solder construction and tremendously enhances mechanical strength and temperature cycling capability, increasing operating and storage temperature range while reducing thermal resistance.

Reliability

Specified reliability data on Superectifier devices are available from the General Instrument Semiconductor Components Division Reliability Department. The basic design of the superectifier devices and the strict positive controls over materials and manufacturing processes provide assurance of failure-free performance under the most severe conditions. Processing facilities have been geared to follow the procedural requirements of Military Standard 750 and are capable of withstanding environmental extremes in excess of MIL-S-19500. Assurance of production uniformity and reliability is provided by a test technique called "Operational Load Line Testing," which has proven product reliability with over 1 Billion Superectifiers now in use.

GP02-20 THRU GP02-40

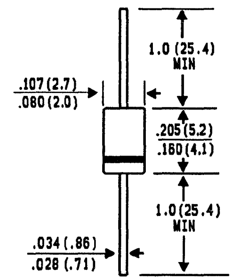
MINIATURE HIGH VOLTAGE GLASS PASSIVATED JUNCTION RECTIFIER

***Voltage** - 2000 to 4000 Volts* ***Current** - 0.25 Amperes*

FEATURES

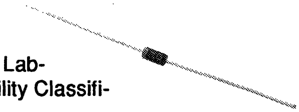
PATENTED*

DO-41



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-41 package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.012 ounce, .3 gram

SUPERECTIFIER®

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GP02 -20	GP02 -25	GP02 -30	GP02 -35	GP02 -40	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	2000	2500	3000	3500	4000	Volts
Maximum RMS Voltage	V_{RMS}	1400	1750	2100	2450	2800	Volts
Maximum DC Blocking Voltage	V_{DC}	2000	2500	3000	3500	4000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	0.25					Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load at T_A = 55°C	I_{FSM}	15					Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	3.0					Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 / 50.0					µA
Typical Reverse Recovery Time (Note 2)	T_{RR}	2.0					µs
Typical Junction Capacitance (Note 1)	C_J	3.0					pf
Typical Thermal Resistance (Note 3)	$R\theta JA$	130					°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175					°C

NOTES:

1. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr =.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

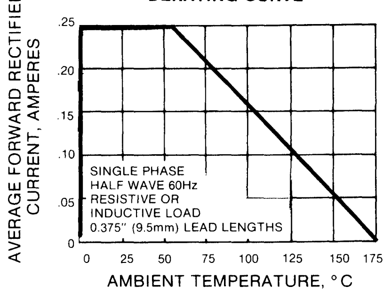


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

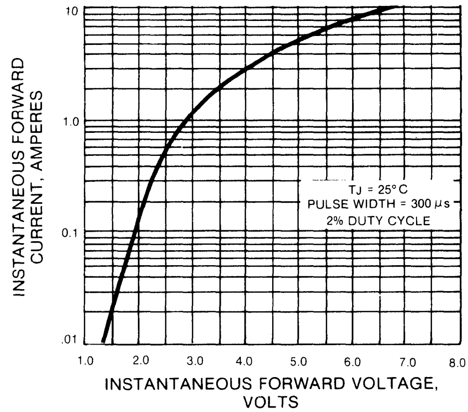


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

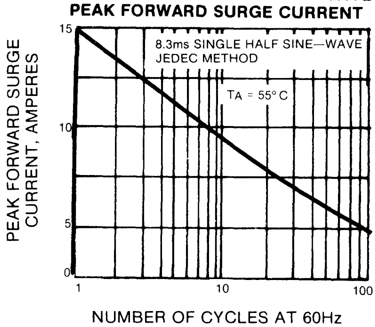


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

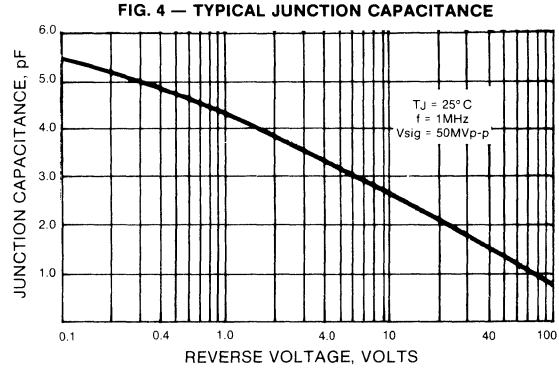


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

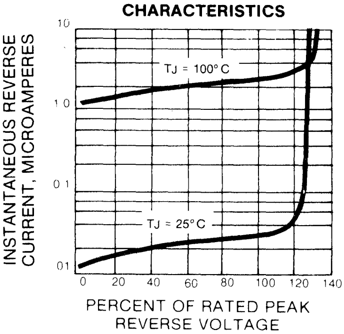
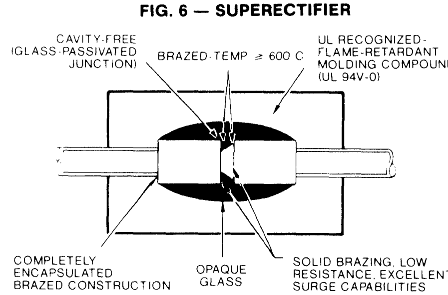


FIG. 6 — SUPERECTIFIER

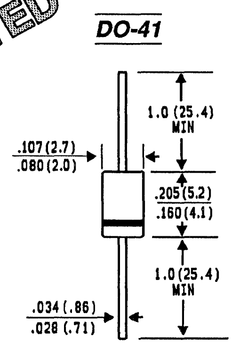


GI250-1 THRU GI250-4

MINIATURE HIGH VOLTAGE GLASS PASSIVATED JUNCTION RECTIFIER

***Voltage** - 1000 to 4000 Volts*   ***Current** - 0.25 Amperes*

PATENTED*

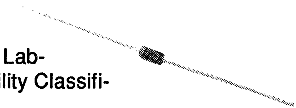


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-41 package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic over glass

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*GI250-1*	*GI250-2*	*GI250-3*	*GI250-4*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1000	2000	3000	4000	Volts
Maximum RMS Voltage	V_{RMS}	700	1400	2100	2800	Volts
Maximum DC Blocking Voltage	V_{DC}	1000	2000	3000	4000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$	0 .25				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load at T_A = 75°C	I_{FSM}	15.0				Amps
Maximum Instantaneous Forward Voltage at 0.25A	V_F	3..5				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 50.0				µA
Typical Reverse Recovery Time (Note 2)	T_{RR}	2.0				µs
Typical Junction Capacitance (Note1)	C_J	3.0				pf
Typical Thermal Resistance (Note 3)	$R\theta JA$	130				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

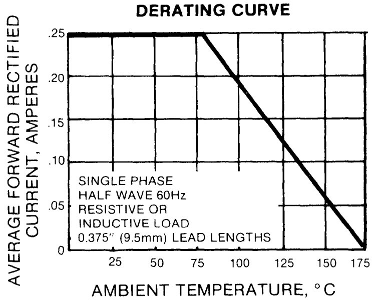


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

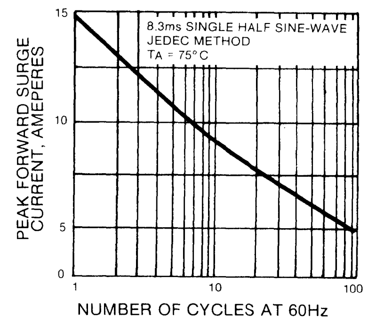


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

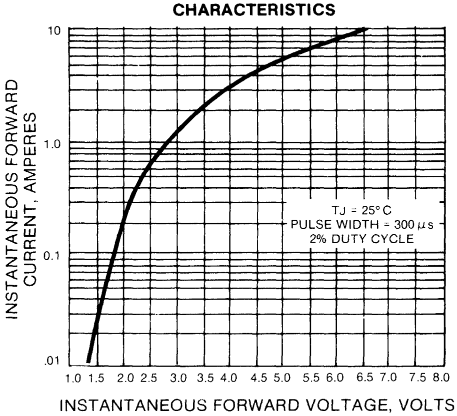


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

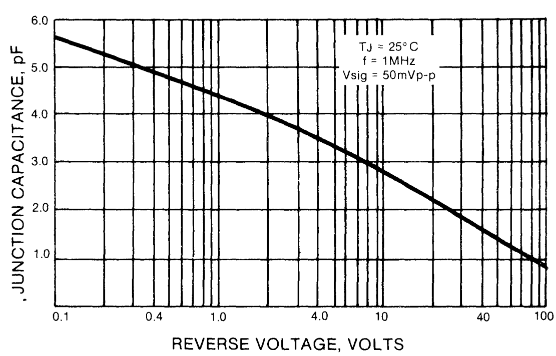


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

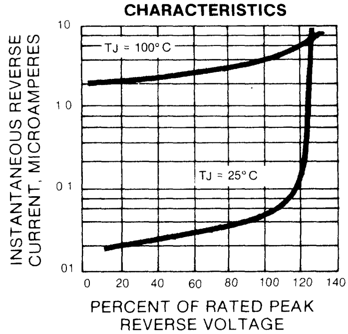
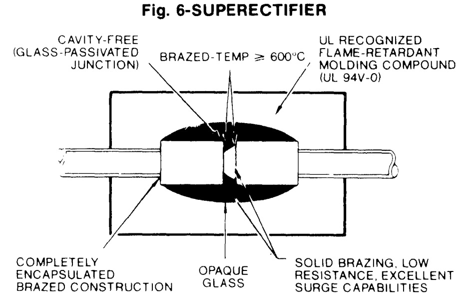


Fig. 6-SUPERECTIFIER



GENERAL INSTRUMENT

BYX10GP

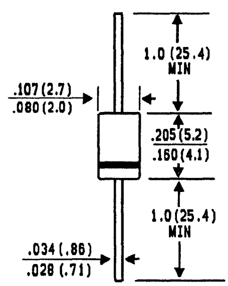
MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 1600 Volts* ***Current** - .36 Amperes*

FEATURES

PATENTED*

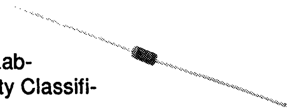
DO-41



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®



- High temperature metallurgically bonded constructed rectifier
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-41 package
- .36 Ampere operation at T_A = 40°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*BYX10GP*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1600	Volts
Maximum Working Reverse Voltage	V_{RMS}	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 40°C	$I_{(AV)}$	0 .36	Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load	I_{FSM}	15	Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F	1.6	Volts
Maximum Peak Reverse Current at Rated Perak Working Reverse Voltage T_A = 25°C	I_R	1.0	µA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	2.0	µs
Typical Junction Capacitance (Note 2)	C_J	5.0	pf
Typical Thermal Resistance (Note 3)	RΘJA	45.0	°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175	°C

NOTES:
1. Measured on I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

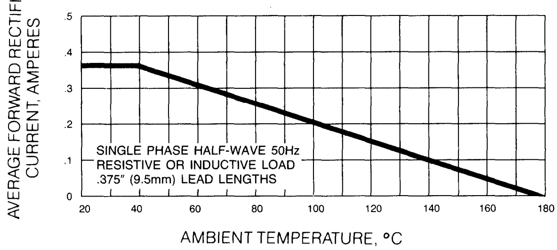


FIG.2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

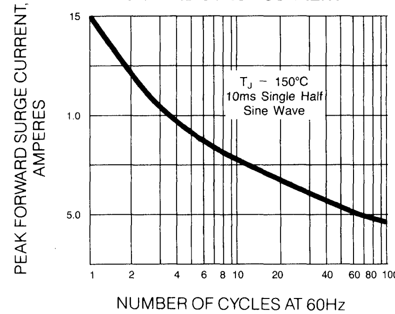


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

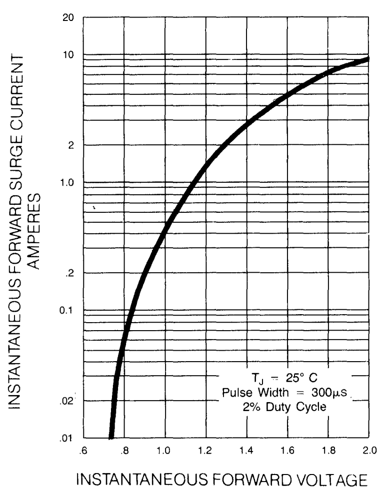


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

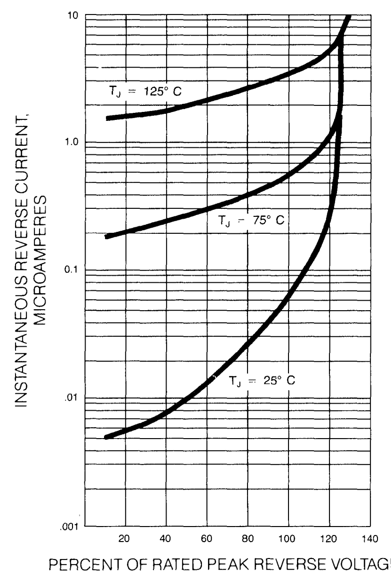


FIG. 5 — SUPERECTIFIER

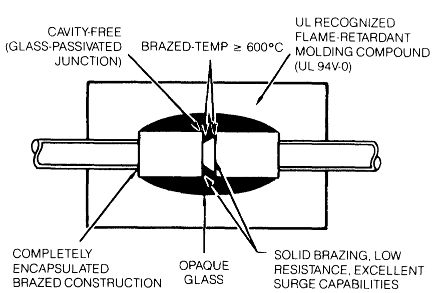
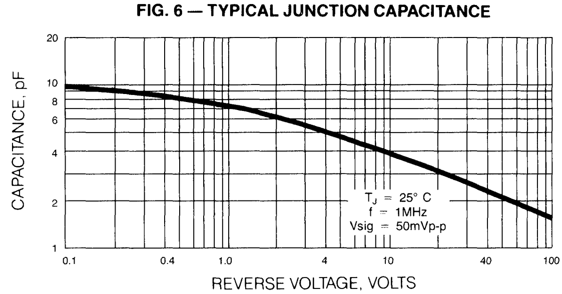


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

GP08A THRU GP08J

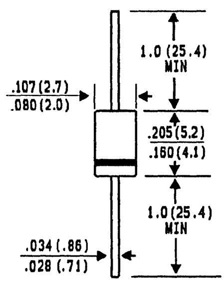
MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 0.8 Amperes*

FEATURES

PATENTED*

DO-41

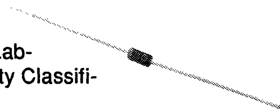


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- Fast switching for high efficiency
- Glass passivated cavity-free junction in D0-41 package
- 0.8 Ampere operation at $T_A = 55°C$ with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*GP08A*	*GP08B*	*GP08D*	*GP08G*	*GP08J*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55°C$	$I_{(AV)}$			0 .8			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			25.0			Amps
Maximum Instantaneous Forward Voltage at 0.8A	V_F			1.3			Volts
Maximum Full Load Reverse Current Full Cycle Average at $T_A = 55°C$	$I_{R(AV)}$			30.0			µA
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R			5.0 50.0			µA
Typical Reverse Recovery Time (Note 1)	T_{RR}			1.0			µS
Typical Junction Capacitance (Note 2)	C_J			8.0			pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$			45.0			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			°C

NOTES:
1. Measured on $I_F = 0.5A$, $I_R = 1.0A$, $Irr = .25A$.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

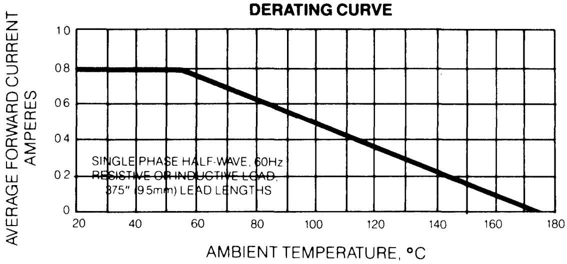


FIG. 2 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

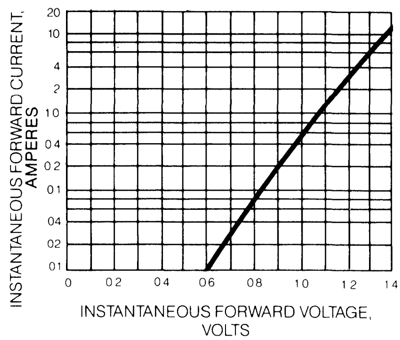


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

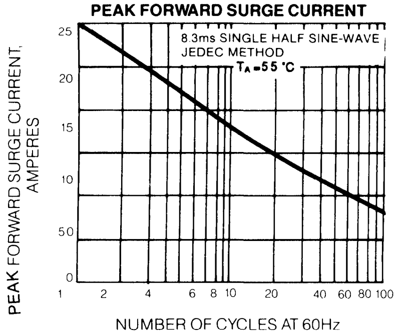


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

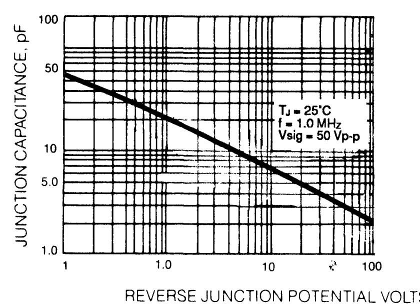


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

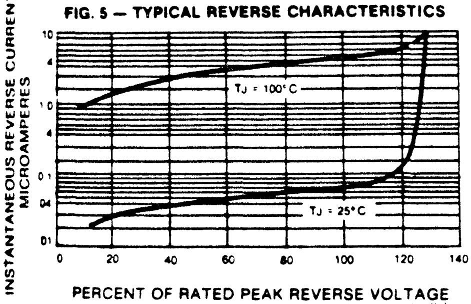
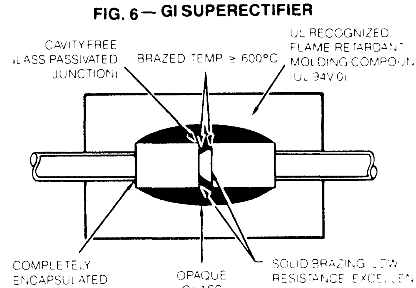


FIG. 6 — GI SUPERECTIFIER



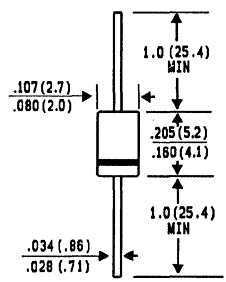
1N3611GP THRU 1N3614GP AND 1N3957GP

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*

DO-41

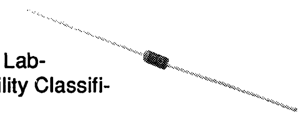


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES



- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Glass passivated cavity-free junction in D0-41 package
- ◆ 1.0 Ampere operation at T_A = 75°C with no thermal runaway
- ◆ Typical I_R less than 0.1 μ A
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*1N 3611GP*	*1N 3612GP*	*1N 3613GP*	*1N 3614GP*	*1N 3957GP*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$	1.0					Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0					Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.0					Volts
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	1.0 300.0					μA
Typical Reverse Recovery Time (Note 1)	T_{RR}	2.0					μs
Typical Junction Capacitance (Note 2)	C_J	10.0					pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	45.0					°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175					°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr =.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

* JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

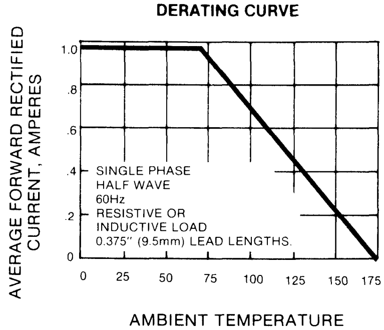


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

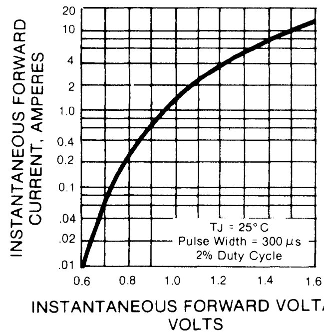


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

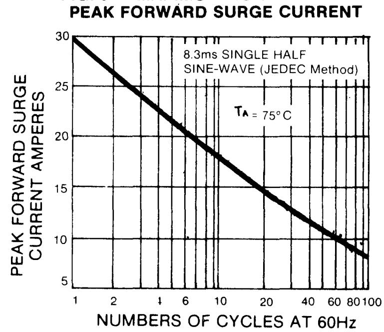


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

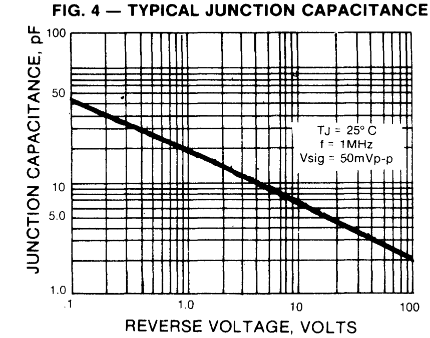


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

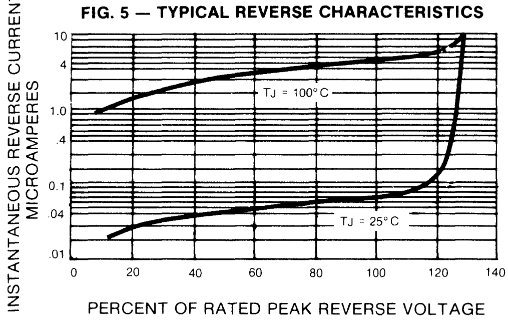
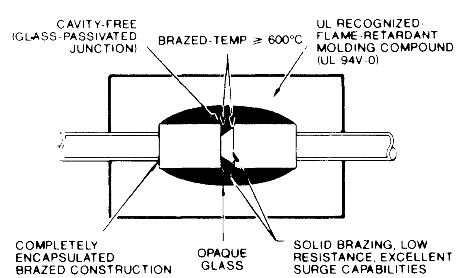


FIG. 6 — GI SUPERECTIFIER



1N4001GP THRU 1N4007GP

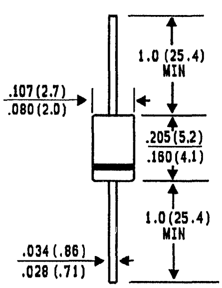
MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

Voltage *- 50 to 1000 Volts* ***Current*** *- 1.0 Ampere*

FEATURES

PATENTED*

DO-41



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-41 package
- 1.0 Ampere operation at T_A = 75°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, 0.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	1N 4001GP	1N 4002GP	1N 4003GP	1N 4004GP	1N 4005GP	1N 4006GP	1N 4007GP	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
*Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$	1.0							Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.1							Volts
*Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length T_A = 75°C	$I_{R(AV)}$	30.0							μA
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	5.0 50.0							μA
Typical Reverse Recovery Time (Note 1)	T_{RR}	2.0							μs
Typical Junction Capacitance (Note 2)	C_J	8.0							pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	45.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES: 1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.
* JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

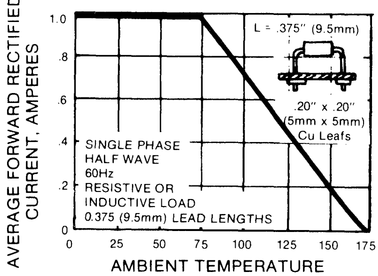


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

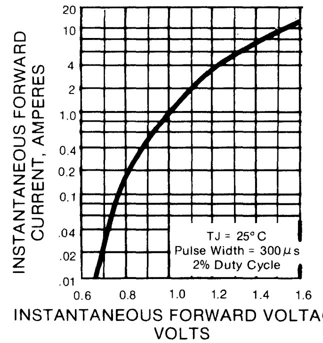


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

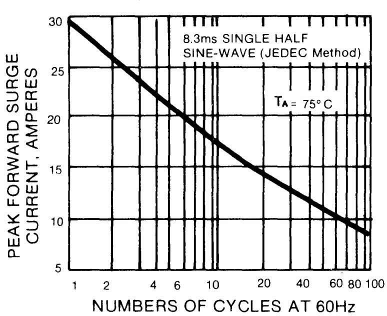


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

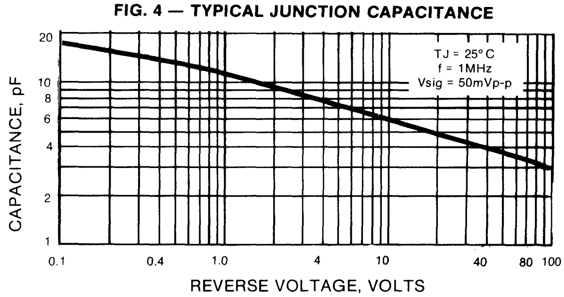


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

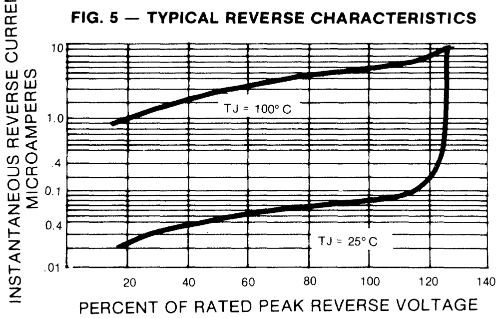
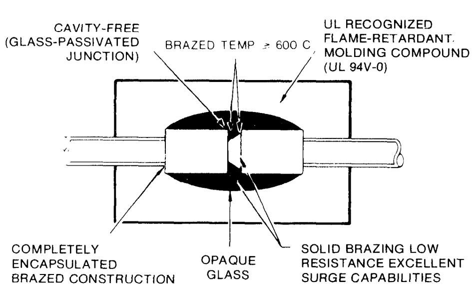


FIG. 6 — SUPERECTIFIER

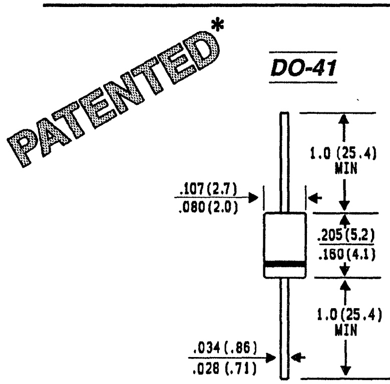


GENERAL INSTRUMENT

1N4245GP THRU 1N4249GP

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

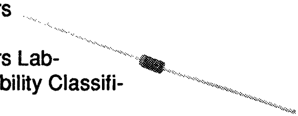
***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction version of 1N4249 in DO-41 package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

SUPERECTIFIER®

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	1N 4245GP	1N 4246GP	1N 4247GP	1N 4248GP	1N 4249GP	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
* Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.0					Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	25.0					Amps
* Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.2					Volts
* Maximum Full Load Reverse Current Full Cycle Average .375" (9.5mm) Lead Length T_A = 55°C	$I_{R(AV)}$	50.0					µA
* Maximum Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 25°C	I_R	1.0 / 25.0					µA
Typical Junction Capacitance (Note 1)	C_J	8.0					pf
Typical Thermal Resistance (Note 2)	$R\theta JA$	45.0					°C/W
* Operating Temperature Range	T_J	-65 to +160					°C
* Storage Temperature Range	T_{STG}	-65 to +175					°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

* JEDEC registered values

FIG.1 — FORWARD CURRENT DERATING CURVE

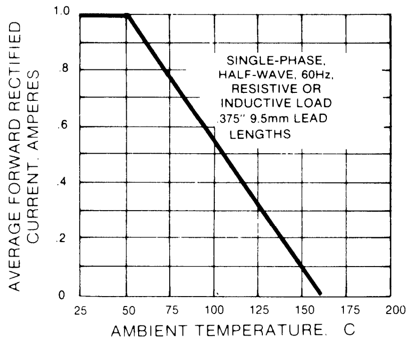


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

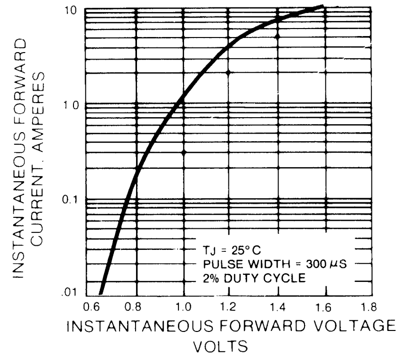


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

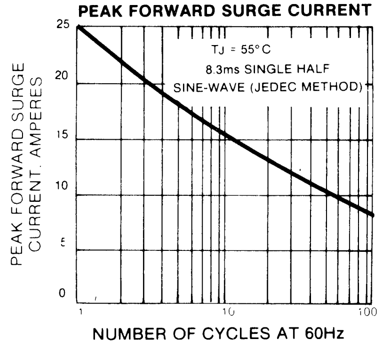


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

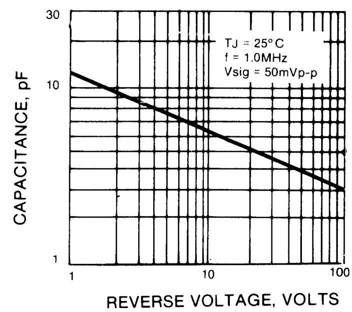


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

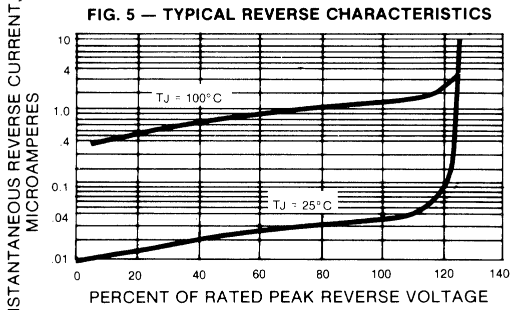
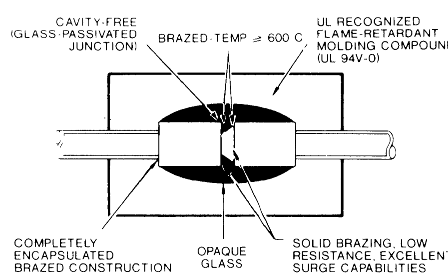


FIG. 6 — SUPERECTIFIER



GP10A THRU GP10Y

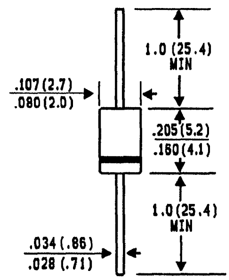
MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 50 to 1600 Volts* ***Current** - 1.0 Ampere*

FEATURES

PATENTED*

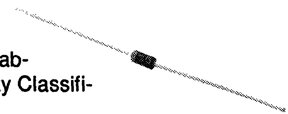
DO-41



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®



- High temperature metallurgically bonded con- structed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-41 package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

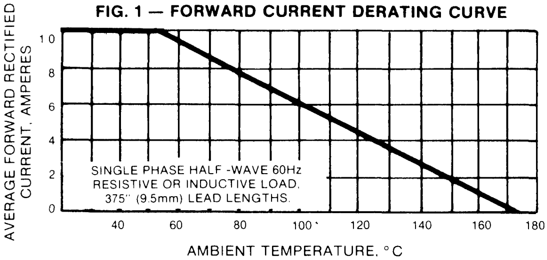
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave 60HZ, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	A B D G J K M N Q T V W Y			UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50 to 1600 Volts, See Fig 5.			Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.0			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0	25.0		Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.1	1.2	1.3	Volts
Maximum Full Load Reverse Current, Full Cycle Average, .375", (9.5mm) Lead Lengths at T_A= 75°C	$I_{R(AV)}$	30.0			µA
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	5.0 50.0			µA
Typical Reverse Recovery Time (Note 1)	T_{RR}	2.0			µs
Typical Junction Capacitance (Note 2)	C_J	8.0	7.0	5.0	pf
Typical Thermal Resistance (Note 3)	$R\theta JA$	45.0			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175			°C

NOTES:
1. Reverse Recovery Test Condition: I_F = 0.5A, I_R = 1.0A, Irr =.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE



FGI. 2 — MAXIMUM NON-REPETITIVE SURGE CURRENT

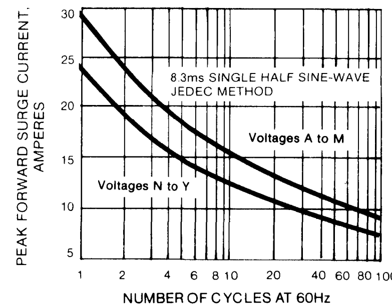


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

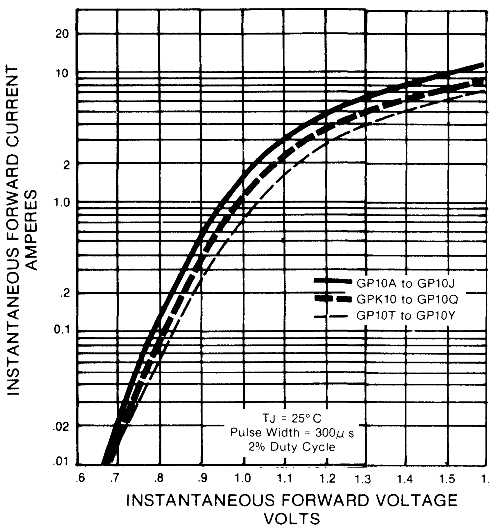


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

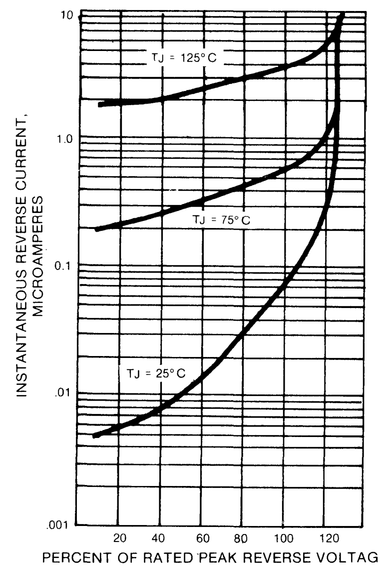
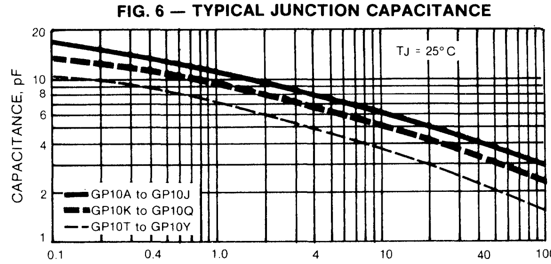


Fig. 5 —MAXIMUM RECURRENT PEAK REVERSE VOLTAGE

GP10A - 50V
GP10B - 100V
GP10D - 200V
GP10G - 400V
GP10J - 600V
GP10K - 800V
GP10M - 1000V
GP10N - 1100V
GP10Q - 1200V
GP10T - 1300V
GP10V - 1400V
GP10W - 1500V
GP10Y - 1600V

FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

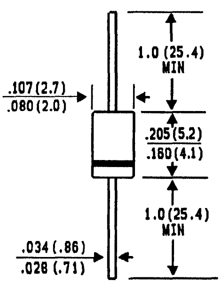
BYW27-50GP THRU BYW27-1000GP

GLASS PASSIVATED JUNCTION PLASTIC MINIATURE RECTIFIER

Voltage *- 50 to 1000 Volts* ***Current*** *- 1.0 Ampere*

PATENTED*

DO-41



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-41 package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, 0.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*BYW27 50GP*	*BYW27 -100GP*	*BYW27 -200GP*	*BYW27 -400GP*	*BYW27 -600GP*	*BYW27 -800GP*	*BYW27 -1000GP-*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 70°C	$I_{(AV)}$				1.0				Amps
Peak Forward Surge Current 10ms single half sine-wave no load	I_{FSM}				50.0				Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F				1.0				Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C	I_R				200				nA
Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length T_A = 100°C	$I_{R(AV)}$				15.0				µA
Typical Reverse Recovery Time (Note 1)	T_{RR}				20.0				µs
Typical Junction Capacitance (Note 2)	C_J				8.0				pf
Typical Thermal Resistance (Note 3)	RθJA				45.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-65 to +150				°C

NOTES: 1. Measured on Tektronix Type S recovery plug-in. Tektronix 545 Scope (or equiv.) . I_{FM} = 20mA, I_{RM} = 1.0mA.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

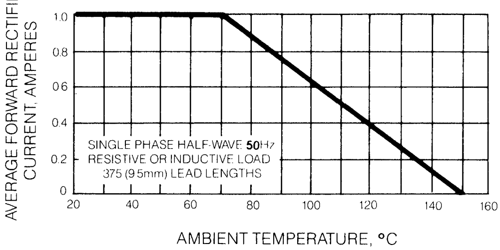


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

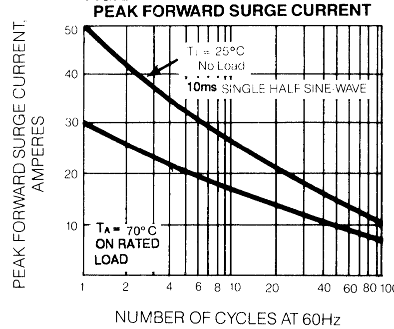


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

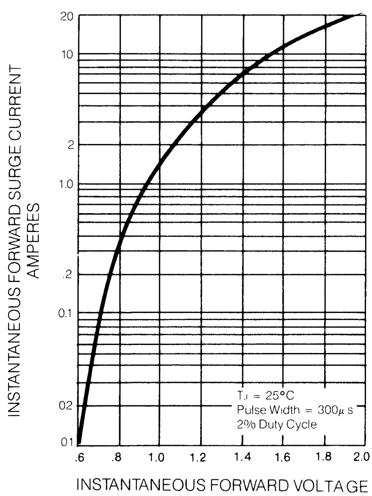


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

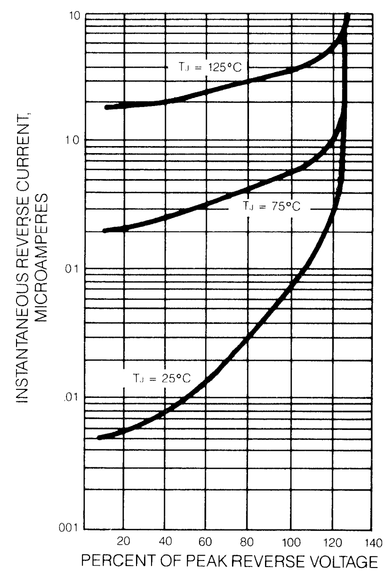


FIG. 5 — PEAK FORWARD SURGE CURRENT

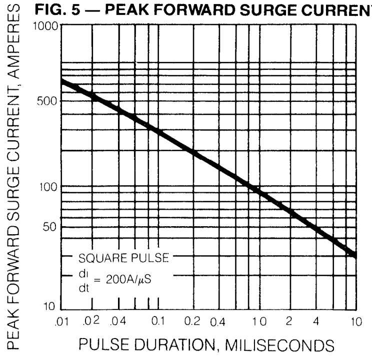
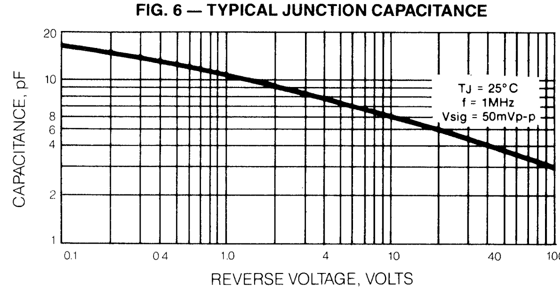


FIG. 6 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

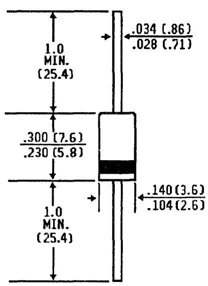
1N4383GP THRU 1N4385GP
1N4585GP AND 1N4586GP

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

Voltage *- 200 to 1000 Volts* ***Current*** *- 1.0 Ampere*

PATENTED*

DO-15

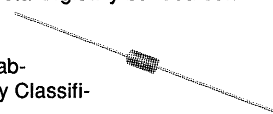


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER ®

FEATURES



- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Glass passivated cavity-free junction in DO-15 package
- ◆ 1.0 Ampere operation at T_A = 100°C with no thermal runaway
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce,0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single half wave , 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N 4383GP	1N 4384GP	1N 4385GP	1N 4585GP	1N 4586GP	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
* Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths	$I_{(AV)}$			1.0			Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 100°C	I_{FSM}			50.0			Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F			1.0			Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R			5.0 250			μA
* Typical Reverse Recovery Time (Note 2)	T_{RR}			2.0			μs
Maximum Full Load Reverse Current Full Cycle Average at .375"(9.5mm) Lead Lengths, T_A = 100°C	$I_{R(AV)}$	275	250	225	200	200	μA
Typical Junction Capacitance (Note 1)	C_J			15.0			pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$			25.0			°C/W
* Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			°C

NOTES: 1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2 Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.
* JEDEC registered values

FIG. 1 — FORWARD DERATING CURVE

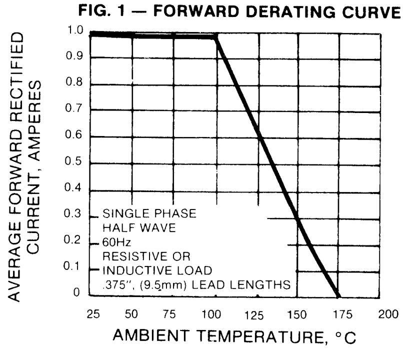


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

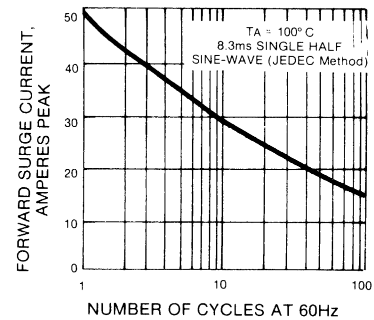


FIG. 3 — TYPCIAL FORWARD CHARACTERISTICS

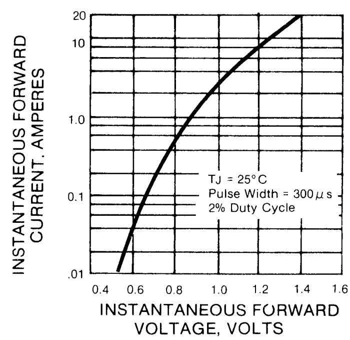


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

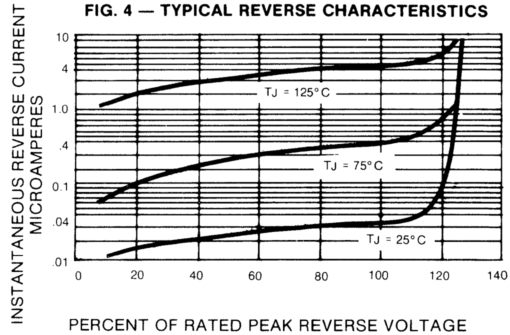


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

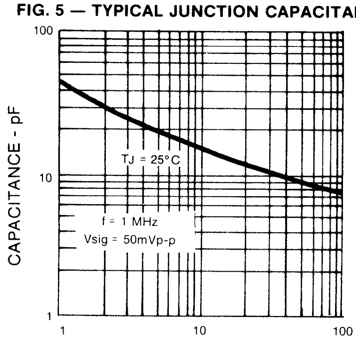
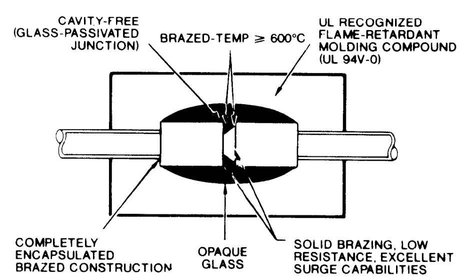


FIG. 6 — SUPERECTIFIER



1N5059GP THRU 1N5062GP

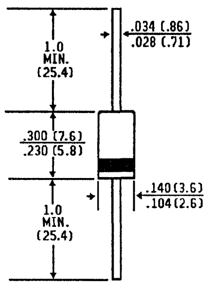
MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 200 to 800 Volts* ***Current** - 1.0 Ampere*

FEATURES

PATENTED*

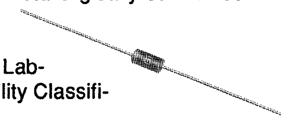
DO-15



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction version of 1N5059 thru 1N5062 in D0-15 package
- 1.0 Ampere operation at T_A = 75°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce,0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60Hz Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	1N5059GP	1N5060GP	1N5061GP	1N5062GP	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$	1.0				Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0				Amps
*Maximum Instantaneous Forward Voltage at 1.0A T_A = 75°C	V_F	1.2				Volts
*Maximum Full Load Reverse Current, Full Cycle Average,.375" (9.5mm) Lead Lengths at T_A = 25°C / T_A = 75°C	$I_{R(AV)}$	5.0 / 150.0				µA
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 175°C	I_R	5.0 / 300.0				µA
Typical Reverse Recovery Time (Note 1)	T_{RR}	2.0				µs
Typical Junction Capacitance (Note 2)	C_J	15.0				pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	25.0				°C/W
*Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:

1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

* JEDEC Registered Value

FIG. 1 — FORWARD CURRENT DERATING CURVE

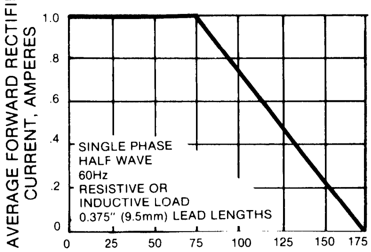


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

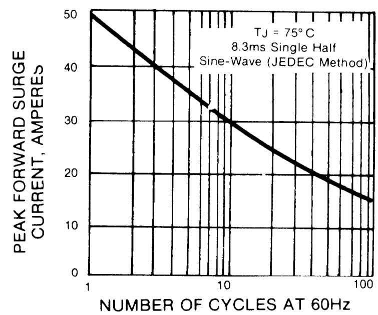


FIG. 3 — TYPICAL INSTANTANEOUS FOWARD CHARACTERISTICS

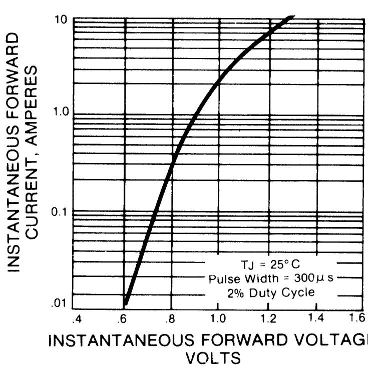


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

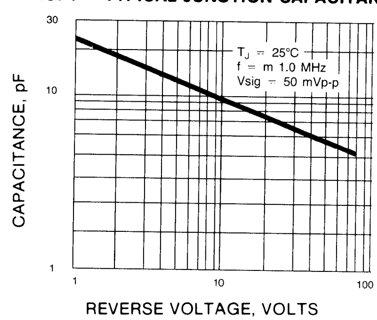


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

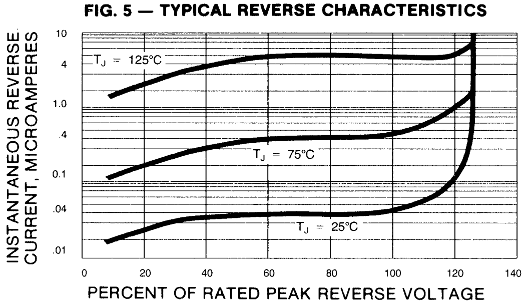
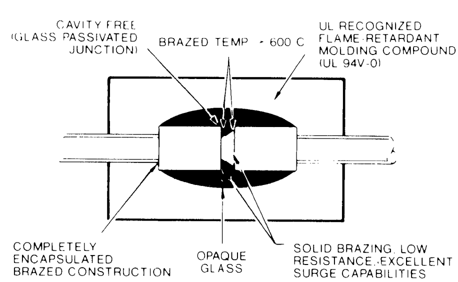


FIG. 6 — SUPERECTIFIER



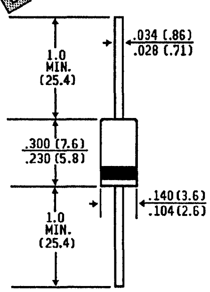
GENERAL INSTRUMENT

BY133GP THRU BY135GP

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 200 to 1300 Volts* ***Current** - 1.0 Ampere*

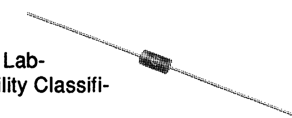
DO-15



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in DO-15 package
- 1.0 Ampere operation at T_A = 75°C with no thermal runaway
- Typical I_R less than 0.1 μA
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any ***Weight:*** 0.015 ounce, 0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave 60 HZ, resistive or inductive load For capacitive load, derate current by 20%.

	SYMBOLS	BY133GP	BY134GP	BY135GP	UNITS
Maximum Non-Recurrent Peak Reverse Voltage	V_{RSM}	1600	800	200	Volts
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1300	600	200	Volts
Maximum RMS Voltage	V_{RMS}	910	420	140	Volts
Maximum DC Blocking Voltage at T_A = 150°C	V_{DC}	1300	600	200	Volts
*Maximum Average Forward Rectified Current 375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$		1.0		Amps
Peak Forward Surge Current 10 ms single half sine-wave superimposed on rated load T_A = 25°C	I_{FSM}		50.0		Amps
Maximum Instantaneous Forward Voltage at 2.0A T_A = 75°C	V_F		1.2		Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 175°C	I_R		5.0 200		μA
Maximum Full Load Reverse Current FullCycle T_A= 25°C Average,.375", (9.5 mm) Leads Length at T_A = 75°C	$I_{R(AV)}$		5.0 200		μA
Typical Junction Capacitance (Note 1)	C_J		15.0		pf
Typical Reverse Recovery Time (Note 2)	T_{RR}		2.0		μs
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$		25.0		°C/W
Operating and Storage Temperature Range	T_J, T_{STG}		-65 to +175		°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Condition: I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

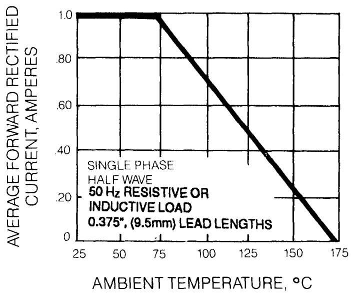


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

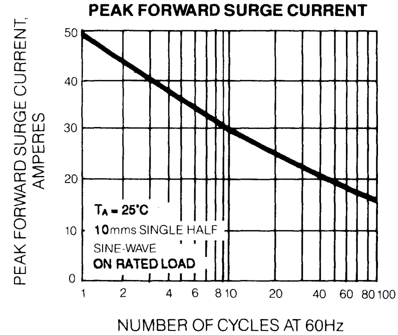


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

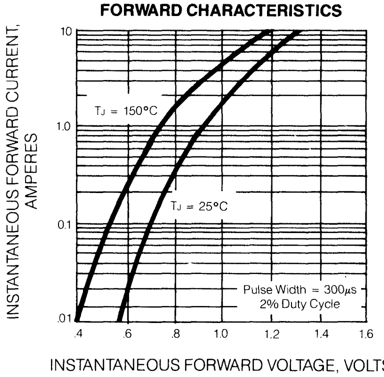


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

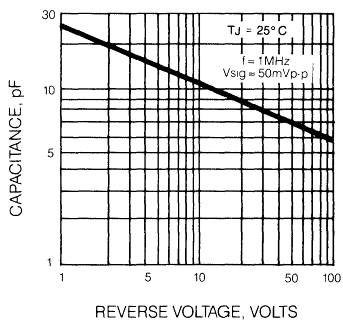


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

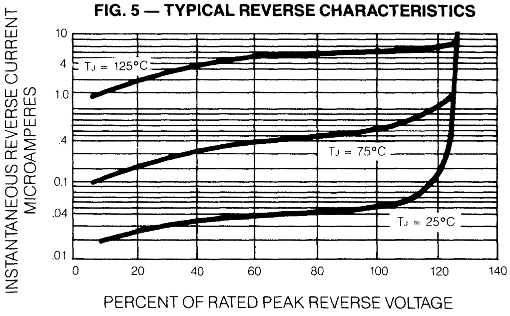
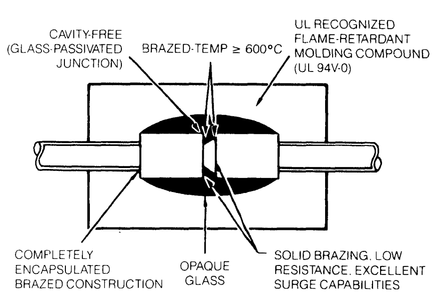


FIG. 6 — SUPERECTIFIER



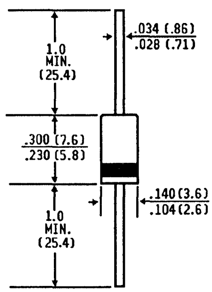
1N5391GP THRU 1N5399GP

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 50 to 1000 Volts*   ***Current** - 1.5 Amperes*

PATENTED*

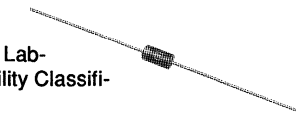
DO-15



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction
- 1.5 Ampere operation at $T_A = 70°C$ with no thermal runaway
- Typical I_R less than 0.1 µA
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce,0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Single phase, half wave 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N53 91GP	1N53 92GP	1N53 93GP	1N53 94GP	1N53 95GP	1N53 96GP	1N53 97GP	1N53 98GP	1N53 99GP	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	300	400	500	600	800	1000	Volts
* Maximum RMS Voltage	V_{RMS}	35	70	140	210	280	350	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	50	100	200	300	400	500	600	800	1000	Volts
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 70°C$	$I_{(AV)}$	1.5									Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0									Amps
Maximum Instantaneous Forward Voltage at 1.5A,$T_A = 70°C$	V_F	1.4									Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 100°C$	I_R	5.0 / 300.0									µA
* Maximum Full Load Reverse Current Full Cycle Average, 375", (9.5mm) Lead Length at$T_A = 70°C$	$I_{R(AV)}$	300.0									µA
Typical Reverse Recovery Time (Note 2)	T_{RR}	2.0									µs
Typical Junction Capacitance (Note 1)	C_J	15.0									pf
Typical Thermal Resistance (Note 3)	RΘJA	30.0									°C/W
* Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175									°C

*NOTES:*1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Condition: $I_F = 0.5A$, $I_R = 1.0A$, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.
* JEDEC regfistered values

FIG. 1 — FORWARD CURRENT DERATING CURVE

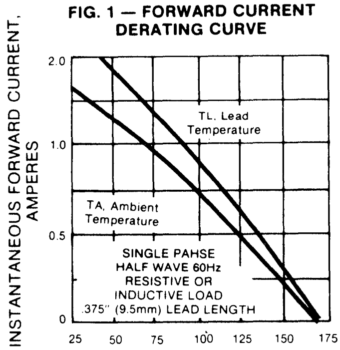


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

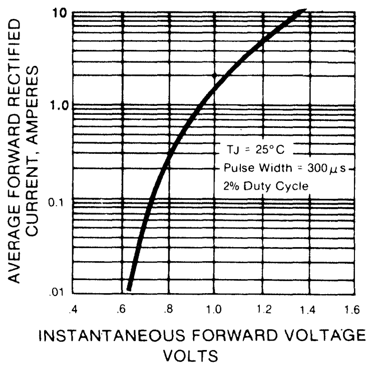


FIG. 3 — PEAK FORWARD SURGE CURRENT

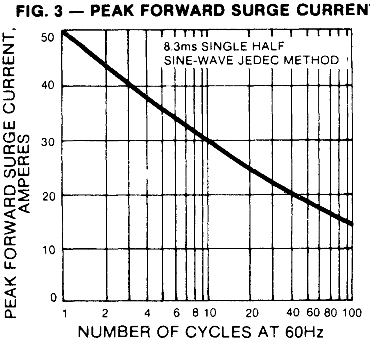


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

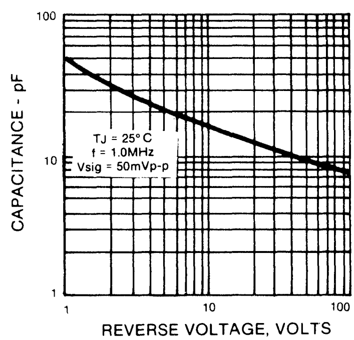


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

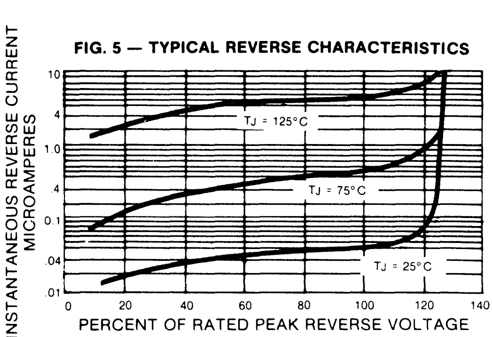
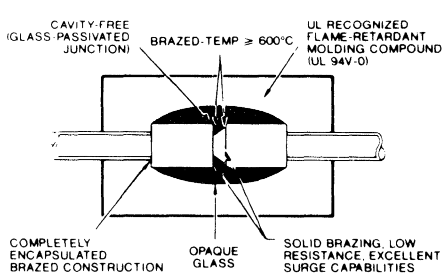


FIG. 6 - SUPERECTIFIER



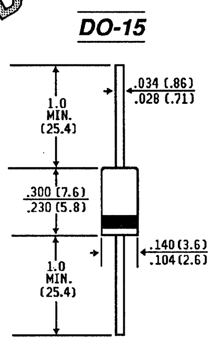
GP15A THRU GP15M

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 1.5 Amperes*

PATENTED*

DO-15

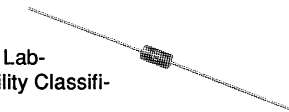


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-15 package
- 1.5 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce, 0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GP 15A	GP 15B	GP 15D	GP 15G	GP 15J	GP 15K	GP 15M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.5							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0							Amps
Maximum Instantaneous Forward Voltage at 1.5A	V_F	1.1							Volts
Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length T_A = 55°C	$I_{R(AV)}$	100.0							μA
Maximum Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	5.0 200.0							μA
Typical Reverse Recovery Time (Note 2)	T_{RR}	2.0							μs
Typical Junction Capacitance (Note 1)	C_J	15.0							pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	25.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Conditions I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

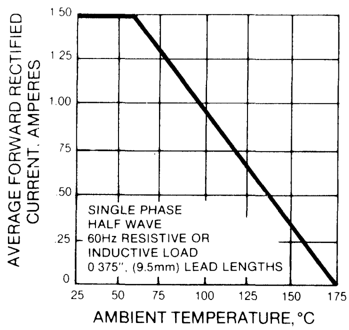


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

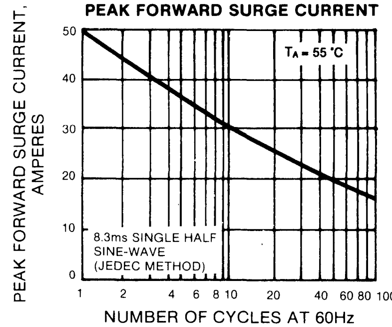


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

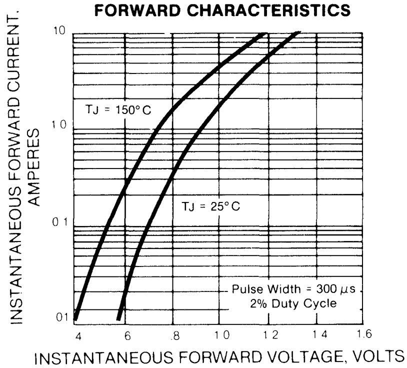


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

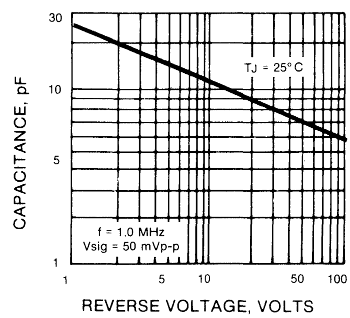


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

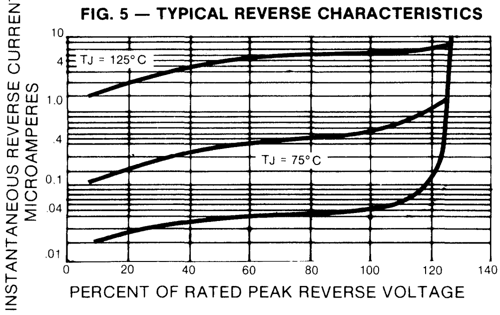
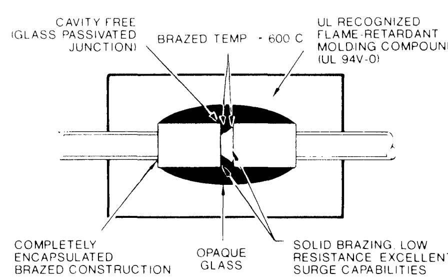


FIG. 6—SUPERECTIFIER



GENERAL INSTRUMENT

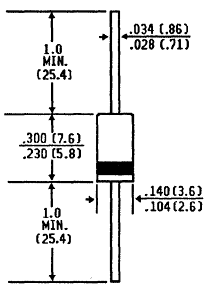
AGP15-200 THRU AGP15-800

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC CONTROLLED AVALANCHE RECTIFIER

***Voltage** - 200 to 800 Volts* ***Current** - 1.5 Amperes*

PATENTED*

DO-15

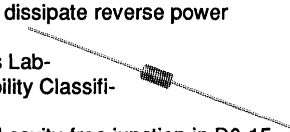


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- Controlled Avalanche characteristic combined with the ability to dissipate reverse power
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- Glass passivated cavity-free junction in D0-15 package
- 1.5 Ampere operation at $T_A = 55°C$ with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any ***Weight:*** 0.0154 ounce,.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*AGP15-200*	*AGP15-400*	*AGP15-600*	*AGP15-800*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
Mininum Avalanche Breakdown Voltage at 100 μ A	V_{BR}	240	450	675	880	Volts
Maximum Avalanche Breakdown Voltage at 100 μ A	V_{BR}	500	750	1000	1200	Volts
Maximum Peak Power Dissipation in the Avalanche Region 20 μs Pulse	P_{RM}	500.0				Watts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55°C$	$I_{(AV)}$	1 .5				Amps
Peak Forward Surge Current8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0				Amps
Maximum Instantaneous Forward Voltage at 1.5A	V_F	1.1				Volts
Maximum Reverse Current at Rated DC Blocking Voltage	I_R	5.0				μA
Maximum Full Load Reverse Current, Full Cycle Average,.375", (9.5mm) Lead Length at $T_A = 55°C$	$I_{R(AV)}$	100.0				μA
Typical Reverse Recovery Time (Note 2)	T_{RR}	2.0				μs
Typical Junction Capacitance (Note 1)	C_J	15.0				pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	25.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES: 1. Measured at 1 MHZ and applierd reverse vsoltage of 4.0 Volts. 2. Reverse Recovery Test Conditions : IF = 0.5A, IR = 1.0A, recover to 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

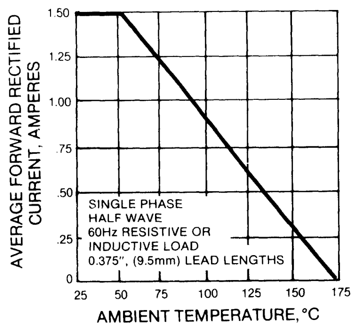


FIG. 2 — TYPICAL INSTANTEOUS FORWARD CHARACTERISTICS

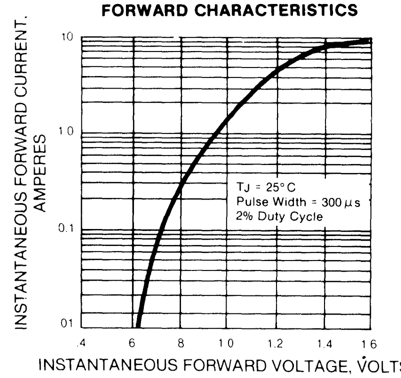


FIG. 3 — MAXIMUM NON-REPETITVE PEAK FORWARD SURGE CURRENT

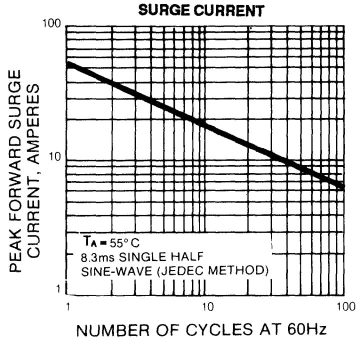


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

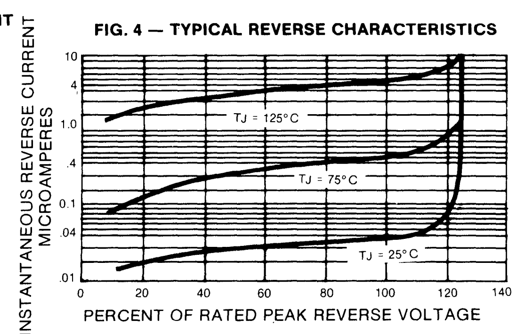


FIG. 5—MAXIMUM NON-REPETITIVE REVERSE AVALANCHE POWER DISSIPATION

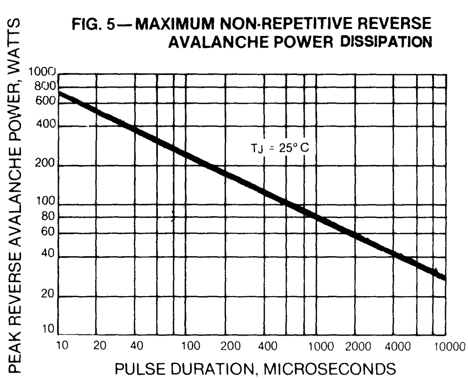
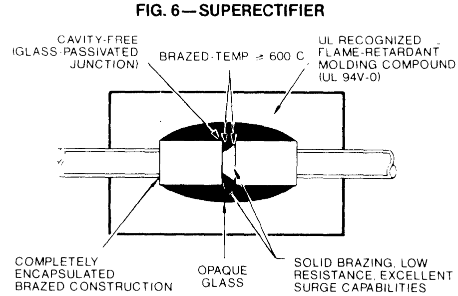


FIG. 6—SUPERECTIFIER



GENERAL INSTRUMENT

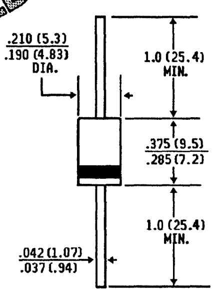
GP20A THRU GP20J

GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

Voltage* - *50 to 600 Volts*   *Current* - *2.0 Amperes

GP20

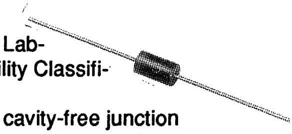
PATENTED*



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction
- 2.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μA
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension
-

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Band denotes cathode
Mounting Position: Any
Weight: 0.03 ounce, 0.8 gram

SUPERECTIFIER®

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified 60 Hz.Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*GP 20A*	*GP 20B*	*GP 20D*	*GP 20G*	*GP 20J*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$			2.0			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			65.0			Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F	1.2		1.1			Volts
Maximum Reverse Current at Rated DC Blocking Voltage T_A = 25°C	I_R			5.0			μA
Maximum Full Load Reverse Current, Full Cycle Average, 375" (9.5mm) Lead Length T_A = 55°C	$I_{R(AV)}$			100			μA
Typical Reverse Recovery Time (Note 1)	T_{RR}			2.5			μs
Typical Junction Capacitance (Note 2)	C_J			40			pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$			16.0			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

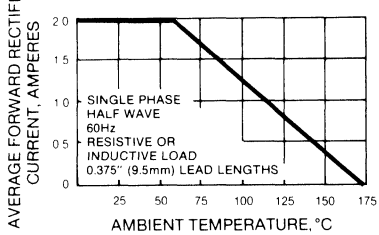


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

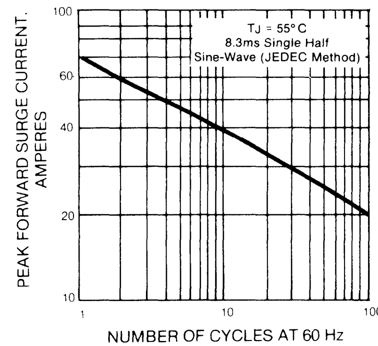


FIG. 3 — TYPICAL JUNCTION CAPACITANCE

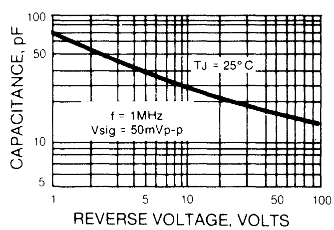


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

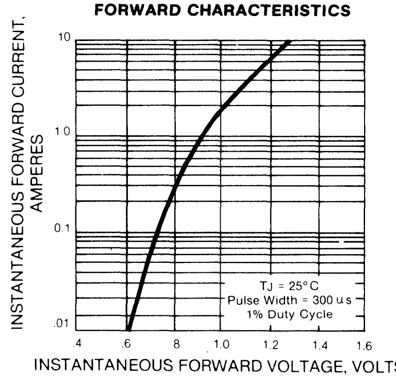


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

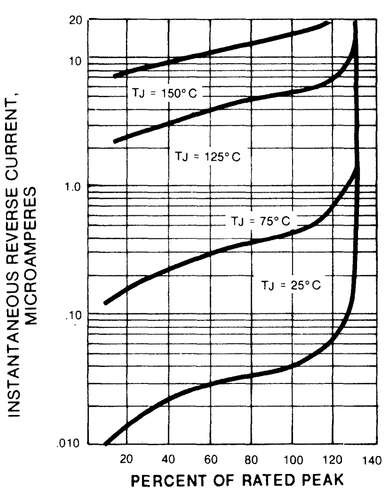
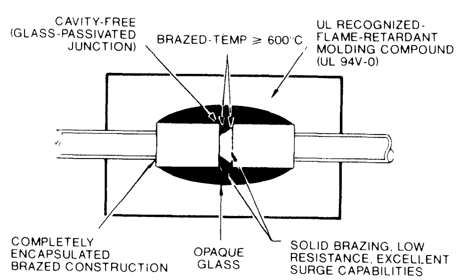


FIG. 6 — SUPERECTIFIER



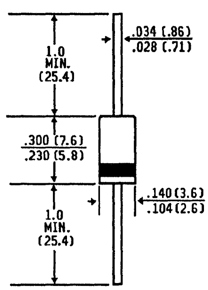
BY126MGP, BY127MGP / BY226MGP, BY227MGP

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 650 to 1250 Volts* ***Current** - 1.5 and 1.75 Amperes*

PATENTED*

DO-15

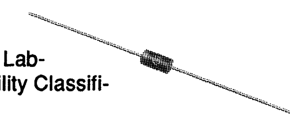


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-15 package
- 1.5 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce, 0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 50 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	BY126MGP	BY127MGP	BY226MGP	BY227MGP	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	650	1250	650	1250	Volts
Maximum RMS Voltage	V_{RMS}	455	875	455	875	Volts
Maximum DC Blocking Voltage	V_{DC}	650	1250	650	1250	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.5		1.75		Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load at T_A = 25°C	I_{FSM}	50.0		60.0		Amps
Maximum Instantaneous Forward Voltage at 5.0A	V_F	1.5				Volts
Maximum Reverse Current at Rated DC Blocking Voltage T_A = 25°C	I_R	5.0				μA
Maximum Full Load Reverse Current, Full Cycle Average, .375" (9.5mm)Lead Length at T_A = 55°C	$I_{R(AV)}$	100.0				μA
Typical Reverse Recovery Time (Note 2)	T_{RR}	2.0				μs
Typical Junction Capacitance (Note 1)	C_J	15.0				pf
Typical Thermal Resistance (Note 3)	RΘJA	25.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

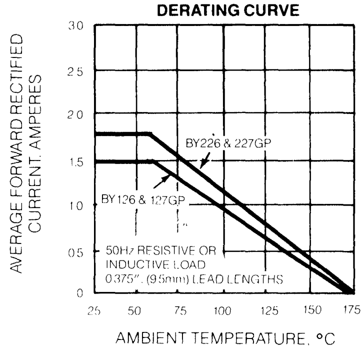


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

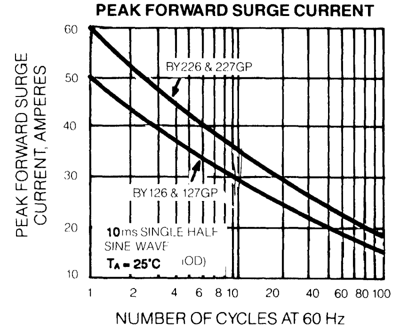


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

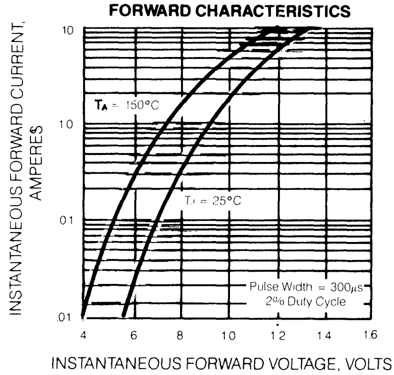


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

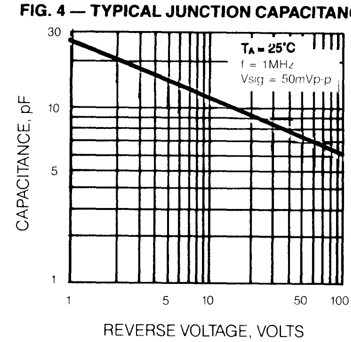


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

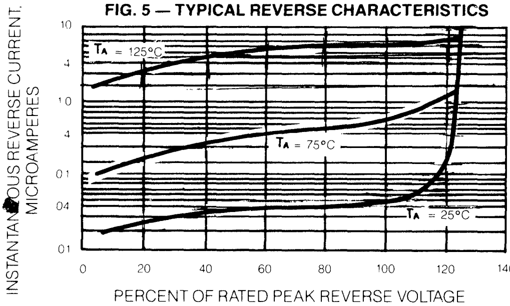
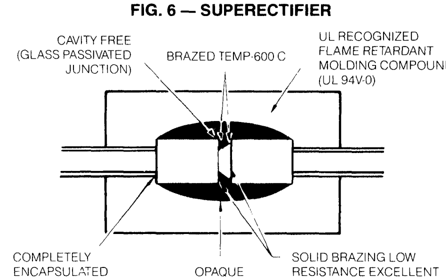


FIG. 6 — SUPERECTIFIER

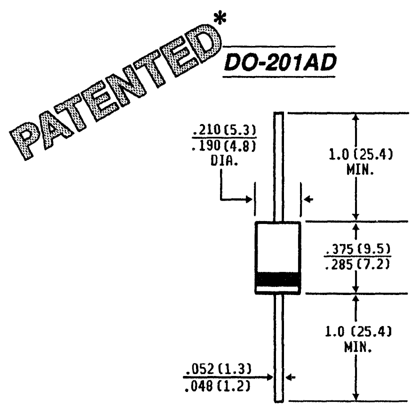


1N5624GP THRU 1N5627GP

GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER

***Voltage** - 200 to 800 Volts* ***Current** -3.0 Amperes*

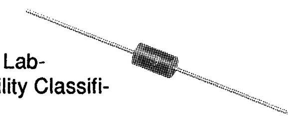
FEATURES



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®



- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Glass passivated cavity-free junction in D0-201AD package
- ◆ 3.0 Ampere operation at T_A = 70°C with no t hermal runaway
- ◆ Typical I_R less than 0.1 μ A
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.04 ounce, 1.12 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N5624GP	1N5625GP	1N5626GP	1N5627GP	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
* Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 70°C	$I_{(AV)}$	3.0				Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125				Amps
* Maximum Instantaneous Forward Voltage at 3.0A T_A = 25°C	V_F	1.0				Volts
T_A = 70°C		.95				
Maximum Reverse Current T_A = 25°C	$I_{R(AV)}$	5.0				μA
at Rated DC Blocking Voltage T_A = 150°C		300		200		
Maximum Full Load Reverse Current, Full Cycle Average,.375" (9.5mm) Lead Length T_A = 70°C	I_R	200				μA
Typical Reverse Recovery Time (Note 2)	T_{RR}	3.0				μs
Typical Junction Capacitance (Note 1)	C_J	40.0				pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	15.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltahge of 4.0 V_{DC}.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

* JEDEC Registered Value

FIG. 1 — FORWARD CURRENT DERATING CURVE

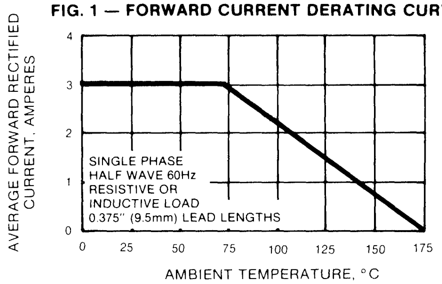


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

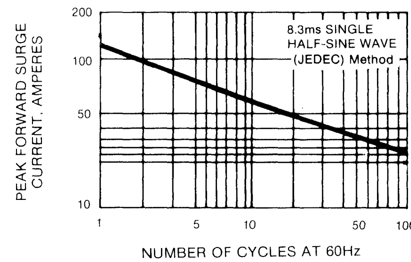


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

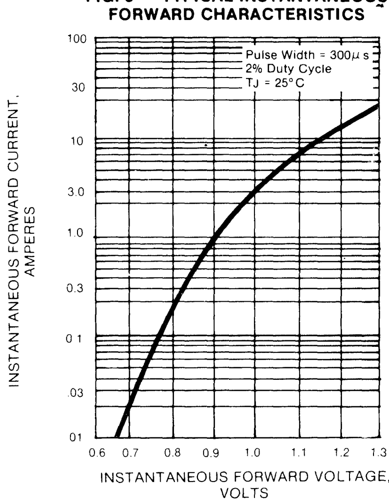


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

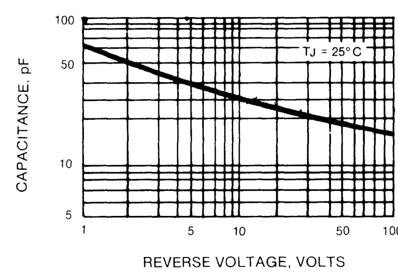


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

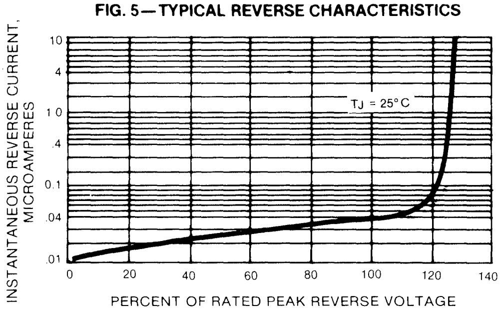
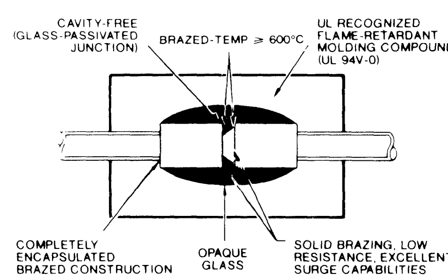


FIG. 6 — SUPERECTIFIER



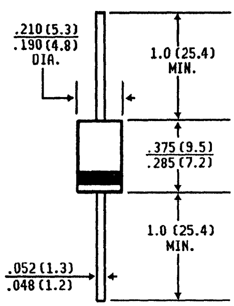
GP30A THRU GP30M

GLASS PASSIVATED SILICON JUNCTION PLASTIC RECTIFIER

Voltage *- 50 to 1000 Volts* ***Current*** *- 3.0 Amperes*

PATENTED*

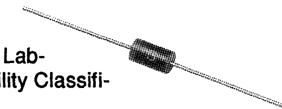
DO-201AD



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-201AD package
- 3.0 Ampere operation at $T_A = 55°C$ with no thermal runaway
- Typical I_R less than 0.1 μA
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.04 ounce, 1.12 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz,resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	GP 30A	GP 30B	GP 30D	GP 30G	GP 30J	GP 30K	GP 30M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55°C$	$I_{(AV)}$	3.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125							Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.2		1.1					Volts
Maximum Reverse Current at Rated DC Blocking Voltage	I_R	5.0							μA
Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length $T_A = 55°C$	$I_{R(AV)}$	100							μA
Maximum Reverse Recovery Time (Note 2) $T_J = 25°C$	T_{RR}	3.0							μs
Typical Junction Capacitance (Note1)	C_J	40.0							pf
Typical Thermal Resistance (Note 3)	$R\theta JA$	15.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:

1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions: $I_F = .5A$, $I_R = 1A$, $Irr = .25A$.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1—FORWARD CURRENT DERATING CURVE

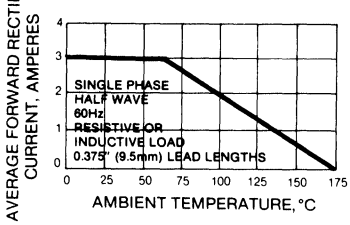


FIG. 2 — MAXIMUM NON-REPETITIVE SURGE CURRENT

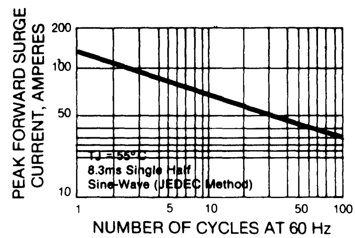


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

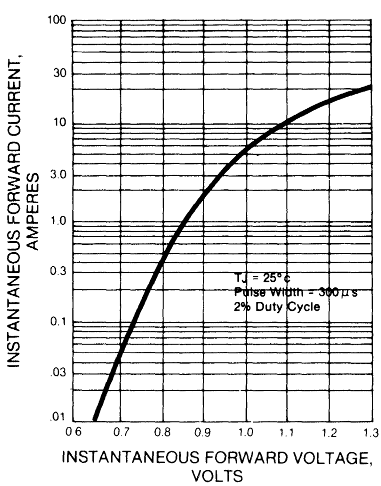


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

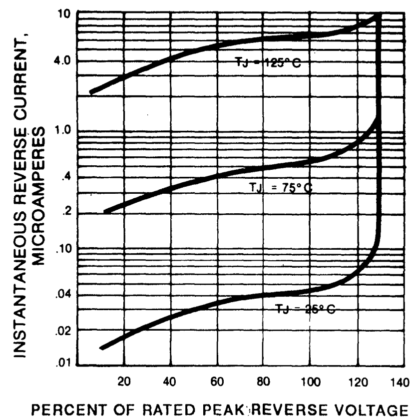


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

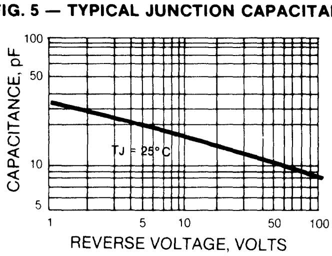
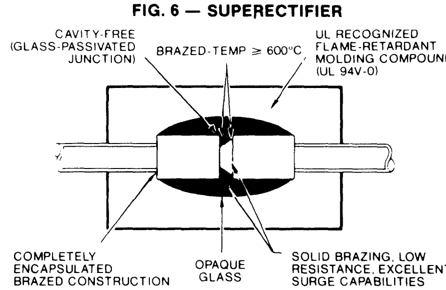


FIG. 6 — SUPERECTIFIER



SUPERECTIFIER ZENER REGULATOR DIODE

1.5 WATT
100 TO 200 VOLTS

GENERAL INSTRUMENT

ZGP10-100 THRU ZGP10-200

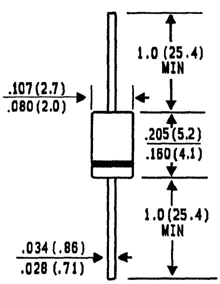
MINIATURE GLASS PASSIVATED JUNCTION PLASTIC ZENER REGULATOR DIODE

Voltage - *100 to 200 Volts* ***Power Rating*** - *1.5 Watts*

FEATURES

PATENTED*

DO-41

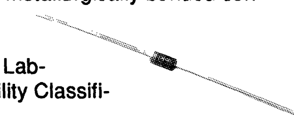


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Low zener impedance
- Excellent clamping capability
- Glass passivated cavity-free junction in DO-41 package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic over glass

Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

OPERATING AND STORAGE TEMPERATURE T_J, T_{STG} -65°C to +175°C

TYPE	Zener Breakdown Voltage at 5mA		Maximum Zener Dynamic Impedance				Maximum Reverse Current at Measurement Voltage, V_R			Maximum Forward Voltage at .50A	Maximum Continuous Regulator Current*
	MIN	MAX	I_{ZT}	Z_{ZT}	I_{ZK}	Z_{ZK}	V_R	25°C	100°C	V_F	I_{ZM}
	Volts		mA	Ohms	mA	Ohms	Volts	µA	µA	Volts	mA
ZGP10-100	80	120	5	500	.25	5000	60	0.5	100	1.0	10.
ZGP10-110	88	132	5	600	.25	5000	70	0.5	100	1.0	9.1
ZGP10-120	96	144	5	700	.25	5000	80	0.5	100	1.0	8.3
ZGP10-130	104	156	5	800	.25	5000	90	0.5	100	1.0	7.7
ZGP10-140	112	168	5	900	.25	5500	100	0.5	100	1.0	7.1
ZGP10-150	120	180	5	1000	.25	6000	110	0.5	100	1.0	6.6
ZGP10-160	140	170	5	1100	.25	6500	120	0.5	100	1.0	6.3
ZGP10-170	136	204	5	1200	.25	7000	130	0.5	100	1.0	5.9
ZGP10-180	144	216	5	1300	.25	7000	140	0.5	100	1.0	5.6
ZGP10-190	152	228	5	1400	.25	7500	150	0.5	100	1.0	5.3
ZGP10-200	160	240	5	1500	.25	8000	160	0.5	100	1.0	5.0

Standard + - 20%, Suffix A=+-10%, Suffix B+-5%.
*Temperature rating at specified regulator current is TL = 30°C
**Maximum continuous power dissipation at TL = 75°C lead length .375", 9.5mm is 1.5 Watts

FIG. 1 — MAXIMUM CONTINUOUS POWER DISSIPATION

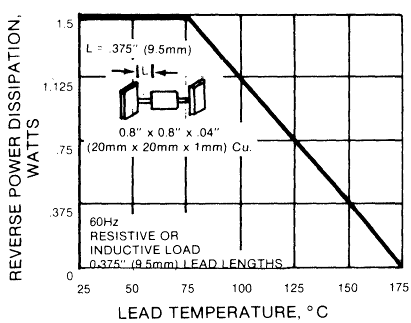


FIG. 2 — TYPICAL ZENER IMPEDANCE

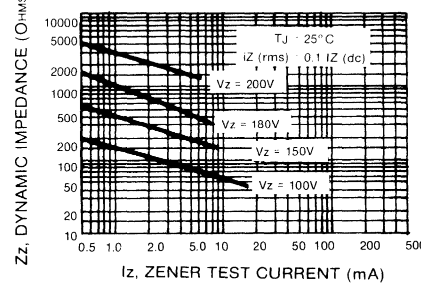


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

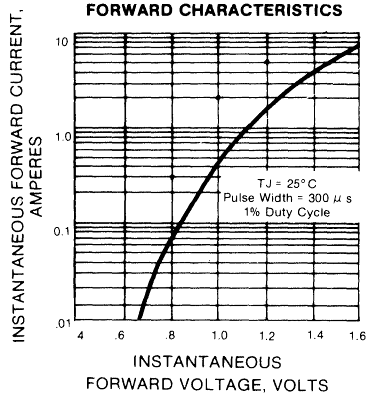


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

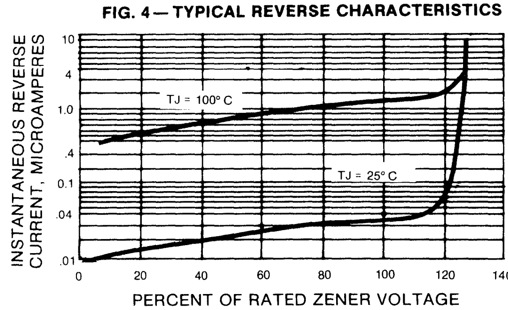


FIG. 5 — TYPICAL TEMPERATURE COEFFICIENTS

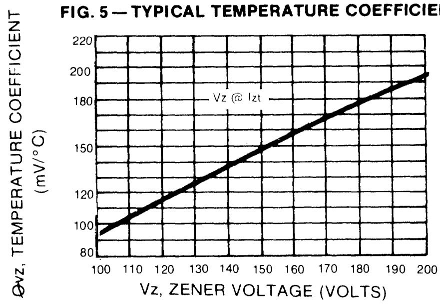
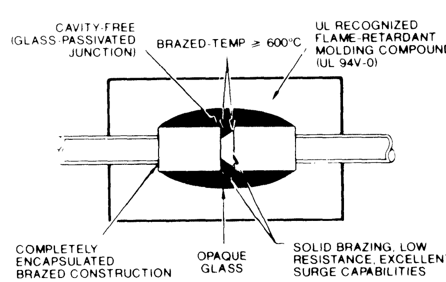


FIG. 6 — SUPERECTIFIER



FAST-RECOVERY SUPERECTIFIERS

.40 AMPERES THRU 3.0 AMPERES
50 VOLTS TO 2000 VOLTS

GENERAL INSTRUMENT

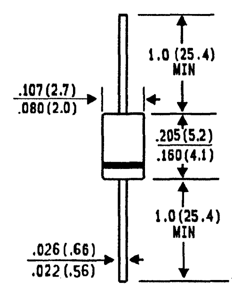
PHOTOFLASH RECTIFIER RGP02 SERIES

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 1200 to 2000 Volts* ***Current** - 0.5 Amperes*

PATENTED*

DO-41



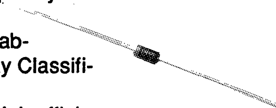
Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- For use in high frequency rectifier circuits
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- Fast switching for high efficiency
- Glass passivated cavity-free junction in D0-41 package
- 0.5 Ampere operation at $T_A = 55°C$ with no thermal runaway
- Typical I_R less than 0.1 μA
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	RGP02 -12 E	RGP02 -14 E	RGP02 -16 E	RGP02 -18 E	RGP02 -20 E	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1200	1400	1600	1800	2000	Volts
Maximum RMS Voltage	V_{RMS}	840	980	1120	1260	1400	Volts
Maximum DC Blocking Voltage	V_{DC}	1200	1400	1600	1800	2000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55°C$	$I_{(AV)}$			0 .5			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load at $T_A = 25°C$	I_{FSM}			20.0			Amps
Maximum Instantaneous Forward Voltage at 0.1A	V_F			1.8			Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R			5.0 / 50.0			μA
Maximum Reverse Recovery Time (Note 1) $T_J = 25°C$	T_{RR}			300			ns
Typical Junction Capacitance (Note 2)	C_J			5.0			pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$			50.0			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			°C

NOTES:
1. Reverse Recovery Test Conditions : $I_F = 0.5A$, $I_R = 1.0A$, Irr =.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1—FORWARD CURRENT DERATING CURVE

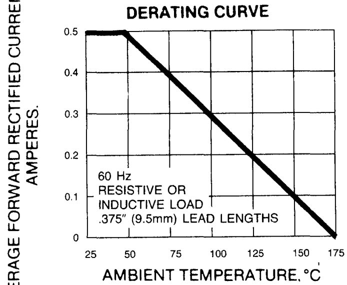


FIG. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

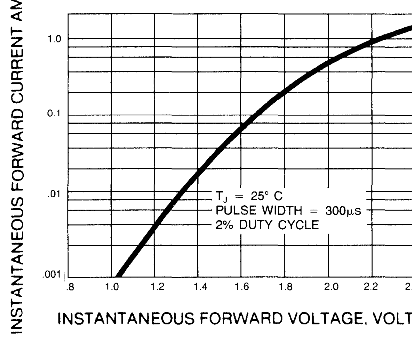


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

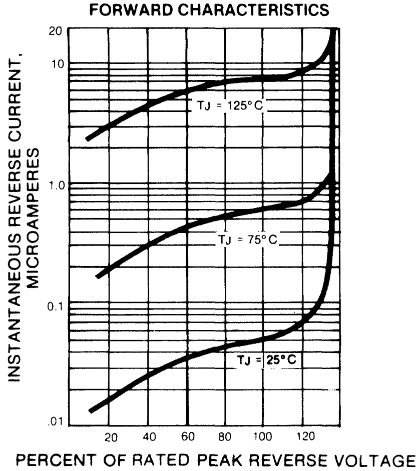


FIG. 4—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

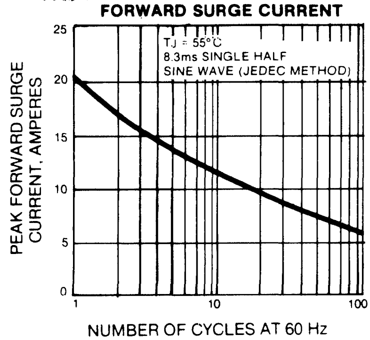


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

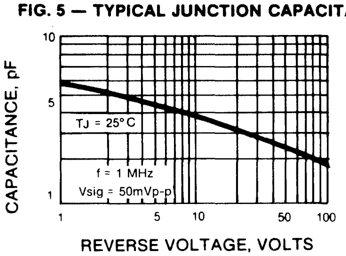
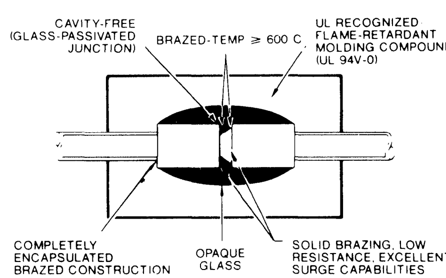


FIG. 6—SUPERECTIFIER



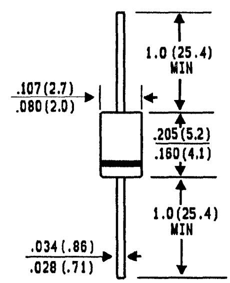
BY206GP THRU BY207GP

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 350 to 600 Volts* ***Current** - 0.4 Amperes*

PATENTED*

DO-41

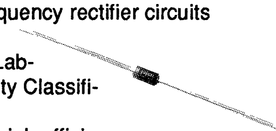


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- For use in high frequency rectifier circuits
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- Fast switching for high efficiency
- Glass passivated cavity-free junction in D0-41 package
- 0.4 Ampere operation at $T_A = 55°C$ with no thermal runaway
- Typical I_R less than 1 μA
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	BY206GP	BY207GP	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	350	600	Volts
Maximum RMS Voltage	V_{RMS}	210	350	Volts
Maximum DC Blocking Voltage	V_{DC}	300	500	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55°C$	$I_{(AV)}$	0.4		Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load at $T_A = 25°C$	I_{FSM}	15		Amps
Maximum Instantaneous Forward Voltage at 2.0A $T_J = 150°C$	V_F	1.5		Volts
Maximum Full Load Reverse Current Full Cycle AVerage at T_A=55°C / $T_J = 125°C$	I_R	2.0 / 200	2.0 / 125	µA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	1.0		µs
Typical Junction Capacitance (Note 2)	C_J	15.0		pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	45.0		°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175		°C

NOTES:
1. Reverse Recovery Test Conditions : $I_F = 0.4A$, $V_R =$ 50V di/dt = 0.4/US.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

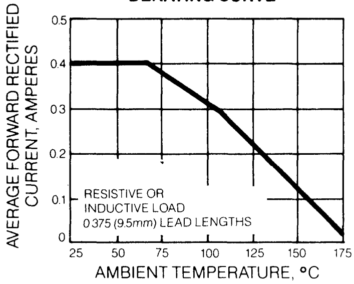


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

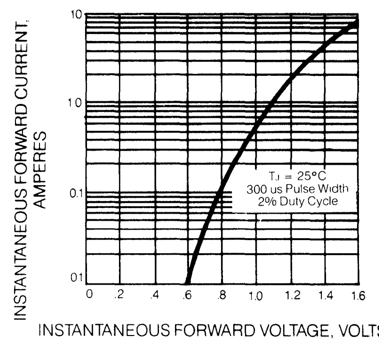


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

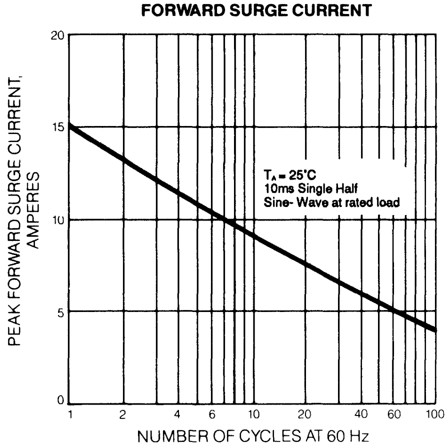


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

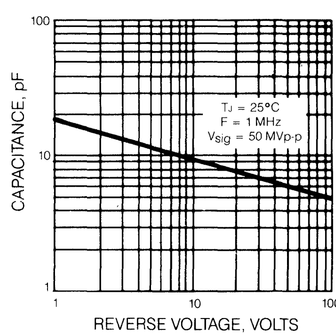


FIG. 5 — REVERSE RECOVERY TIME CHARACTERISTIC

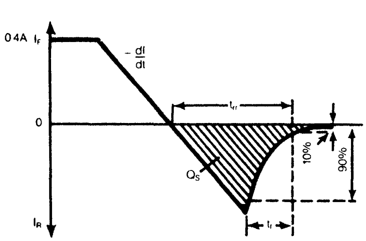
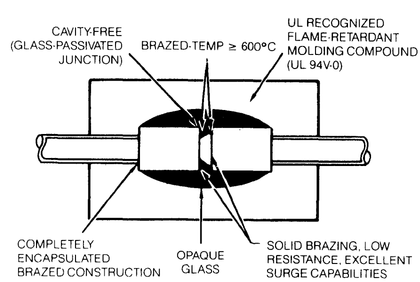


FIG. 6 — SUPERECTIFIER



GENERAL INSTRUMENT

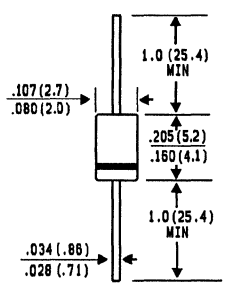
BA157GP THRU BA159GP

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 400 to 1000 Volts* ***Current** - 0.5 Amperes*

PATENTED*

DO-41



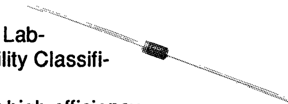
Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER ®

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- For use in high frequency rectifier circuits
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- Fast switching for high efficiency
- Glass passivated cavity-free junction in D0-41 package
- 0.5 Ampere operation at $T_A = 55°C$ with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, .3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	BA157GP	BA158GP	BA159DGP	BA159GP	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55°C$	$I_{(AV)}$	0.5				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load at $T_A = 25°C$	I_{FSM}	20.0				Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.5				Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage	I_R	5.0				μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	150	250	500	500	ns
Typical Junction Capacitance (Note 2)	C_J	15.0				pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	50.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:

1. Reverse Recovery Test Conditions : $I_F = 0.5A$, $I_R = 1.0A$, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

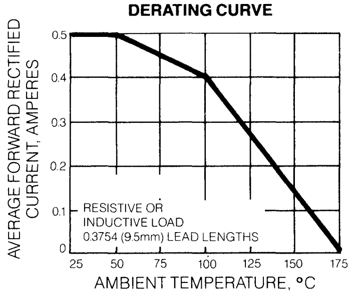


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

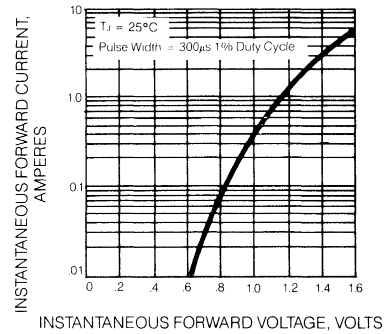


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

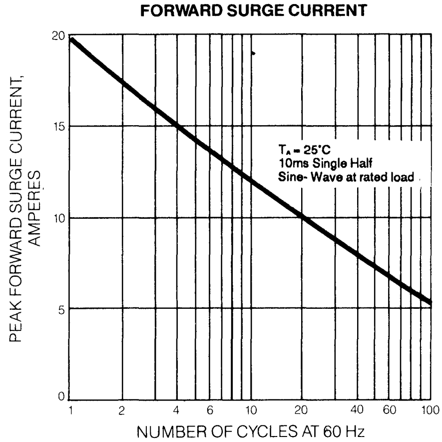


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

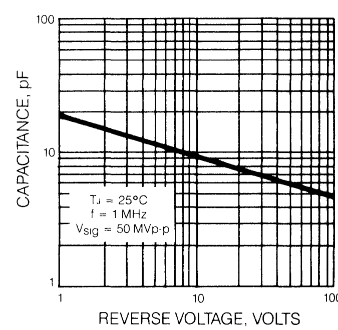
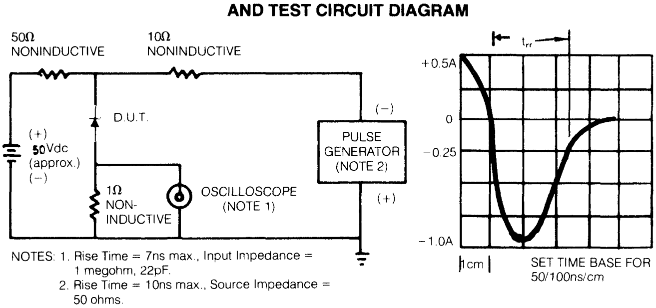
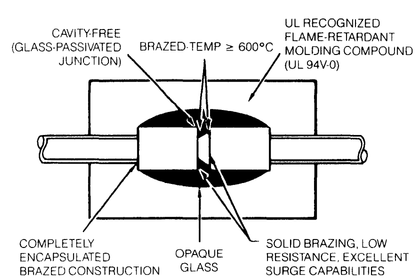


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 6 — SUPERCTIFIER



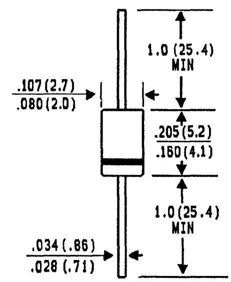
1N4933GP THRU 1N4937GP

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING PLASTIC RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 1.0 Ampere*

PATENTED*

DO-41



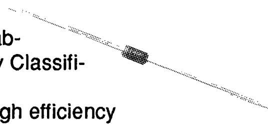
Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES

- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ For use in high frequency rectifier circuits
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- ◆ Fast switching for high efficiency
- ◆ Glass passivated cavity-free junction in D0-41 package
- ◆ 1.0 Ampere operation at $T_A = 75°C$ with no thermal runaway
- ◆ Typical I_R less than 0.1 μ A
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, 0.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*1N 4933GP*	*1N 4934GP*	*1N 4935GP*	*1N 4936GP*	*1N 4937GP*	*UNITS*
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
* Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
* Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 75°C$	$I_{(AV)}$			1.0			Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM			30.0			Amps
* Maximum Instantaneous Forward Voltage at 1.0A	V_F			1.2			Volts
* Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R			5.0 100			µA
* Maximum Reverse Recovery Time (Note 1) $T_J = 25°C$	T_{RR}			200			nS
Typical Junction Capacitance (Note 2)	C_J			15.0			pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$			50.0			°C/W
* Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			°C

NOTES: 1. Reverse Recovery Test Conditions : $I_F = 1.0A$, $V_R = 30$ Volts.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted
*JEDEC Regiestered Values.

FIG. 1 — FORWARD CURRENT DERATING CURVE

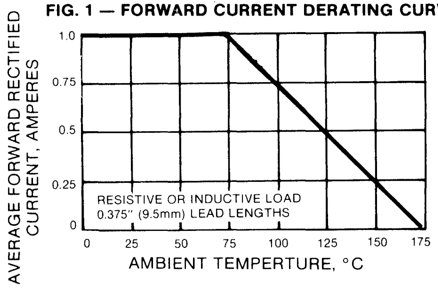


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

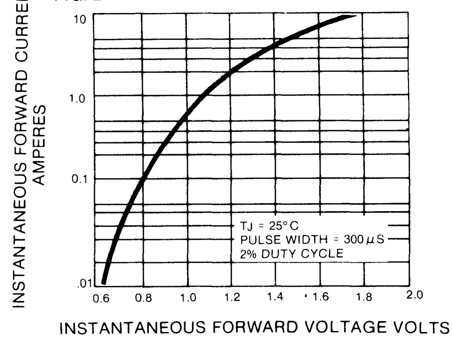


FIG. 3 — TYPICAL JUNCTION CAPACITANCE

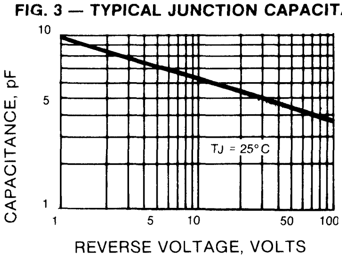


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

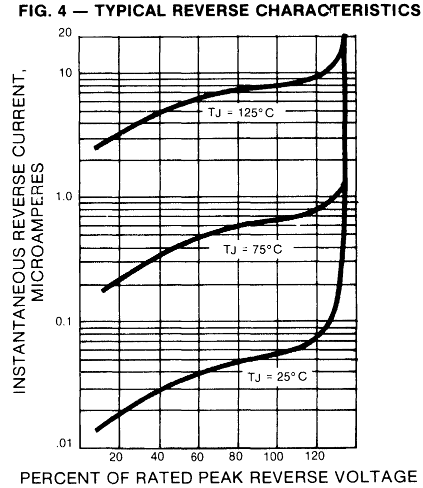


FIG. 5 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

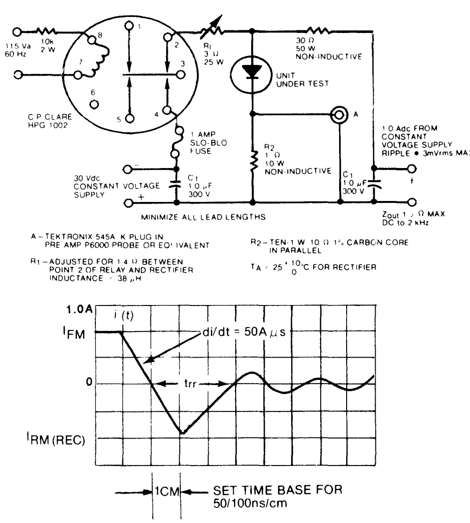
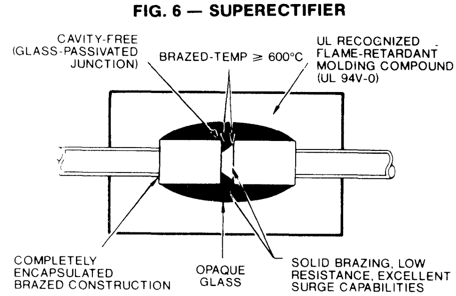


FIG. 6 — SUPERECTIFIER



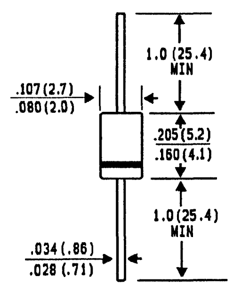
1N4942GP THRU 1N4948GP

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING PLASTIC RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*

DO-41



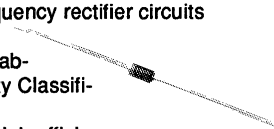
Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- For use in high frequency rectifier circuits
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- Fast switching for high efficiency
- Glass passivated cavity-free junction in D0-41 package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, 0.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	1N 4942GP	1N 4944GP	1N 4946GP	1N 4947GP	1N 4948GP	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
* Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.0					Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	25.0					Amps
* Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.3					Volts
* Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	1.0 200					µA
* Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	150	150	250	250	500	nS
Typical Junction Capacitance (Note 2)	C_J	15.0					pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	50.0					°C/W
* Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175					°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

* JEDEC refistered values

FIG. 1 — FORWARD CURRENT DERATING CURVE

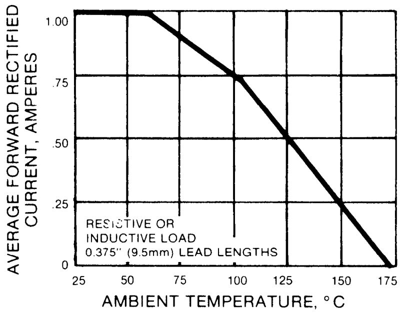


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK SURGE CURRENT

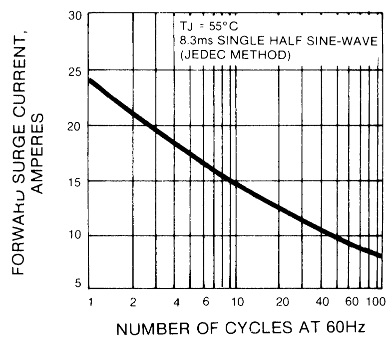


FIG. 3 — TYPICAL INSTANTEOUS FORWARD CHARACTERISTICS

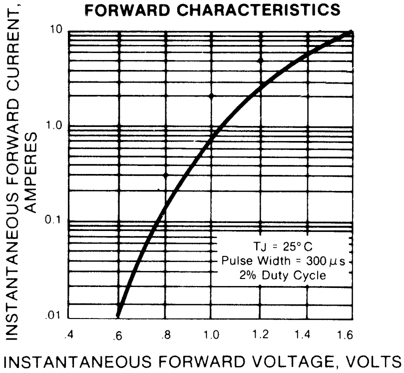


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

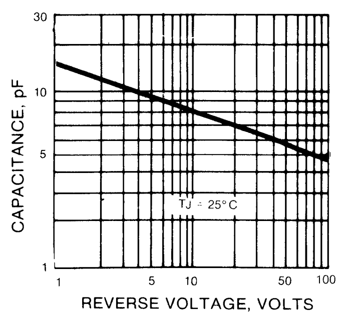


FIG. 5 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

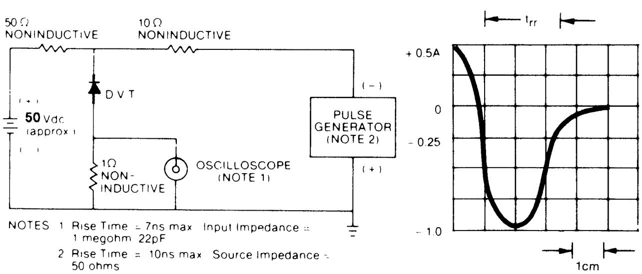
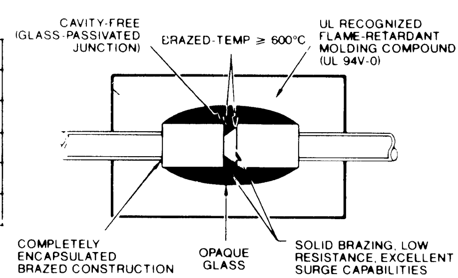


FIG. 6 — SUPERECTIFIER



RGP10A THRU RGP10M

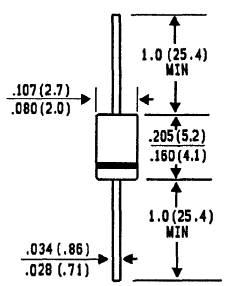
MINIATURE GLASS PASSIVATED JUNCTION PLASTIC FAST SWITCHING PLASTIC RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 1.0 Ampere*

FEATURES

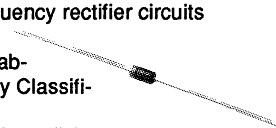
PATENTED*

DO-41



Dimensions in inches and (millimeters)

- High temperature metallurgically bonded constructed rectifiers
- For use in high frequency rectifier circuits
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



- Fast switching for high efficiency
- Glass passivated cavity-free junction in D0-41 package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.012 ounce, 0.3 gram

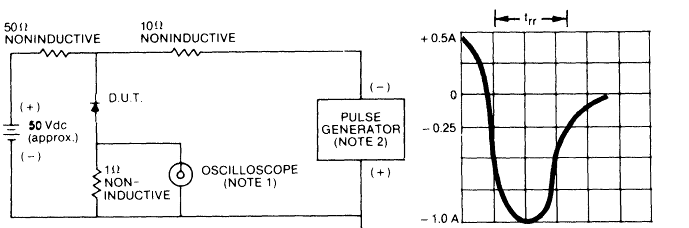
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	RGP 10A	RGP 10B	RGP 10D	RGP 10G	RGP 10J	RGP 10K	RGP 10M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	30.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.3							Volts
Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length T_A = 55°C	$I_{R(AV)}$	100							μA
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 200							μA
Maximum Reverse Recovery Time (Note 1) TJ = 25°C	T_{RR}	150	150	150	150	250	500	500	nS
Typical Junction Capacitance (Note 2)	C_J	15.0							pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	50.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES: 1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, recover to 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1—REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2—TYPICAL JUNCTION CAPACITANCE

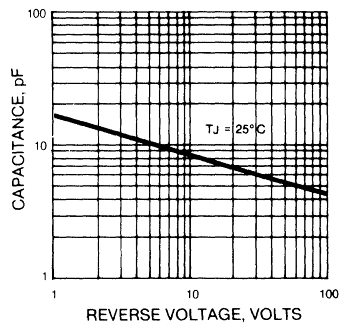


FIG. 3—FORWARD CURRENT DERATING CURVE

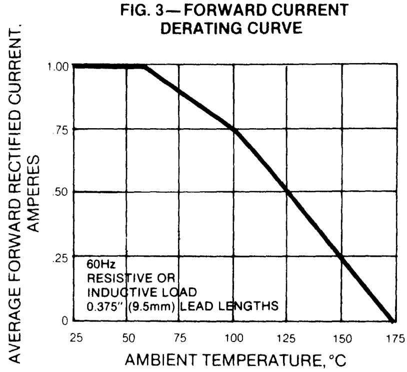


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

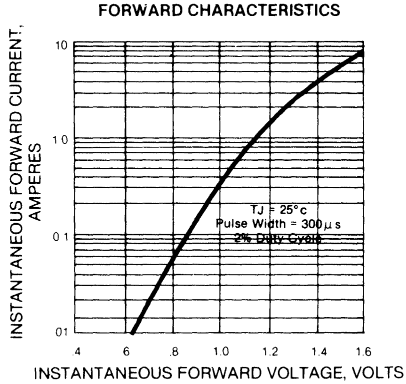


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

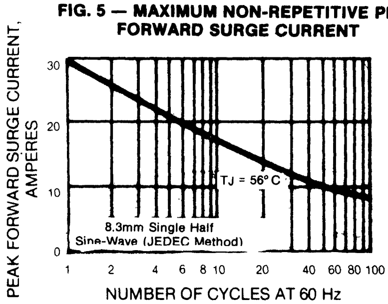
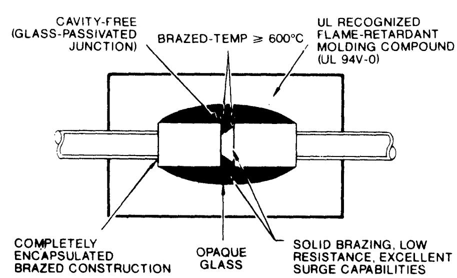


FIG. 6—SUPERECTIFIER



GENERAL INSTRUMENT

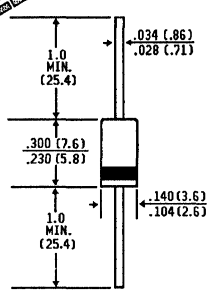
1N5615GP THRU 1N5623GP

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*

DO-15

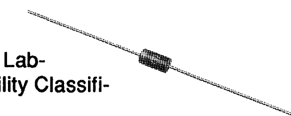


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Fast switching for high efficiency
- Glass passivated cavity-free junction
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce, .4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

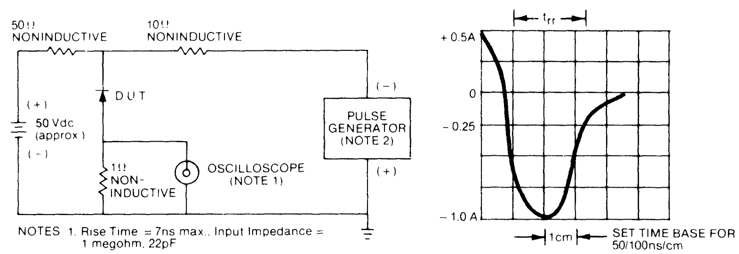
Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N 5615GP	1N 5617GP	1N 5619GP	1N 5621GP	1N 5623GP	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
* Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$			1.0			Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			50.0			Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F			1.2			Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R			0.5 25.0			µA
* Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	150	150	250	300	500	nS
Typical Junction Capacitance (Note 2)	C_J			25.0			pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$			30.0			°C/W
* Operating and Storage Temperature Range	T_J, T_{STG}			-65 to +175			°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

* JEDEC regfistered values

FIG. 1—REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

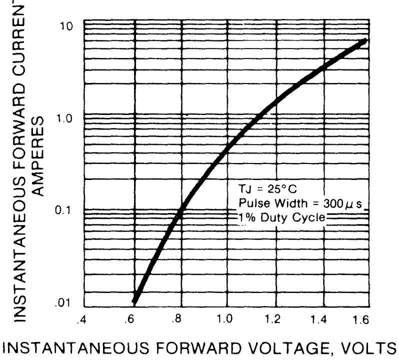


FIG. 3—FORWARD CURRENT DERATING CURVE

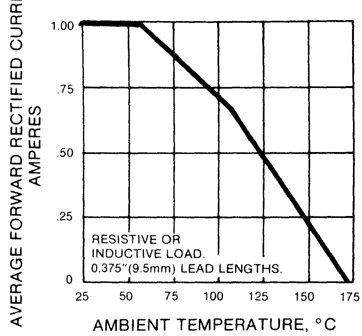


FIG. 4—TYPICAL JUNCTION CAPACITANCE

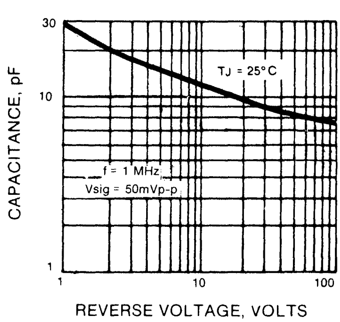
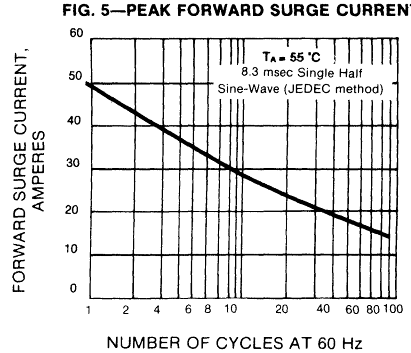


FIG. 5—PEAK FORWARD SURGE CURRENT



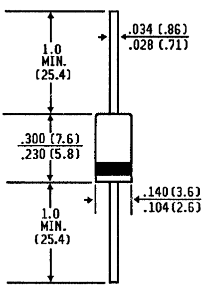
GI810 THRU GI818

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC FAST SWITCHING RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*

DO-15

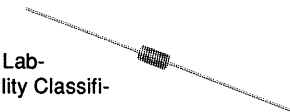


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1973; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Fast switching for high efficiency
- Glass passivated cavity-free junction in D0-15 package
- 1.0 Ampere operation at T_A = 75°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce, 0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GI 810	GI 811	GI 812	GI 814	GI 816	GI 817	GI 818	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$	1.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.2							Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	10.0 100							μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	750							ns
Typical Junction Capacitance (Note 2)	C_J	25.0							pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	30.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES: 1. Reverse Recovery Test Conditions : I_F = 1.0A, V_R = 30V.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1—FORWARD CURRENT DERATING CURVE

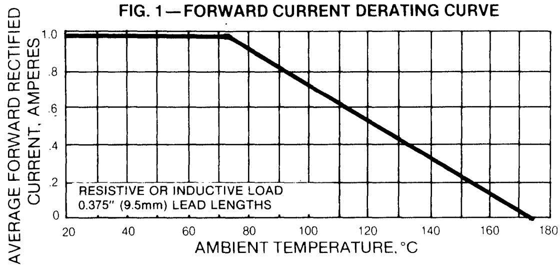


FIG. 3—TYPICAL JUNCTION CAPACITANCE

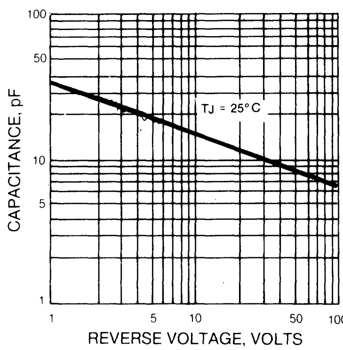


FIG. 5—REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

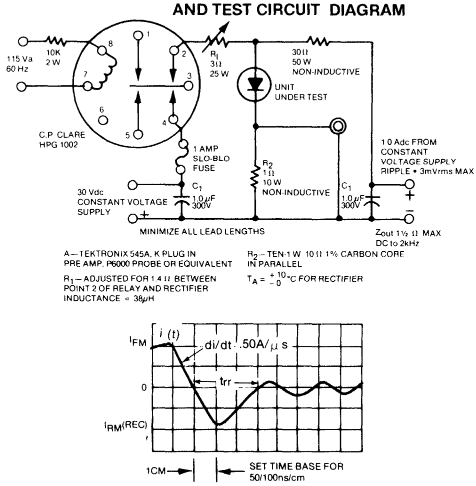


FIG. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

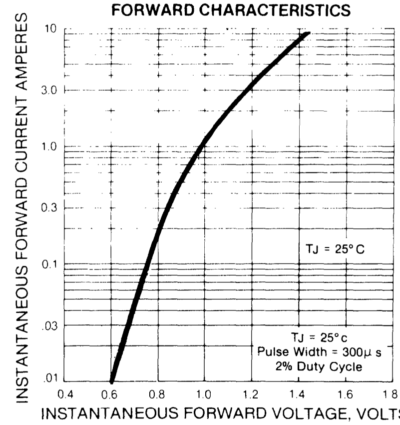


FIG. 4 — MAXIMUM NON- REPETITIVE PEAK FORWARD SURGE CURRENT

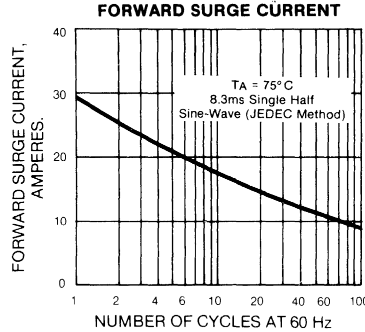
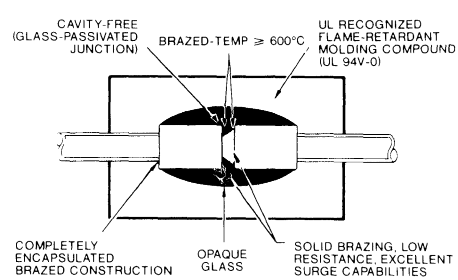


FIG. 6 — SUPERECTIFIER



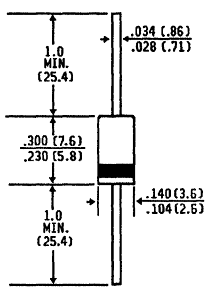
RGP15A THRU RGP15M

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC FAST SWITCHING RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 1.5 Amperes*

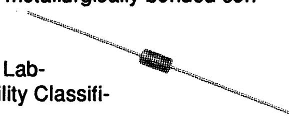
FEATURES

DO-15



Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-15 package
- 1.5 Ampere operation at $T_A = 55°C$ with no thermal runaway
- Fast switching for high efficiency
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.015 ounce, 0.4 gram

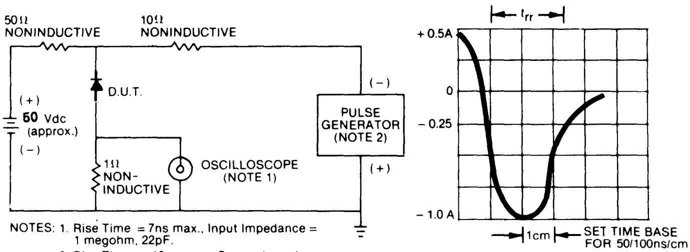
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	RGP 15A	RGP 15B	RGP 15D	RGP 15G	RGP 15J	RGP 15K	RGP 15M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55°C$	$I_{(AV)}$	1.5							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0							Amps
Maximum Instantaneous Forward Voltage at 1.5A	V_F	1.3							Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 150°C$	I_R	5.0 / 200							μA
Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length $T_A = 55°C$	$I_{R(AV)}$	100							μA
Maximum Reverse Recovery Time (Note 2) $T_J = 25°C$	T_{RR}	150	150	150	150	250	500	500	nS
Typical Junction Capacitance (Note 1)	C_J	25.0							pf
Typical Thermal Resistance (Note 3)	$R\theta JA$	30.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions: $I_F = .5A$, $I_R = 1A$, $Irr = .25A$.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1— REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2—FORWARD CURRENT DERATING CURVE

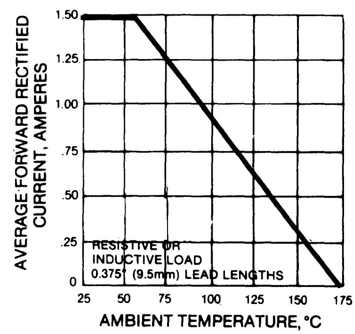


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

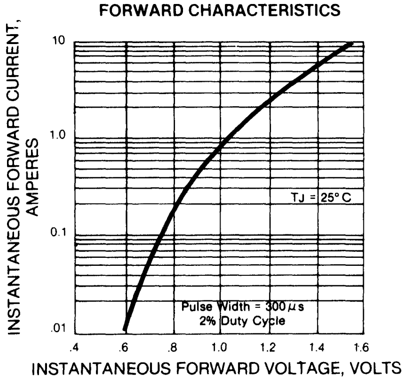


FIG. 4—TYPICAL JUNCTION CAPACITANCE

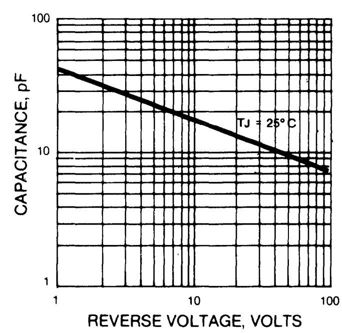


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

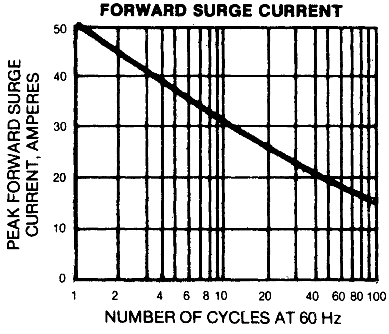
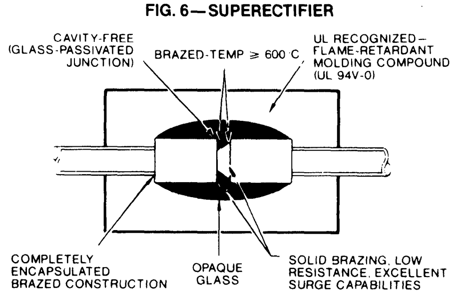


FIG. 6—SUPERECTIFIER



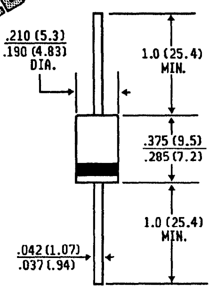
GENERAL INSTRUMENT

RGP20A THRU RGP20J

FAST SWITCHING
GLASS PASSIVATED JUNCTION PLASTIC RECTIFIER
***Voltage** - 50 to 600 Volts* ***Current** - 2.0 Amperes*

PATENTED*

GP20

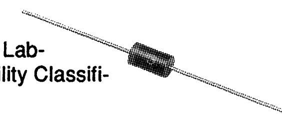


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Fast switching for high efficiency
- Glass passivated cavity-free junction
- 2.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plateed Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Band denotes cathode
Mounting Position: Any
Weight: 0.03 ounce, 0.8 gram

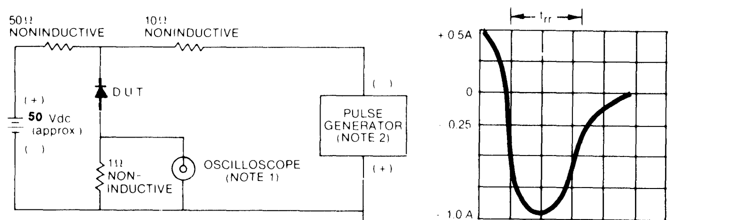
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	RGP 20A	RGP 20B	RGP 20D	RGP 20G	RGP 20J	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$			2.0			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			65.0			Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F			1.3			Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R			5.0 100			µA
Maximum Full Load Reverse Current, Full Cycle Average, 375" (9.5mm) Lead Length T_A = 55°C	$I_{R(AV)}$			100			µA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}			150		250	nS
Typical Junction Capacitance (Note 1)	C_J			35			pf
Typical Thermal Resistance (Note 3)	$R\theta JA$			22.0			°C/W
Operating and Storage Temperature Range	T_J,T_{STG}			-65 to +175			°C

NOTES: 1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 2 — FORWARD CURRENT DERATING CURVE

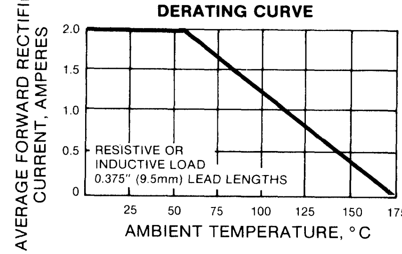


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

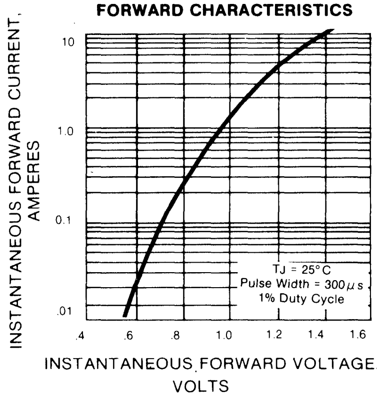


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

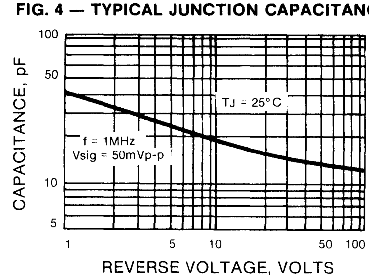


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

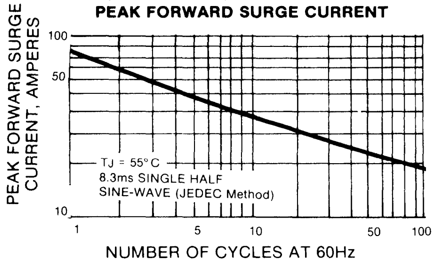
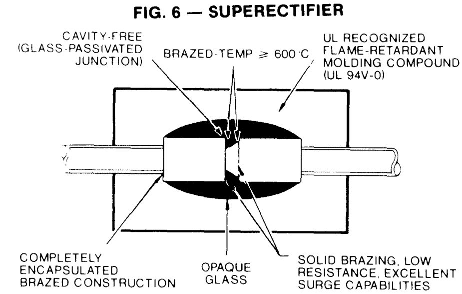


FIG. 6 — SUPERECTIFIER



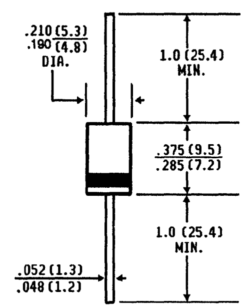
RGP25A THRU RGP25M

GLASS PASSIVATED JUNCTION
FAST SWITCHING PLASTIC RECTIFIER

Voltage* - *50 to 1000 Volts* *Current* *-2 .5 Amperes

PATENTED

*** DO-201AD**

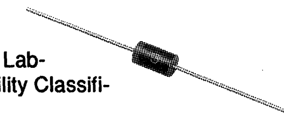


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER®

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-201AD package
- 2.5 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- Fast switching for high efficiency
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.04 ounce, 1.12 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	RGP 25A	RGP 25B	RGP 25D	RGP 25G	RGP 25J	RGP 25K	RGP 25M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	2.5							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100							Amps
Maximum Instantaneous Forward Voltage at 2.5A	V_F	1.3							Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	5.0 200							μA
Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length T_A = 55°C	$I_{R(AV)}$	100							μA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	150	150	150	150	250	500	500	ns
Typical Junction Capacitance (Note1)	C_J	60.0							pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	16.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, I_{rr} = .25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

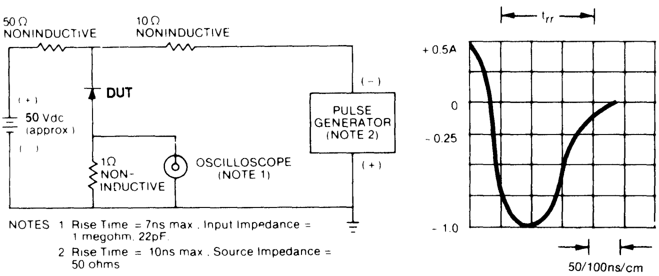


FIG. 2 — FORWARD CURRENT DERATING CURVE

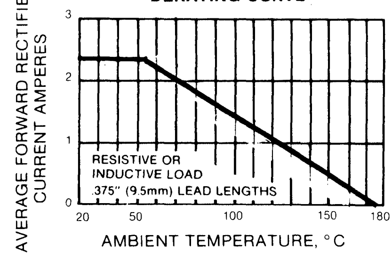


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

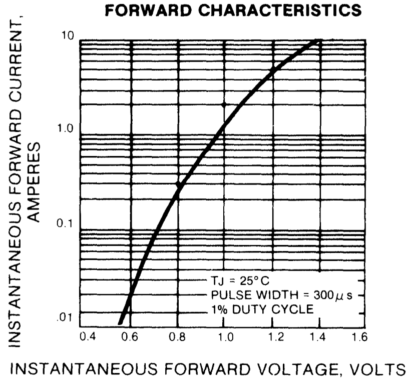


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

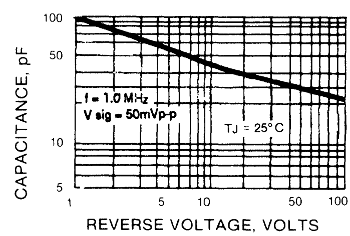


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

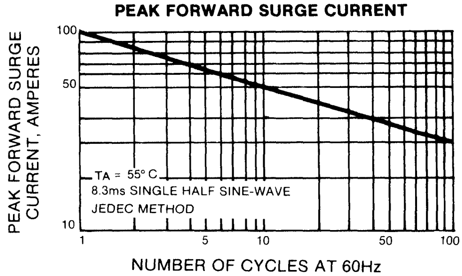
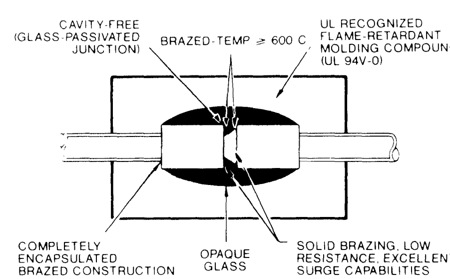


FIG. 6 — SUPERECTIFIER



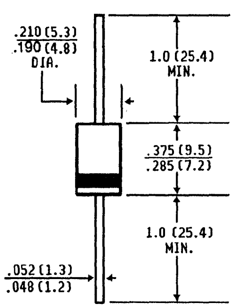
RGP30A THRU RGP30M

GLASS PASSIVATED JUNCTION FAST SWITCHING PLASTIC RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 3.0 Amperes*

PATENTED*

DO-201AD

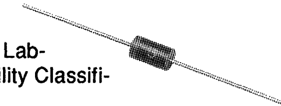


Dimensions in inches and (millimeters)

** Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

SUPERECTIFIER ®

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated cavity-free junction in D0-201AD package
- 3.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μA
- Capable of meeting environmental standards of MIL-S-19500
- Fsst switching for high efficiency
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.04 ounce, 1.12 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	RGP 30A	RGP 30B	RGP 30D	RGP 30G	RGP 30J	RGP 30K	RGP 30M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	3.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125							Amps
Maximum Instantaneous Forward Voltage a t 3.0A	V_F	1.3							Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	5.0 100							μA
Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Length T_A = 55°C	$I_{R(AV)}$	100							μA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	150	150	150	150	250	500	500	ns
Typical Junction Capacitance (Note1)	C_J	60.0							pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	16.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES: 1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

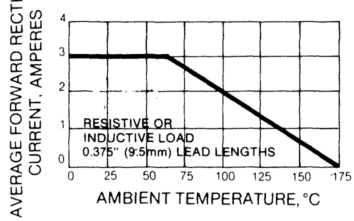


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

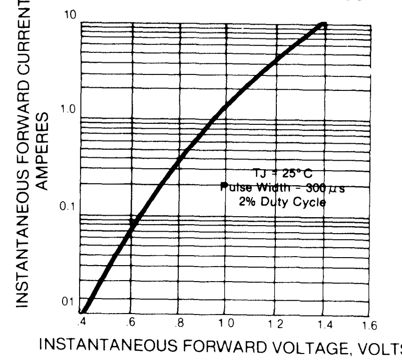


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

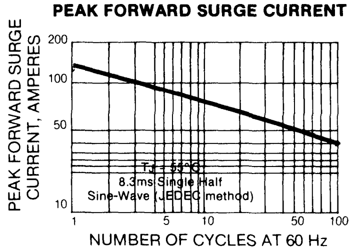


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

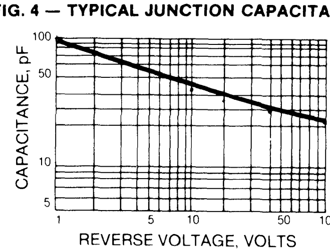
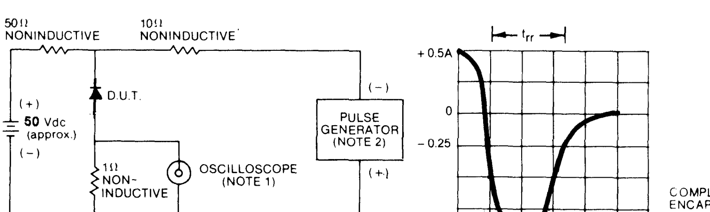
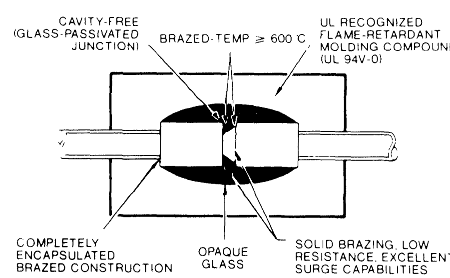


FIG. 5 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

FIG. 6 — SUPERECTIFIER



MINIATURE GLASS PASSIVATED CHIP PLASTIC RECTIFIER

1.0 AMPERE
50 VOLTS TO 1000 VOLTS

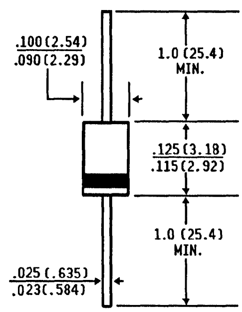
GENERAL INSTRUMENT

MPG06A THRU MPG06M

MINIATURE GLASS PASSIVATED JUNCTION PLASTIC SILICON RECTIFIER

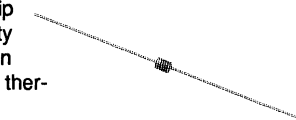
***Voltage** - 50 to 1000 Volts* ***Current**- 1.0 Ampere*

FEATURES



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Low forward voltage, high current capability
- Glass passivated chip
- High Surge Capability
- 1.0 Ampere operation at T_A = 25°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- High temperature soldering guaranteed:250°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic over glass passivated chip
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.0064 ounce, .181 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.

	SYMBOLS	MPG 06A	MPG 06B	MPG 06D	MPG 06G	MPG 06J	MPG 06K	MPG 06M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	170	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current, .375" (9.5mm) Lead Length at T_A = 25°C	$I_{(AV)}$				1.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 25°C	I_{FSM}				40.0				Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F				1.1				Volts
Maximum DC Reverse Current T_A = 25°C					5.0				
at Rated DC Blocking Voltage T_A = 125°C	I_R				50.0				μA
Typical Junction Capacitance (Note 1)	C_J				10.0				pf
Typical Reverse Recovery Time (Note 2)	T_{RR}				0.6				μs
Thermal Resistance Typical					65.0				
Maximum (Note 3)	$R_{\Theta JA}$				85.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-50 to +150				°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditons: IF = 0.5A, I_R = 1,0A, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — MAXIMUM AVERAGE FORWARD CURRENT RATING

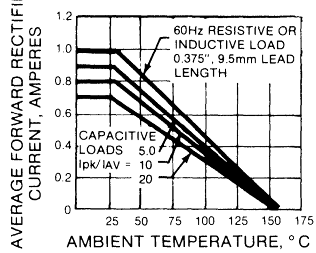


FIG. 2 — MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

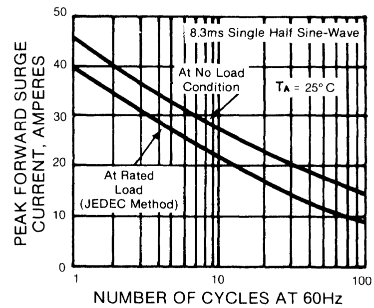


FIG. 3 — TYPICAL FORWARD CHARACTERISTICS

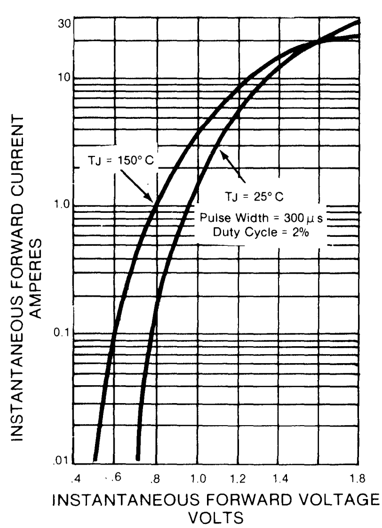


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

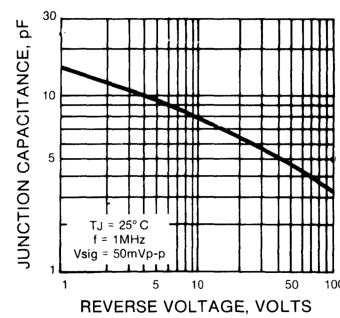
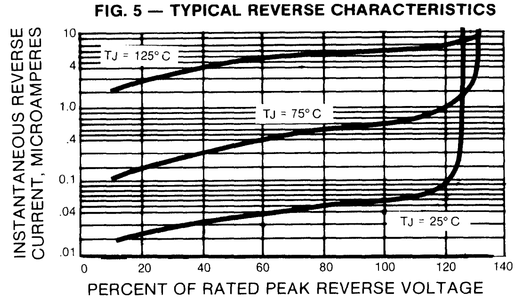


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

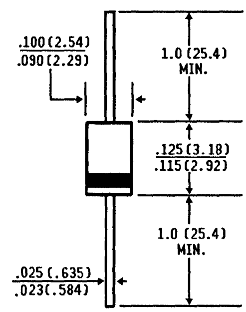


RMPG06A THRU RMPG06J

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING PLASTIC SILICON RECTIFIER

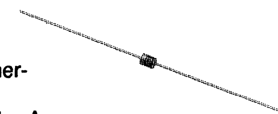
***Voltage** - 50 to 600 Volts* ***Current**- 1.0 Ampere*

FEATURES



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Low forward voltage drops, high current capability
- Glass passivated chip
- High Surge Capability
- 1.0 Ampere operation at $T_A = 25°C$ with no thermal runaway
- Typical I_R less than 0.1 μ A
- High temperature soldering guaranteed:250°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic over glass passivated chip
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: 0.0064 ounce, .181 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.

	SYMBOLS	RMPG 06A	RMPG 06B	RMPG 06D	RMPG 06G	RMPG 06J	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	70	200	400	600	Volts
Maximum Average Forward Rectified Current, .375" (9.5mm) Lead Length at $T_A = 25°C$	$I_{(AV)}$			1.0			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) $T_A = 25°C$	I_{FSM}			30.0			Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F			1.3			Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R			5.0 50.0			μA
Typical Junction Capacitance (Note 1)	C_J			6.6			pf
Maximum Reverse Recovery Time (Note 2) $T_J = 25°C$	T_{RR}			150		200	ns
Thermal Resistance Typical Maximum (Note 3)	$R\Theta JA$			67.0 85.0			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}			-50 to +150			°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditons: $I_F = 0.5A$, $I_R = 1.0A$, Irr = 0.25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — MAXIMUM AVERAGE FORWARD CURRENT RATING

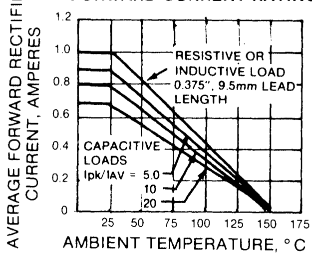


FIG. 2 — MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

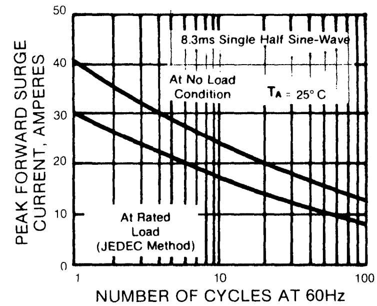


FIG. 3 — TYPICAL FORWARD CHARACTERISTICS

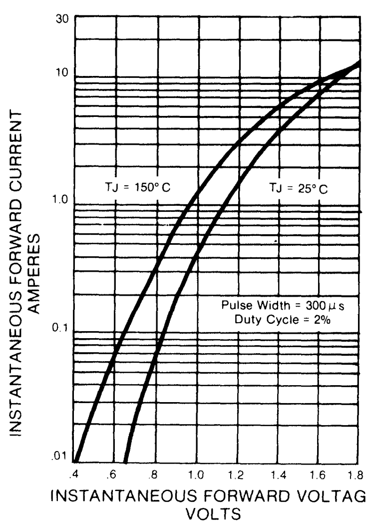


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

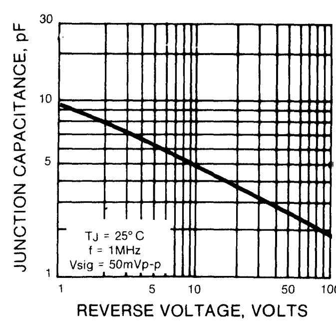
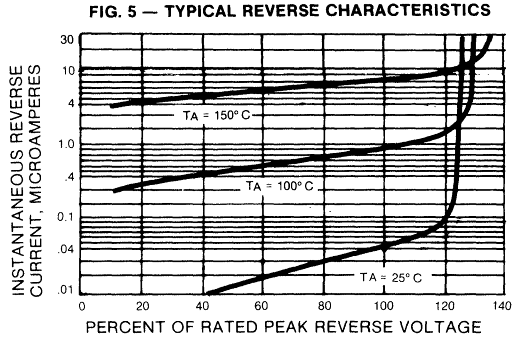


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

GLASS PASSIVATED RECTIFIERS

0.2 AMPERE TO 3.0 AMPERES
50 VOLTS TO 1600 VOLTS

GENERAL INSTRUMENT

GLASS PASSIVATED RECTIFIER
0.2 to 3.0 Amperes 50 Volts to 1600 Volts

Device Design

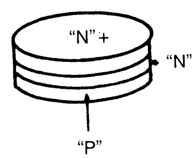
The Glass Passivated Rectifier is a hermetically sealed, cavity-free, diffused junction rectifier with unsurpassed operating and surge characteristics at high temperature.

Cavity-free construction with a specially developed extremely pure glass in direct contact with the silicon junction plus durable heat sink design obviate the need for solder joints and compression contact parts. The carefully matched expansion characteristics of the glass and metal parts in combination with the direct contact of the glass and silicon junction make the active rectifying elements impervious to surface contamination, moisture or other external chemical agents. Further, the long term degradation associated with organic junction protection is avoided.

There are many steps necessary to produce such a device:

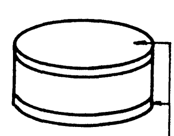
1 — Diffuse a PN junction into a slice of silicon

Diffused Slice



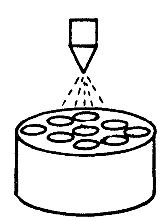
2 — Evaporate aluminium on both sides of the slice to make metallurgical contact

Metallized Slice



EVAPORATED ALUMINUM

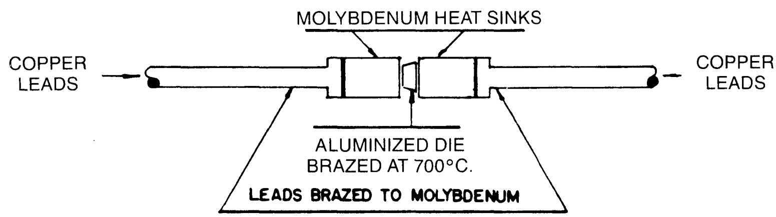
3 — Sandblast the slice to produce a round beveled die



SAND BLASTED ROUND DICE

4—Braze the die between two molybdenum heat sinks to which leads have been attached at approximately 700°C.

Glass Passivated Rectifier



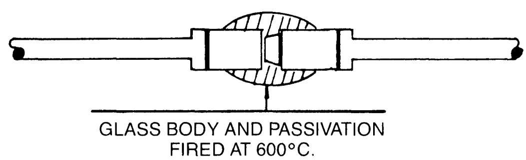
5—Clean the assembly by chemically etching, washing and drying.

6—Apply glass in the form of a frit to the die and molybdenum assembly.

7—Melt the glass by heating in an oven to approximately 600°C.

Glass Passivated Rectifier

8—Perform finishing operations such as lead tinning, electrical testing and marking.



Package Design

The small size of the glass package with its capability up to 3 Ampere permits greater packing densities in electronic assemblies and equipment, while increasing reliability. Furthermore, only high temperature brazing operations are used to withstand the 600°C required to melt and fuse the glass. This technique eliminates solder construction and tremendously enhances mechanical strength and temperature cycling capability, increasing operating and storage temperature range while reducing thermal resistance.

Reliability

Specified reliability data on Glass Passivated Rectifier devices are available from the General Instrument Semiconductor Components Division Reliability Department. The basic design of the Glass Passivated rectifier and the strict positive controls over materials and manufacturing processes provide assurance of failure-free performance under the most severe conditions. Processing facilities have been geared to follow the procedural requirements of Military Standard 750. Glass Passivated rectifiers are capable of withstanding environmental extremes in excess of MIL-S-19500E and of meeting requirements of MIL-STD-883, MIL-Q-9858 and MIL-I-45208. Assurance of production uniformity and reliability is provided by a test technique called "Operational Load Line Testing," which has proven product reliability with over 1 Billion Glass Passivated rectifiers now in use.

FAMILIES OF GENERAL INSTRUMENT GLASS PASSIVATED RECTIFIERS

Glass Passivated Silicon Diodes 0.2 to 0.4 AMPERES

Types:	*Features:*
1N483B thru 1N486B	◆ High Temperature Metallurgically Bonded
1N645 thru 1N649	◆ High Efficiency and Rectification Radio
	◆ Ideally Suited for Miniaturized Equipment
	◆ Case: One Piece Glass, Hermetically Sealed
	◆ Tin Plated Axial Leads, Solderable per MIl-STD-202/208
	◆ Operating from--65 C to +175 C
	◆ Low Leakage

Glass Passivated Silicon Rectifiers 1.0 to 3.0 AMPERES

Types:	*Features:*
1N4245 thru 1N4249	◆ Glass Passivated Junction
1N5059 thru 1N5062	◆ High Mechanical Strength
1N5614 thru 1N5622	◆ Storage up to 200 C
1N5550 thru 1N5554	◆ Voidless Construction
1N5624 thru 1N5627	◆ Hermetically Sealed
G1A thru G1M	◆ Avalanche Operation
G2A thru G2M	◆ Low Leakage
G3A thru G3M	◆ High Conductance
G4A thru G4M	◆ Tin Plated Axial Leads, Solderable per MIL-STD-202/208

Glass Passivated Fast Recovery Silicon Rectifiers 1.0 to 3.0 AMPERES

Types:	*Features:*
1N4942 thru 1N4948	◆ Glass Passivated Junction
1N5615 thru 1N5623	◆ Fast Switching for High Rectification Efficiency to 100 kHz
1N5415 thru 1N5420	◆ High Mechanical Strength
RG1A thru RG1M	◆ Low Leakage
RG2A thru RG2M	◆ Hermetically Sealed
RG3A thru RG3M	◆ Storage up to 200 C
RG4A thru RG4M	◆ Tin Plated Axial Leads, Solderable per MIL-STD-202/208
BYV95 thru BYV96	
BYW32 thru BYW36	
BYW72 thru BYW76	

Glass Passivated High Voltage Silicon Rectifiers 0.3 to 3.0 AMPERES

Types:	*Features*
	◆ All Advantages of a Hermetically Sealed Glass
CG1, DG1	◆ passivated junction
CG1,DG1	◆ Especially designed for Clamper/Damper Applications in television /CRT
CG2, DG2	
CG3, DG3,	◆ Low Leakage
GI1-1200 thru GI1-1600	◆ High Mechanical Strength
BY448, BY458, BY228	◆ Tin Plated Axial Leads, Solderable per MIL-STD-202/208

QUICK GUIDE TO GLASS PASSIVATED RECTIFIERS

TYPE	1N483B thru 1N486B	1N645 thru 1N649	1N4245 thru 1N4249	1N4942* thru 1N4948*	1N5059 thru 1N5062	1N5614 thru 1N5622	1N5615* thru 1N5623*	G1A thru G1M	RG1A* thru RG1M*	TYPE
CASE	DO204MB	DO204MB	DO204AP	DO204AP	DO204AP	DO204AP	DO204AP	DO204AP	DO204AP	CASE
I_o (A)	0.2	0.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	I_o (A)
@T_A (°C)	25	25	55	55	55	55	55	100	55	@T_A (°C)
V_R = 50 (V)	1N483B							G1A	RG1A	V_R = 50 (V)
V_R = 100 (V)	1N485B							G1B	RG1B	V_R = 100 (V)
V_R = 200 (V)	1N486B	1N645	1N4245	1N4942	1N5059	1N5614	1N5615	G1D	RG1D	V_R = 200 (V)
V_R = 300 (V)		1N646								V_R = 300 (V)
V_R = 400 (V)		1N647	1N4246	1N4944	1N5060	1N5616	1N5617	G1G	RG1G	V_R = 400 (V)
V_R = 500 (V)		1N648								V_R = 500 (V)
V_R = 600 (V)		1N649	1N4247	1N4946	1N5061	1N5618	1N5619	G1J	RG1J	V_R = 600 (V)
V_R = 800 (V)			1N4248	1N4947	1N5062	1N5620	1N5621	G1K	RG1K	V_R = 800 (V)
V_R = 1000 (V)			1N4249	1N4948		1N5622	1N5623	G1M	RG1M	V_R = 1000 (V)
V_R > 1000 (V)										V_R > 1000 (V)
SURGE (A)	2.0	15	25	30	50	50	50	50	30	SURGE (A)
V_F (V)	1.0	1.0	1.2	1.3	1.2	1.2	1.2	1.1	1.3	V_F (V)

*Fast Recovery

QUICK GUIDE TO GLASS PASSIVATED RECTIFIERS

TYPE	CG1 and DG1	G2A thru G2M	RG2A* thru RG2M*	CG2 AND DG2	1N5624 thru 1N5627	1N5550 thru 1N5559	1N5415* thru 1N5420*	G3A thru G3M	G4A thru G4M	RG3A* thru RG3M*	RG4A thru RG4M	CG3 and DG3	TYPE
CASE	DO204AP	DO204AP	DO204AP	DO204AP	GPR3	GPR4	GPR4	GPR3	GPR4	GPR3	GPR4	GPR3	CASE
I_o (A)	1.5	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	I_o (A)
T_A (°C)	55	70	55	50	70	55	55	70	70	55	50	50	T_A (°C)
V_R = 50 (V)		G2A	RG2A				1N5415	G3A	G4A	RG3A	RG4A		V_R = 50 (V)
V_R = 100 (V)		G2B	RG2B				1N5416	G3B	G4B	RG3B	RG4B		V_R = 100 (V)
V_R = 200 (V)		G2D	RG2D		1N5624	1N5550	1N5417	G3D	G4D	RG3D	RG4D		V_R = 200 (V)
V_R = 300 (V)													V_R = 300 (V)
V_R = 400 (V)		G2G	RG2G		1N5625	1N5551	1N5418	G3G	G4G	RG3G	RG4G		V_R = 400 (V)
V_R = 500 (V)							1N5419						V_R = 500 (V)
V_R = 600 (V)		G2J	RG2J		1N5626	1N5552	1N5420	G3J	G4J	RG3J	RG4J		V_R = 600 (V)
V_R = 800 (V)		G2K	RG2K		1N5627	1N5553		G3K	G4K	RG3K	RG4K		V_R = 800 (V)
V_R = 1000 (V)		G2M	RG2M			1N5554		G3M	G4M	RG3M	RG4M		V_R = 1000 (V)
V_R > 1000 (V)	CG1/DG1			CG2/DG2								CG3/DG3	V_R > 1000 (V)
SURGE (A)	40	50	50	40	125	100	80	125	125	100	100	100	SURGE (A)
V_F (V)	1.0	1.2	1.3	1.1	1.0	1.2/1.3	1.1	1.1	1.1	1.3	1.3	1.2	V_F (V)

*Fast Recovery

GENERAL INSTRUMENT

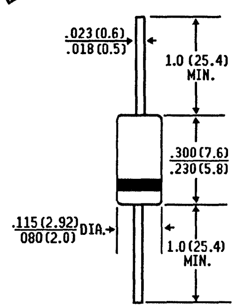
1N483B THRU 1N486B

LOW POWER MINIATURE GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 70 to 225 Volts* ***Current** - 200 Milliamperes*

PATENTED*

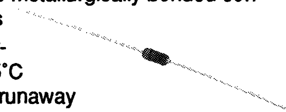
DO-204MB



Dimension in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- 0.2 Ampere operation at T_A = 25°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Hermetically sealed package
- Glass passivated cavity-free junction
- Ideally suited for miatrauized equipment
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N483B	1N485B	1N486B	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	70	180	225	Volts
Maximum RMS Voltage	V_{RMS}	50	127	159	Volts
*Maximum DC Blocking Voltage	V_{DC}	70	180	225	Volts
*Maximum Reverse Breakdown Voltage at 100 μ A	V_{BR}	80	200	250	Volts
*Maximum Average Forward Rectified Current T_A = 25°C .375", (9.5mm) Lead Lengths at T_A = 150°C	$I_{(AV)}$		200 50.0		Mili Amps
*Peak Forward Surge Current 8.3ms single half sine--wave superimposed on rated load (JEDEC Method)	I_{FSM}		2.0		Amps
*Maximum Instantaneous Forward Voltage at 100mA	V_F		1.0		Volts
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R		25.0 5.0		nA μA
Typical Reverse Recovaery Time (Note 4)	T_{RR}		2.0		μs
Typical Junction Capacitance (Note 1)	C_J		15.0		pf
Typical Thermal Resistance (Note 3)	RθJA		81.0		°C/W
*Operating and Storage Temperature Range	T_J, T_{STG}		-65 to +200		°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Available to JAN and JANTX Military Specificaitons MIL-S-19500/118C.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.
4. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A

*JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

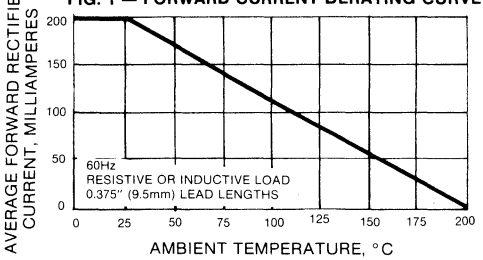


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

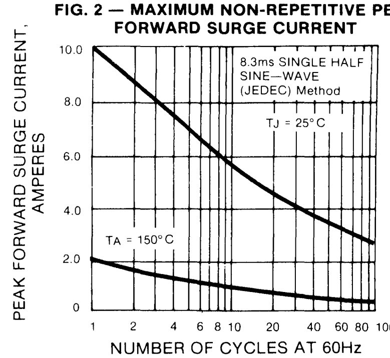


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

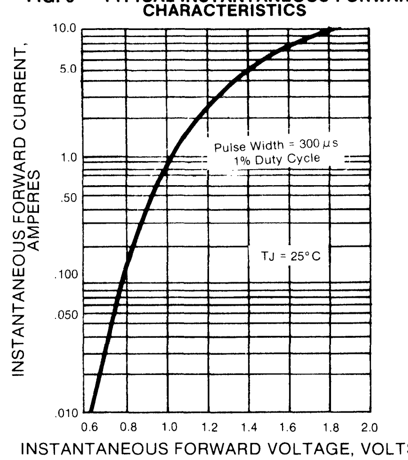


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

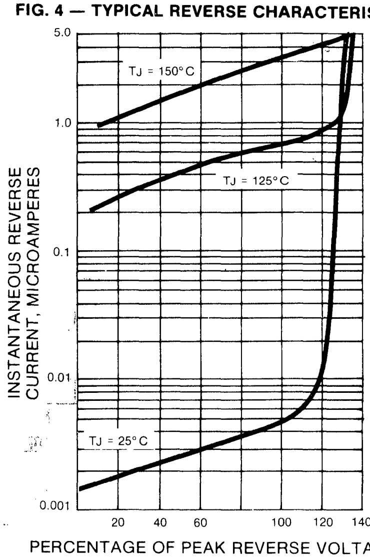
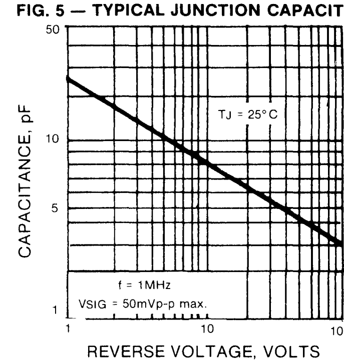


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



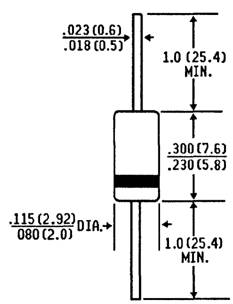
1N645 THRU 1N649

MINIATURE GLASS PASSIVATED SILICON RECTIFIER

Voltage *- 225 to 600 Volts* ***Current****- 400 Milliamperes*

PATENTED *

DO-204MB

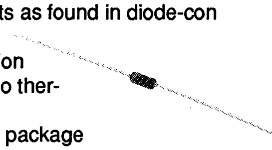


Dimension in inches and (millimeters)

* *Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- ◆ High temperature metallurgically bonded compression contacts as found in diode-con structed rectifiers
- ◆ 0.4 Ampere operation at T_A = 25°C with no ther- rmal runaway
- ◆ Hermetically sealed package
- ◆ Glass passivated cavity-free junction
- ◆ Ideally suuited for miniaturized equipment
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N645	1N646	1N647	1N648	1N649	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	225	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	156	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	225	300	400	500	600	Volts
*Minimum Avalanche Breakdown Voltage at T_A = 100°C	V_{BR}	275	360	480	600	720	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 25°C / T_A = 150°C	$I_{(AV)}$			400 / 150			Mili-Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			15.0			Amps
*Maximum Instantaneous Forward Voltage at 400mA	V_F			1.0			Volts
*Maximum DC Reverse Current T_A = 25°C				200			nA
at Rated DC Blocking Voltage T_A= 100°C	I_R	15	15	20	20	25	µA
Typical Junction Capacitance (Note 1)	C_J			15.0			pf
Typical Thermal Resistance (Note 3)	RθJA			81.0			°C/W
Operating Temperature Range	T_J			-65 to +175			°C
Storage Temperature Range	T_{STG}			-65 to +200			°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Available to Jan and Jan TX Military Specifications MIL-STD-19500/240.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.
* JEDEC Registered Values

FIG. 2 — FORWARD CURRENT DERATING CURVE

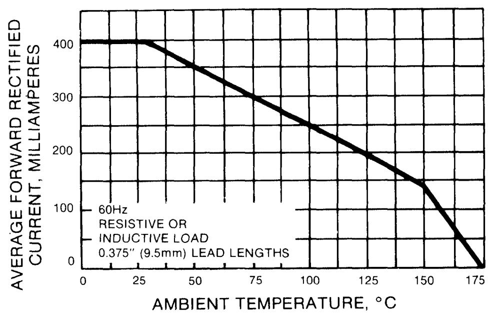


FIG. 1 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

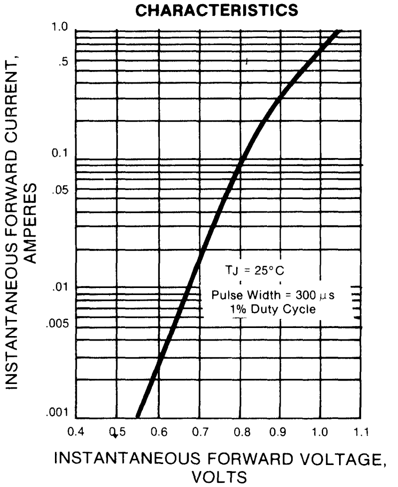


FIG. 4 — MAXIMUM NON-REPTITIVE PEAK FORWARD SURGE CURRENT

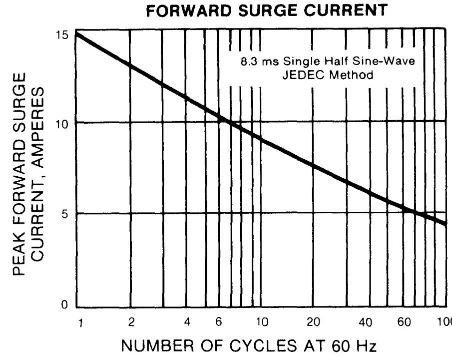


FIG. 3 — TYPICAL REVERSE LEAKAGE CHARACTERISTICS

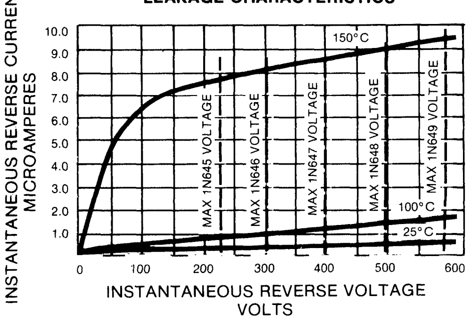
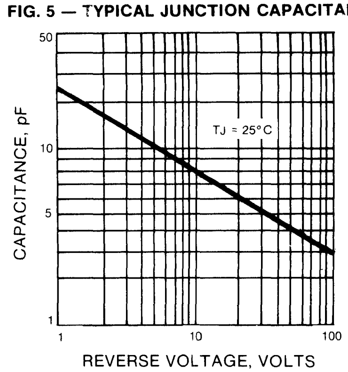


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



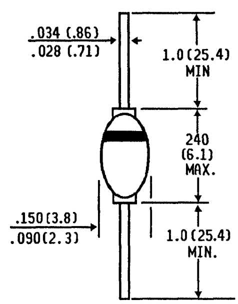
1N4245 THRU 1N4249

MINIATURE GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*

DO-204AP

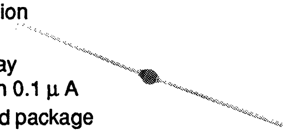


Dimensions in inches
and
(millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μA
- Hermetically sealed package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*1N4245*	*1N4246*	*1N4247*	*1N4248*	*1N4249*	*UNITS*
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.0					Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0					Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.2					Volts
*Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{R(AV)}$	50.0					μA
*Maximum Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	1.0 25.0					μA
Typical Junction Capacitance (Note 2)	C_J	15.0					pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	40.0					°C/W
*Operating Temperature Range	T_J	-65 to +160					°C
*Storage Temperature Range	T_{STG}	-65 to +200					°C

NOTES:
1. Available to JAN and JAN TX Military Specifications MIL-S-19500 / 286C
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

*JEDEC Registered Values

FIG. 1 — FORWARD DERATING CURVE

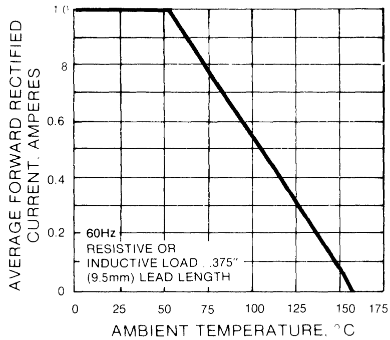


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

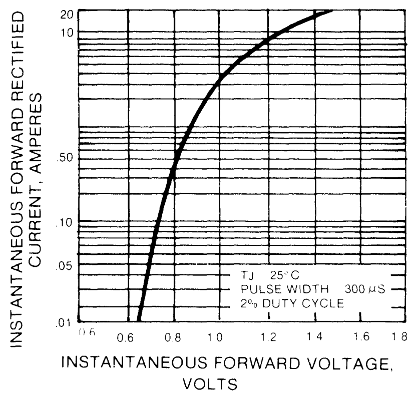


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

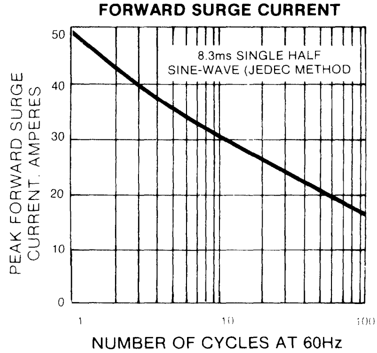


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

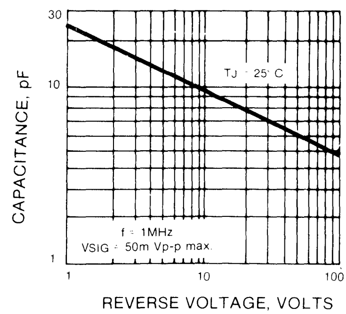
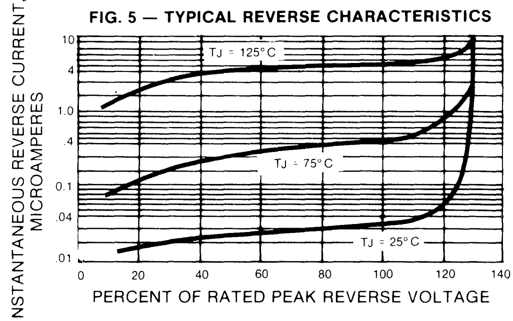


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

1N5059 THRU 1N5062

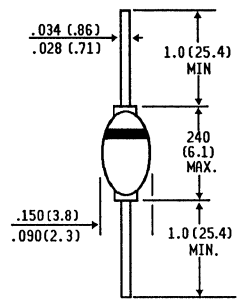
MINIATURE GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 200 to 800 Volts* ***Current** - 1.0 Ampere*

FEATURES

PATENTED*

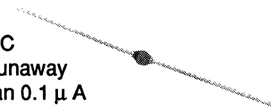
DO-204AP



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- High temperature metallurgically bonded constructed rectifiers
- 1.0 Ampere operation at T_A = 75°C with no thermal runaway



- Typical I_R less than 0.1 μ A
- Hermetically sealed package
- Glass passivated cavity-free junction D0-204AP package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	1N5059	1N5060	1N5061	1N5062	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$	1.0				Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0				Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.2				Volts
*Maximum Full Load Reverse Current, Full Cycle Average .375", (9.5mm) Lead Lengths at T_A = 25°C	$I_{R(AV)}$	5.0				μA
T_A = 75°C		150		100		μA
*Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C	I_R	5.0				μA
T_A = 175°C		300		200		μA
Typical Reverse Recovaery Toime (Note 1)	T_{RR}	2.0				μs
Typical Junction Capacitance (Note 2)	C_J	15.0				pf
Typical Thermal Resistance (Note 3)	RθJA	40.0				°C/W
*Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = .25A
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

*JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

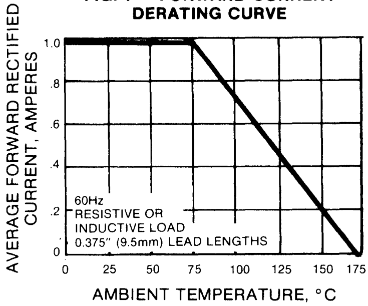


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

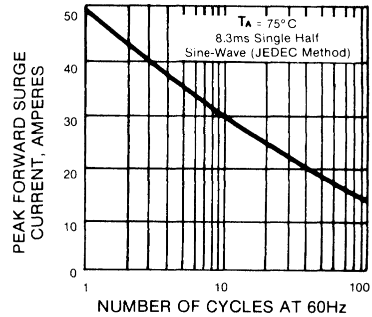


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

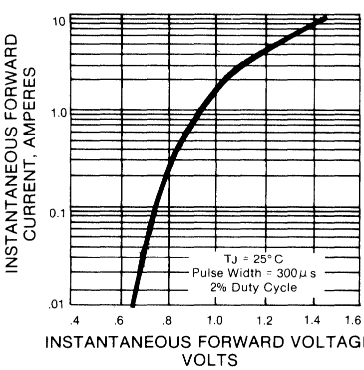


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

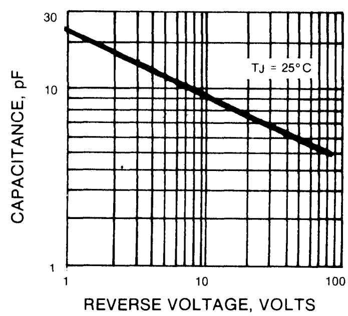


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

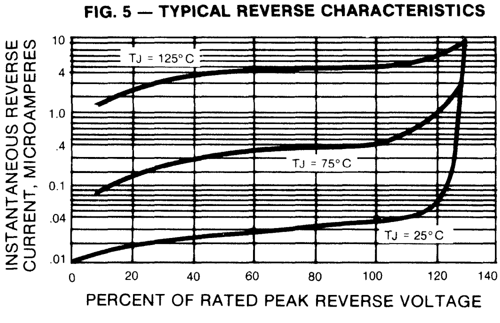
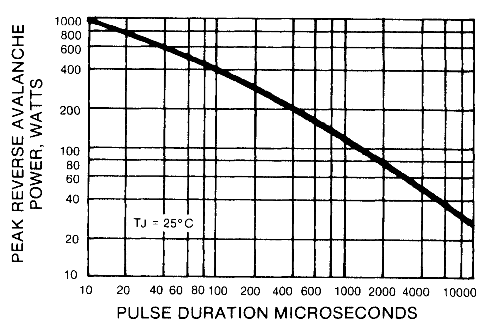


FIG. 6 — MAXIMUM NON-REPETITIVE REVERSE AVALANCHE POWER DISSIPATION



GENERAL INSTRUMENT

1N5614 THRU 1N5622

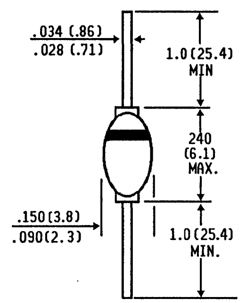
MINIATURE GLASS PASSIVATED MEDIUM-SWITCHING SILICON RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*

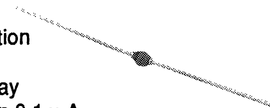
FEATURES

PATENTED*

DO-204AP



Dimensions in inches
and
(millimeters)



- High temperature metallurgically bonded constructed rectifiers
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Hermetically sealed package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

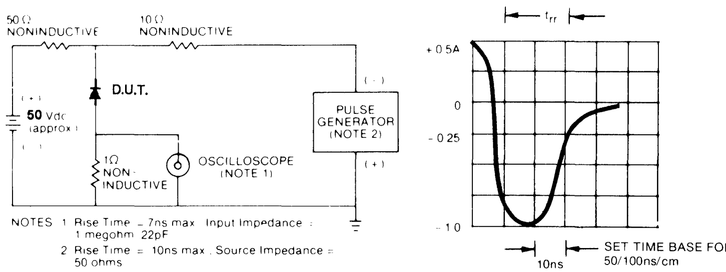
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

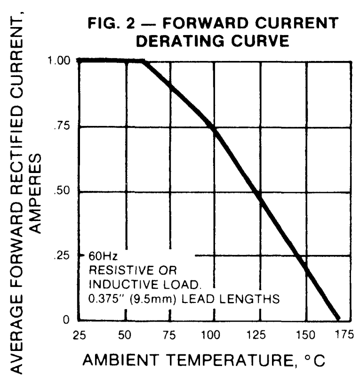
Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

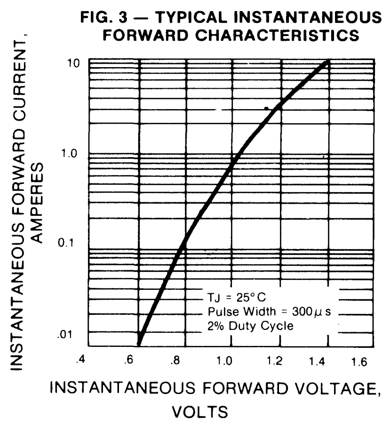
	SYMBOLS	1N5614	1N5616	1N5618	1N5620	1N5622	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
*Minimum Avalanche Breakdown Voltage at 50 μ A	V_{BR}	220	440	660	880	1100	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.0					Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0					Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.2					Volts
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C T_A = 200°C	I_R	0.5 25.0 1500					µA
*Maximum Reverse Recovery Time (Note 1)	T_{RR}	2.0					µs
Typical Junction Capacitance (Note 2)	C_J	45	35	25	20	15	pf
Typical Thermal Resistance (Note 4)	$R_{\Theta JA}$	40.0					°C/W
*Operating Temperature Range	T_J	-65 to +175					°C
*Storage Temperature Range	T_{STG}	-65 to +200					°C

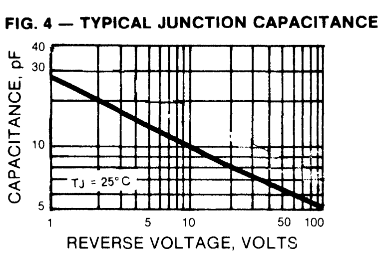
NOTES: 1. Reverse Recovery Test Conditions: I_F = .5A, I_R = 1.0A, Irr = .25A.
2. Measured at 1 MHz and applied reverse voltage of 12 volts.
3. Available to Jan and Jan TX Military Specifications MIL-S-19500/427.
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.
*JEDEC Registered Values

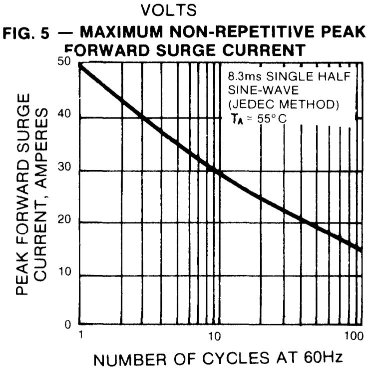
FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM











GENERAL INSTRUMENT

G1A THRU G1M

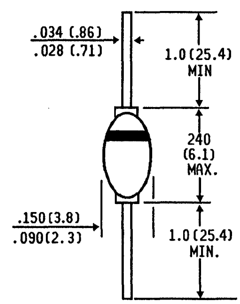
MINIATURE GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 50 to 1000 Volts **Current**- 1.0 Ampere*

FEATURES

PATENTED*

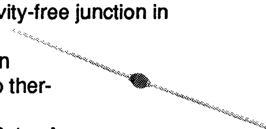
DO-204AP



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in D0-204AP package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	G1A	G1B	G1D	G1G	G1J	G1K	G1M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	70	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current, .375" (9.5mm) Lead Length at T_A = 55°C	$I_{(AV)}$	1.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.2		1.1					Volts
Maximum Full Load Reverse Current, Full Cycle Average, .375", (9.5mm) Lead Length at T_A = 100°C	$I_{R(AV)}$	200							µA
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 150°C	I_R	2.0 / 100							µA
Typical Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	2.0							µs
Typical Junction Capacitance (Note 2)	C_J	15.0							pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	40.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to 175							°C

NOTES:
1. Measured with I_F = 0.5A, I_R = 1.0A, Irr = .25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1—FORWARD CURRENT DERATING CURVE

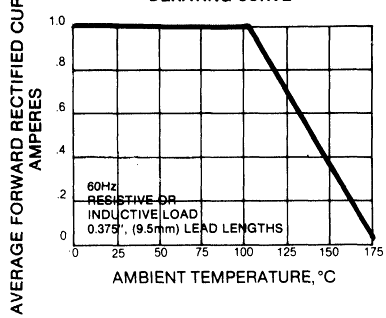


FIG. 2— MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

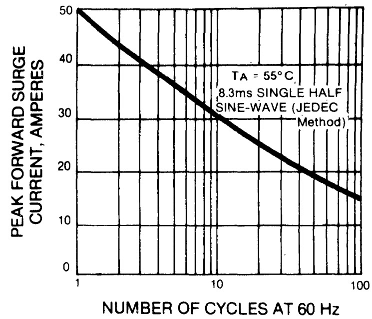


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

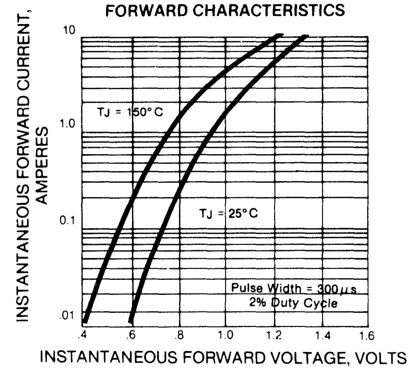


FIG. 4—TYPICAL JUNCTION CAPACITANCE

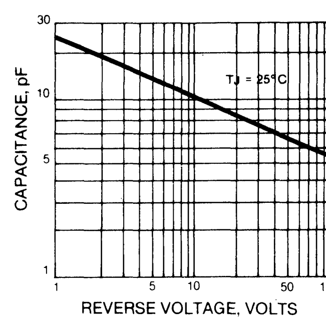
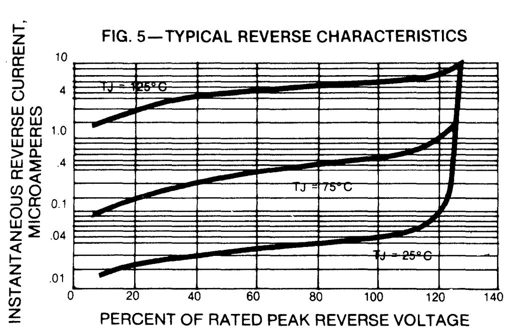


FIG. 5—TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

G2A THRU G2M

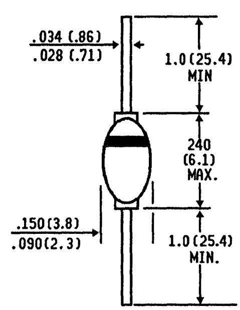
MINIATURE GLASS PASSIVATED JUNCTION RECTIFIER

Voltage *- 50 to 1000 Volts* ***Current*** *- 2.0 Amperes*

FEATURES

PATENTED*

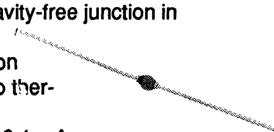
DO-204AP



Dimensions in inches
and
(millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in D0-204AP package
- 2.0 Ampere operation at T_A = 75°C with no thermal runaway
- Typical I_R less than 0.1 µA
- Capable of meeting environmental standards of MIL-S-19500
- Fast switching for high efficiency
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	G2A	G2B	G2D	G2G	G2J	G2K	G2M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current, .375" (9.5mm) Lead Length at T_A = 75°C	$I_{(AV)}$	2.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50							Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F	1.2		1.1					Volts
Maximum Full Load Reverse Current, Full Cycle Average, .375", (9.5mm) Lead Length at T_A = 100°C	$I_{R(AV)}$	100							µA
Maximum DC Reverse Current at Rated DC Blocking Voltage	I_R	1.0							µA
Typical Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	2.0							µs
Typical Junction Capacitance (Note 2)	C_J	15.0							pf
Typical Thermal Resistance (Note 3)	RθJA	40.0							°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to 175							°C

NOTES:
1. Measured with I_F = .5A, I_R = 1A, Irr = .25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

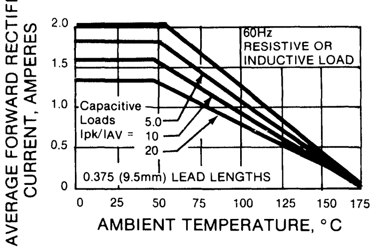


FIG. 2—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

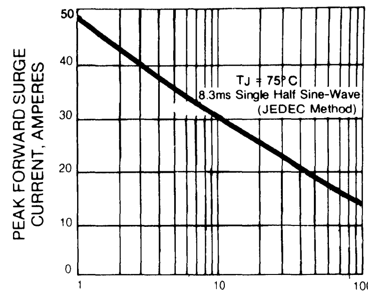


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

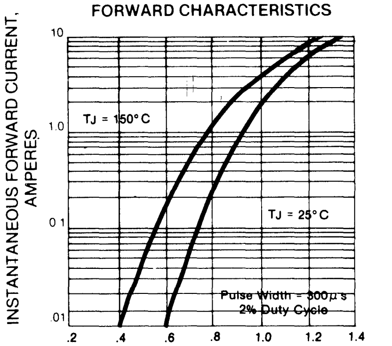


FIG. 4—TYPICAL JUNCTION CAPACITANCE

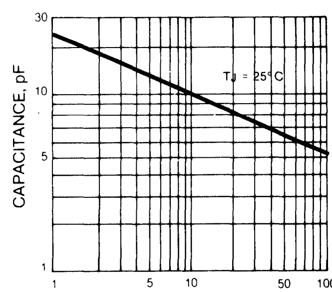
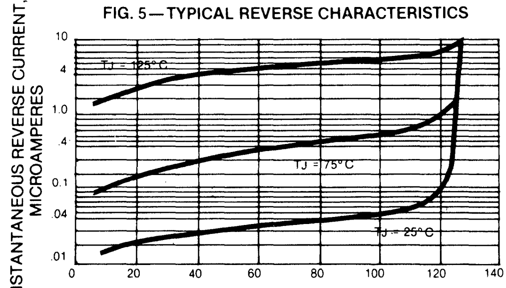


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

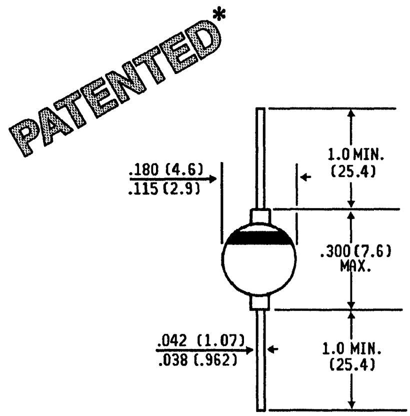


GENERAL INSTRUMENT

1N5550 THRU 1N5554

GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 3.0 Amperes*

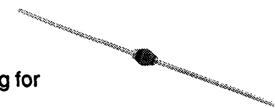


Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- ◆ Glass passivated cavity-free junction
- ◆ High temperaturae metallurgically bonded
- ◆ Hermetically sealed package
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Medium switching for good efficiency
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed

Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: .037 ounce, 1.04 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N5550	1N5551	1N5552	1N5553	1N5554	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
*Minimum Reverse Breakdown Voltage at 50 µ A	V_{BR}	240	460	660	880	1100	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$			3.0			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			100			Amps
* Maximum Instantaneous Forward Voltage at 3.0A	V_F		1.0			1.1	Volts
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C T_A = 200°C	I_R			1.0 25.0 1500			µA
*Maximum Junction Capacitance (Note 2)	C_J	150	120	100	90	85	pf
*Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}		2.0			4.0.	µs
Typical Thermal Resistance (Note 4)	RΘJA			15.0			°C/W
*Operating and Storage Temperature Range	T_J,T_{STG}			-65 to +200			°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 25A.
2. Measured at 1 MHz and applied reverse voltage of 12.0 volts.
3. Available to JAN and JAN TX Military Specifications MIL-ST-19500/420A.
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, with both leads mounted between heat sinks.

*JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

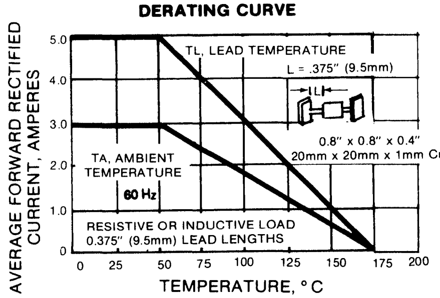


FIG. 2 — TYPICAL REVERSE CHARACTERISTICS

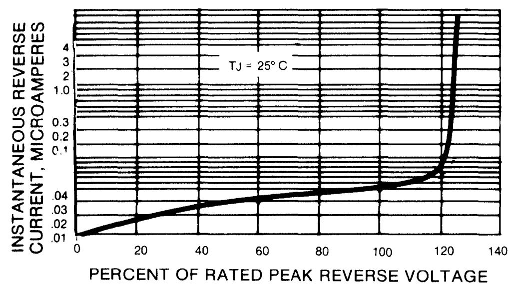


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

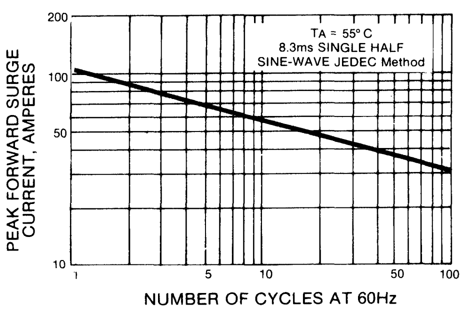


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

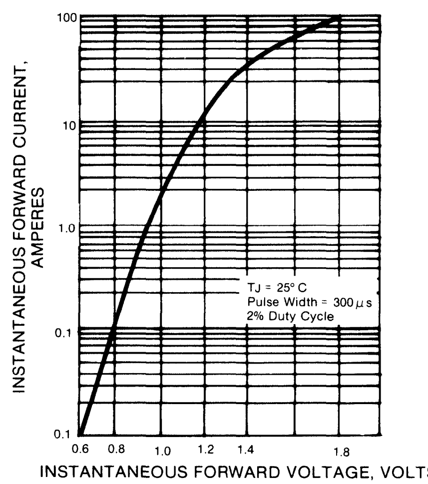
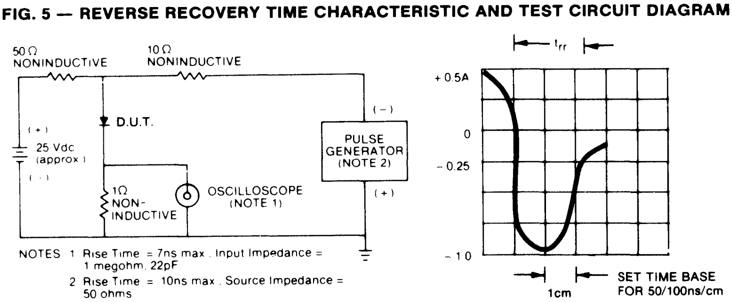


FIG. 5 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



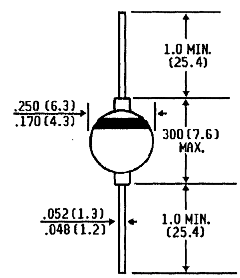
GENERAL INSTRUMENT

1N5624 THRU 1N5627

GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 200 to 800 Volts* ***Current** - 3.0 Amperes*

PATENTED*

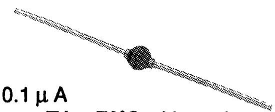


Dimensions in inches
and
(millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- ◆ Glass passivated cavity-free junction
- ◆ High temperaturae metallurgically bonded constructed rectifiers
- ◆ Hermetically sealed package
- ◆ Capable of meeting environmental standards of MIL-S-19500



- ◆ Typical I_R less than 0.1 μ A
- ◆ 3.0 Ampere operation at TA = 70°C with no thermal runaway
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .04 ounce, 1.1 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N5624	1N5625	1N5626	1N5627	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 70°C	$I_{(AV)}$	3.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125				Amps
Maximum Instantaneous Forward Voltage at 3.0A* T_A = 25°C / T_A = 70°C	V_F	1.0 / .95				Volts
*Maximum Reverse Current at Rated DC Blocking Voltage T_A = 25°C	I_R	5.0				µA
T_A = 175°C		300		200		µA
*Maximum Full Load Reverse Current, Full cycle Average, .375", (9.5mm) lead length at T_A = 70°C	$I_{R(AV)}$	150		100		µA
Typical Junction Capacitance (Note 1)	C_J	40.0				pf
Typical Thermal Resistance (Note 3)	RΘJA	15.0				°C/W
*Operating Temperature Range	T_J	-65 to +175				°C
*Storage Temperature Range	T_{STG}	-65 to +200				°C

NOTES: 1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Available to JAN and JAN TX Military Specifications MIL-S-19500/432.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, with both leads attaached between heatsinks.
*JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

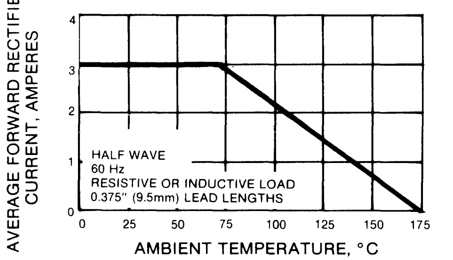


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

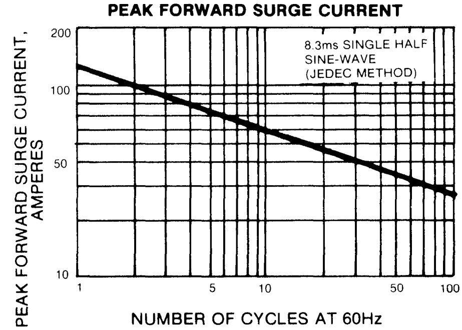


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

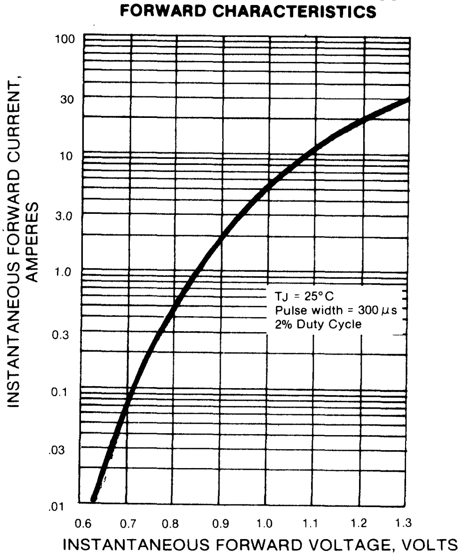


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

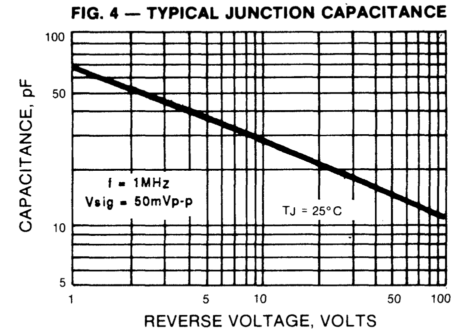
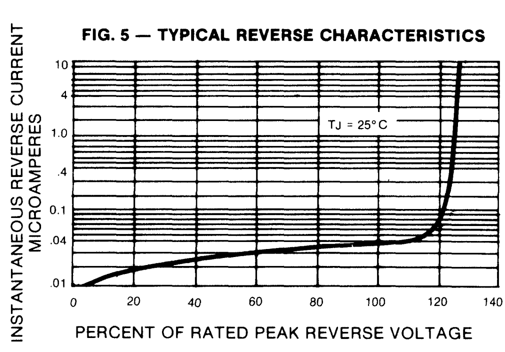


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



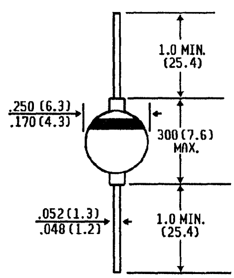
GENERAL INSTRUMENT

G3A THRU G3M

GLASS PASSIVATED SILICION RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current**- 3.0 Amperes*

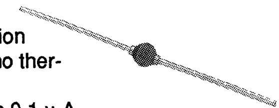
FEATURES



Dimensions in inches and (millimeters)

* *Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in sealed package
- 3.0 Ampere operation at T_A = 70°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .04 ounce,1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	*G3A*	*G3B*	*G3D*	*G3G*	*G3J*	*G3K*	*G3M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current, .375" (9.5mm) Lead Length at T_A = 70°C	$I_{(AV)}$	3.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	125							Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.2		1.1					Volts
Maximum Full Load Reverse Current, Full Cycle Average, .375", (9.5mm) Lead Length at T_A = 70°C	$I_{R(AV)}$	200							µA
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	5.0 100							µA
Typical Reverse Recovery Time (Note 1)	T_{RR}	3.0							µs
Typical Junction Capacitance (Note 2)	C_J	40.0							pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	15.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Measured with I_F = .5A, I_R = 1A, Irr = .25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, with both leads mounted between heatsinks.

FIG. 1—FORWARD CURRENT DERATING CURVE

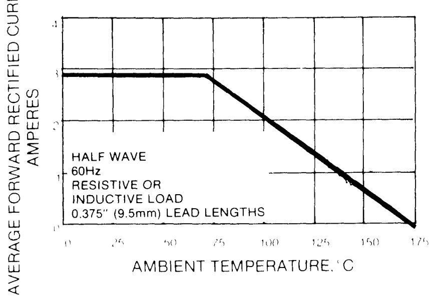


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

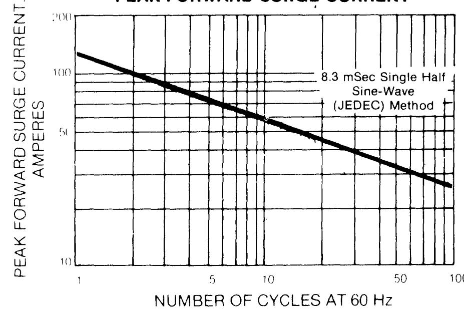


FIG. 4—TYPICAL JUNCTION CAPACITANCE

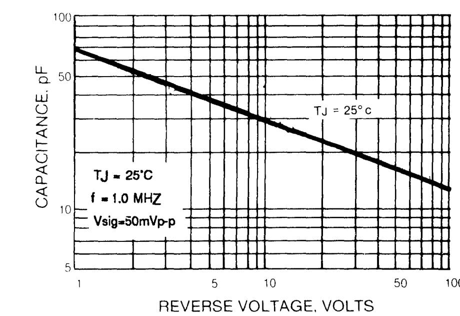


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

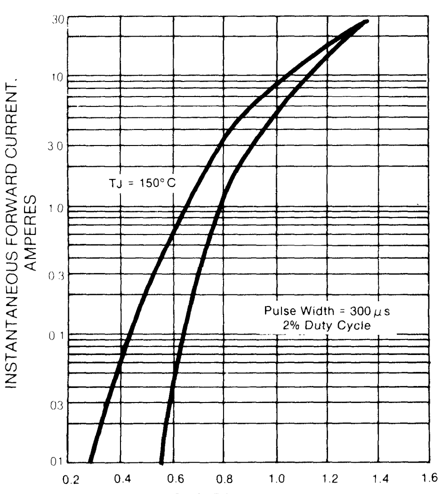
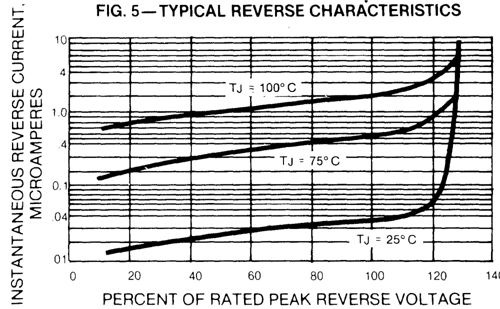


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

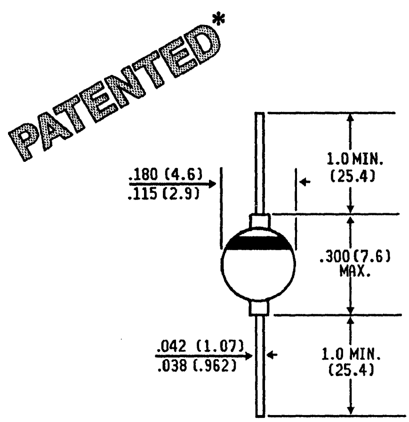


GENERAL INSTRUMENT

G4A THRU G4M

GLASS PASSIVATED SILICON RECTIFIER

Voltage - *50 to 1000 Volts* ***Current-*** *3.0 Amperes*

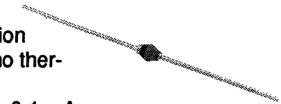


Dimensions in inches
and
(millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in sealed package
- 3.0 Ampere operation at T_A = 70°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .037 ounce,1.04 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	*G4A*	*G4B*	*G4D*	*G4G*	*G4J*	*G4K*	*G4M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current, .375" (9.5mm) Lead Length at T_A = 70°C	$I_{(AV)}$	3.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100							Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.1							Volts
Maximum Full Load Reverse Current Full Cycle Average, .375", (9.5mm) Lead Length at T_A = 70°C	$I_{R(AV)}$	200							µA
Maximum Average Reverse Current at Peak T_A = 25°C Reverse Voltage T_A = 100°C	$I_{R(AV)}$	5.0 100							µA
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	1.0 100							µA
Typical Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	3.0							µs
Typical Junction Capacitance (Note 1)	C_J	40.0							pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	15.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths with botyh leads mounted between heatsinks..

Fig. 1—FORWARD CURRENT DERATING CURVE

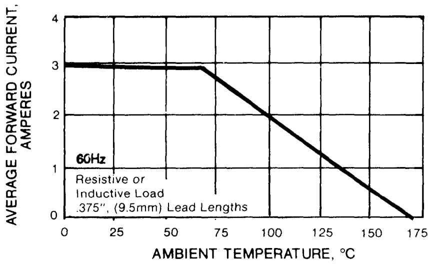


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

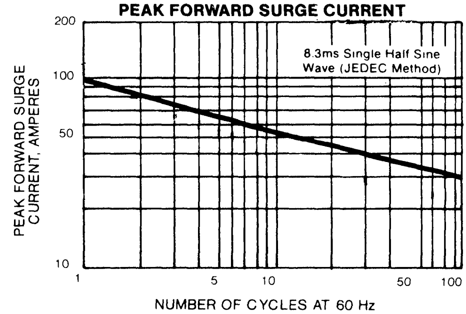


Fig. 4—TYPICAL JUNCTION CAPACITANCE

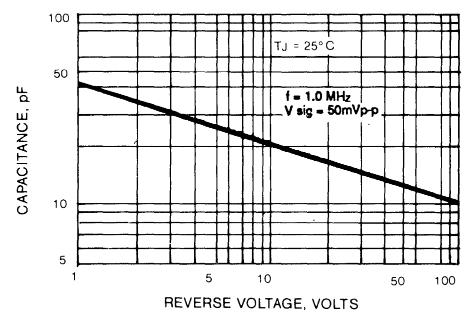


Fig. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

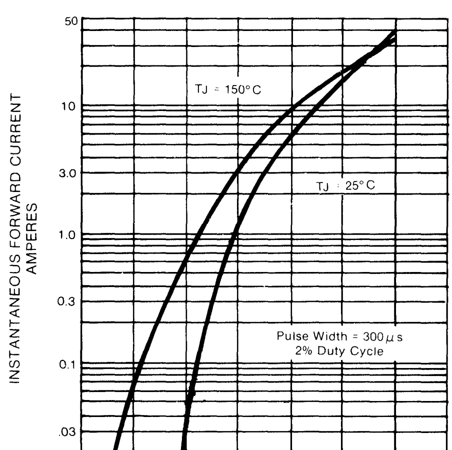
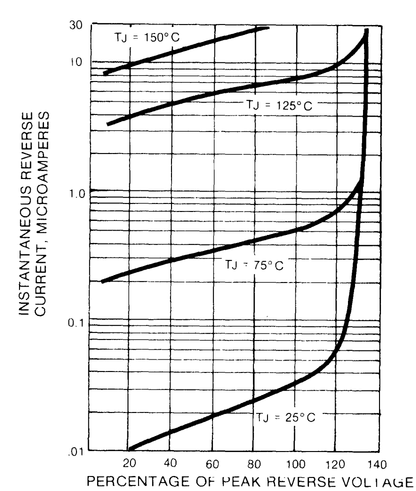


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



HIGH VOLTAGE GLASS PASSIVATED RECTIFIERS

1.0 AMPERE TO 3.0 AMPERES
1200 VOLTS TO 1600 VOLTS

GENERAL INSTRUMENT

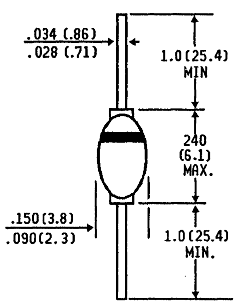
CG1 AND DG1

MINIATURE CLAMPER / DAMPER GLASS PASSIVATED JUNCTION SILICON RECTIFIER

Voltage *- 1400 to 1500 Volts* ***Current*** *- 1.5 Amperes*

PATENTED*

DO-204AP

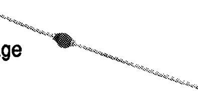


Dimensions in inches and (millimeters)

* *Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- Specially designed for clamping circuits horizantal deflection systems and damper applications
- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in DO-204AP package
- 1.5 Ampere operation at T_A = 50°C with no thermal runaway
- Typical I_R less than 0.1 µA
- Hermetically sealed package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*CG1*	*DG1*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1400	1500	Volts
Maximum RMS Voltage	V_{RMS}	980	1050	Volts
Maximum DC Blocking Voltage	V_{DC}	1400	1500	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 50°C	$I_{(AV)}$	1.5		Amps
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method)	I_{FSM}	40.0		Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.1		Volts
Maximum DC Reverse Current T_A= 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 100		µA
Maximum Full Load Reverse Current Full Cycle Average, .375", (9.5mm) Lead Length T_A = 100 °C	$I_{R(AV)}$	50.0		µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	15.0	20.0	µs
Typical Junction Capacitance (Note 2)	C_J	15.0		pf
Typical Thermal Resistance (Note 3)	RΘJA	40.0		°C/W
Operating Storage Temperature Range	T_J,T_{STG}	-65 to +175		°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 50ma.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 2 — MAXIMUN NON REPETITIVE PEAK FORWARD SURGE CURRENT

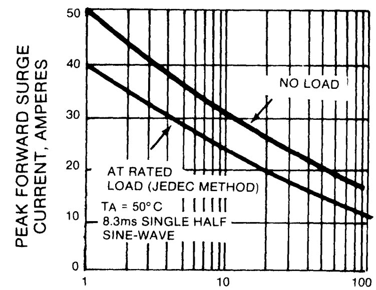


FIG. 1—FORWARD CURRENT DERATING CURVE

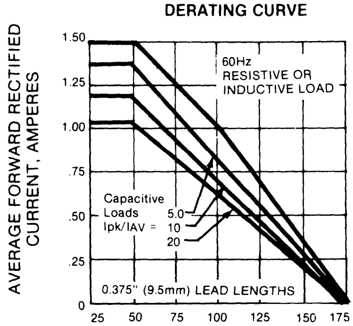


FIG. 4—TYPICAL JUNCTION CAPACITANCE

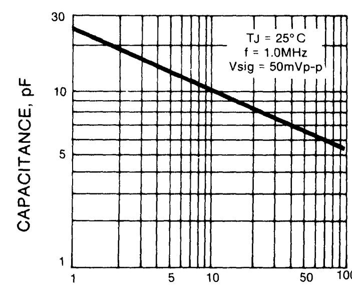


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

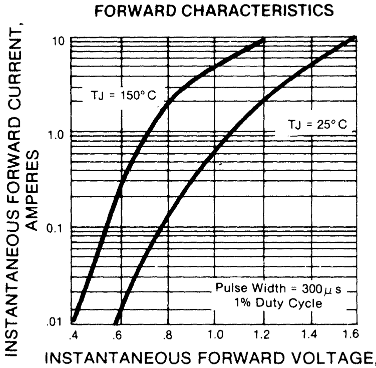


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

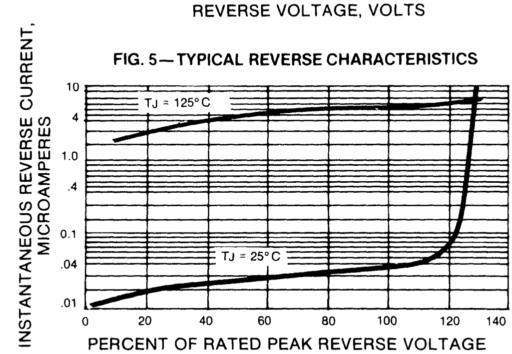
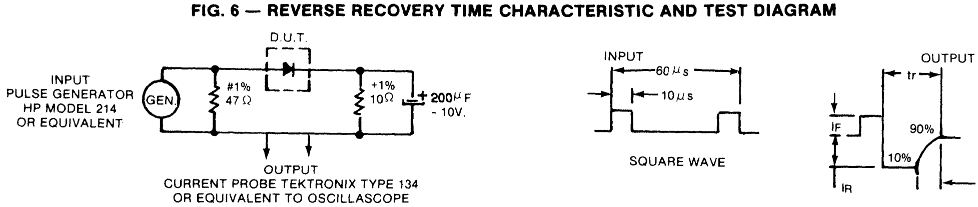


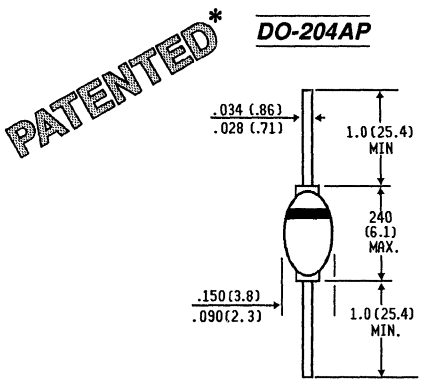
FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



GI1-1200 THRU GI1-1600

MINIATURE GLASS PASSIVATED JUNCTION SILICON RECTIFIER

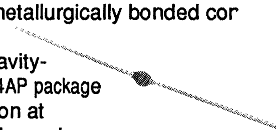
***Voltage** - 1200 to 1600 Volts* ***Current** - 1.0 Ampere*



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded cor structed rectifiers
- Glass passivated cavity-free junction in DO-204AP package
- 1.0 Ampere operation at T_A = 75°C with no thermal runaway
- Typical I_R less than 0.1 μA
- Hermetically sealed package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*GI1-1200*	*GI1-1400*	*GI1-1600*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1200	1400	1600	Volts
Maximum RMS Voltage	V_{RMS}	840	980	1120	Volts
Maximum DC Blocking Voltage	V_{DC}	1200	1400	1600	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 75°C	$I_{(AV)}$	1.0			Amps
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0			Amps
Maximum Instantaneous Forward Voltage at 1.0A 3.14A	V_F	1.1 1.3			Volts
Maximum DC Reverse Current T_A= 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 100			μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	25.0			μs
Maximum Forward Recovery Time (Note 2)	T_{FR}	1.0			μs
Typical Junction Capacitance (Note 3)	C_J	15.0			pf
Typical Thermal Resistance (Note 4)	$R\Theta JA$	40.0			°C/W
Operating Storage Temperature Range	T_J,T_{STG}	-65 to +175			°C

NOTES:
1. Measured on Tektronix Type "S" recovery plug-in Tektronix 545 Scope or equivalent IFM = 20 mA, IRM = 2mA.
2. Measured on Tektronix Type "S" recovery plug-in, Tektronix 545 or equivalent, IFM = 20mA.
3. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

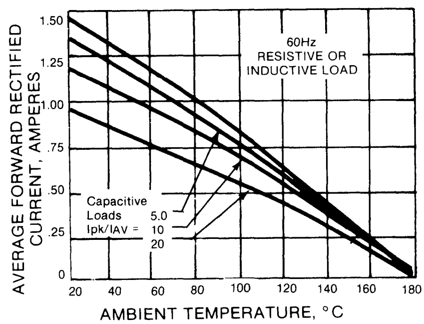


FIG. 2 — MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

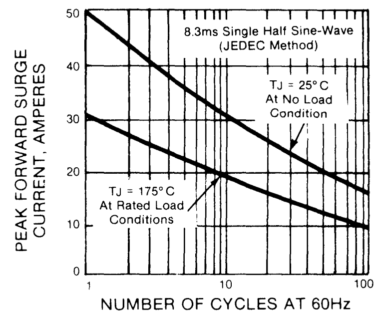


FIG. 3 — TYPICAL INSTANTANEOUS FOWARD CHARACTERISTICS

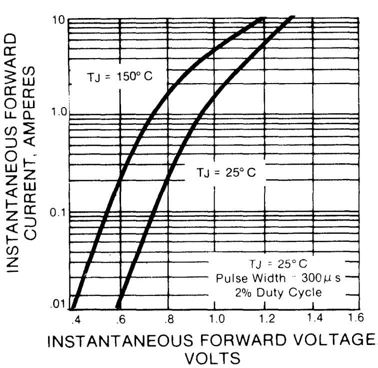


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

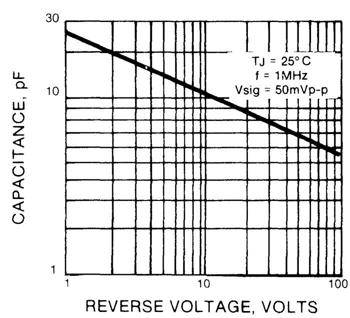
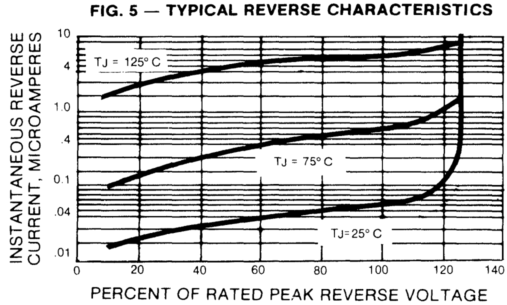


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



BY448 AND BY458

MINIATURE GLASS PASSIVATED JUNCTION CLAMPER / DAMPER SILICON RECTIFIER

***Voltage** - 1200 to 1500 Volts* ***Current** - 1.5 Amperes*

GENERAL DESCRIPTION

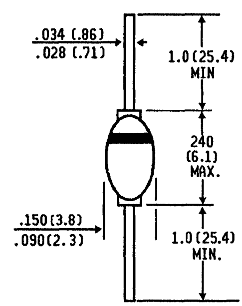
These silicon Glass Passivated Clamper / Damper Rectifiers are designed for TV Applications such as clamping circuits in horizontal deflection systems and damper applications.

The glass passivated construction and Dual Heat - Sink design assures reliable and stable operation.

FEATURES

PATENTED*

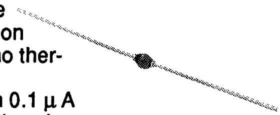
DO-204AP



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity- free junction in D0-204AP package
- 1.5 Ampere operation at T_A = 50°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Hermetically sealed package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any ***Weight:*** .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 50 - 60 Hz, resistive or inductive load..
For capacitive load, derate current by 20%.

	SYMBOLS	*BY458*	*BY448*	*UNITS*
Maximum Non Recurrent Peak Reverse Voltage	V_{RSM}	1400	1650	Volts
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1200	1500	Volts
Maximum DC Blocking Voltage	V_{DC}	1200	1500	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 50°C	$I_{(AV)}$	1.5		Amps
Peak Forward Surge Current 10ms single half sine -wave superimposed on rated load	I_{FSM}	30.0		Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.6		Volts
Working Peak Forward Current at T_A = 75°C	I_{FWM}	4.0		Amps
Peak Repetitive Forward Current at T_A = 75°C	I_{RFM}	8.0		Amps
Maximum Peak Reverse Current T_A= 25°C at Rated Peak Reverse Voltage T_A = 140°C	I_R	5.0 200		µA
Maximum Reverse Recovery Time (Note 1) T_J = 140°C	T_{RR}	20.0		µs
Typical Junction Capacitance (Note 2)	C_J	15.0		pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	40.0		°C/W
Operating Temperature Range	T_J	-65 to +150		°C
Storage Temperature Range	T_{STG}	-65 to +200		°C

NOTES: 1. Measured with I_F = 0.5A, I_R = 50ma. 2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

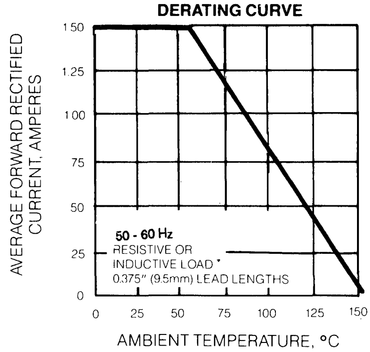


FIG. 2 — MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

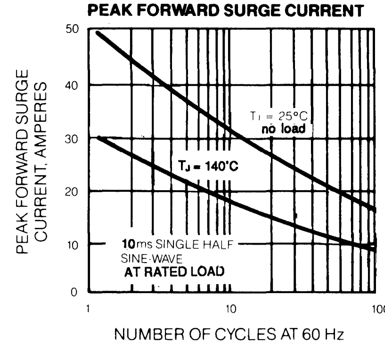


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

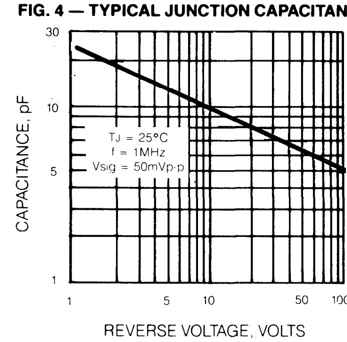


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

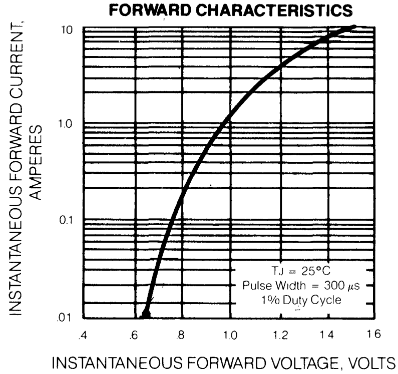


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

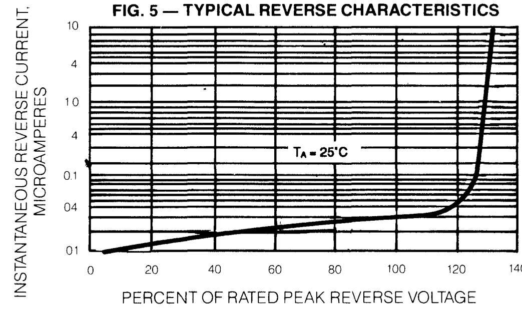
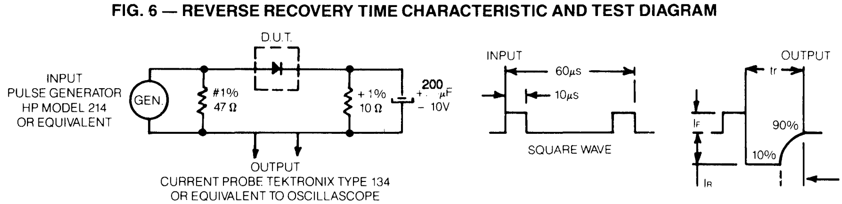


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



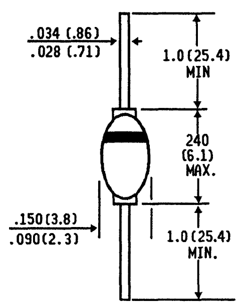
CG2 AND DG2

MINIATURE CLAMPER / DAMPER GLASS PASSIVATED JUNCTION SILICON RECTIFIER

Voltage *- 1400 to 1500 Volts* ***Current*** *- 2.0 Amperes*

PATENTED*

DO-204AP

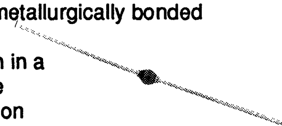


Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- ◆ Specially designed for clamping circuits in horizontal deflection systems and damper applications
- ◆ High temperature metallurgically bonded
- ◆ Glass passivated cavity- free junction in a D0-204AP package



- ◆ 2.0 Ampere operation at $T_A = 50°C$ with no thermal runaway
- ◆ Typical I_R less than 0.1 μA
- ◆ Hermetically sealed package
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	CG2	DG2	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1400	1500	Volts
Maximum RMS Voltage	V_{RMS}	980	1050	Volts
Maximum DC Blocking Voltage	V_{DC}	1400	1500	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 50°C$	$I_{(AV)}$	2.0		Amps
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method)	I_{FSM}	40.0		Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F	1.1		Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 100°C$	I_R	5.0 100		μA
Maximum Full Load Reverse Current Full Cycle Average, .375", (9.5mm) Lead Length $T_A = 100°C$	$I_{R(AV)}$	200		μA
Maximum Reverse Recovery Time (Note 1) $T_J = 25°C$	T_{RR}	15.0	20.0	μs
Typical Junction Capacitance (Note 2)	C_J	15.0		pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	40.0		°C/W
Operating Storage Temperature Range	T_J, T_{STG}	-65 to +175		°C

NOTES:
1. Measured with $I_F = 0.5A$, $I_R = 50mA$.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

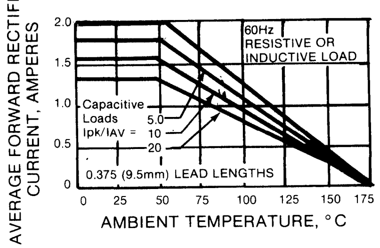


FIG. 2 — MAXIMUN NON REPETITIVE PEAK FORWARD SURGE CURRENT

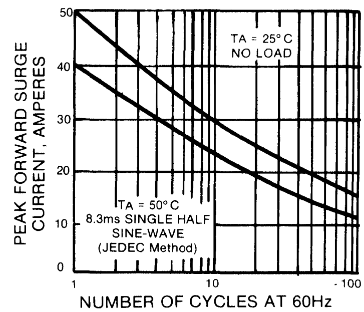


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

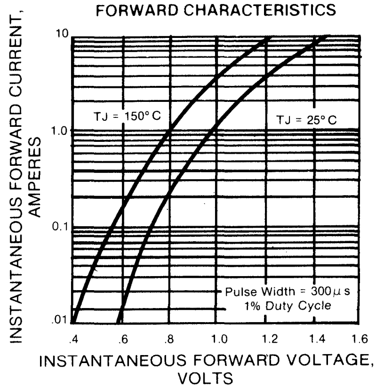


FIG. 4—TYPICAL JUNCTION CAPACITANCE

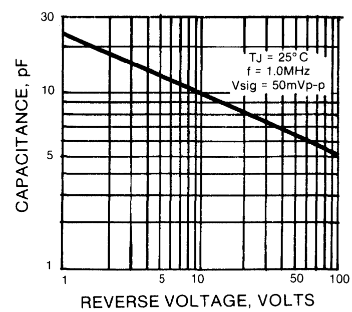


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

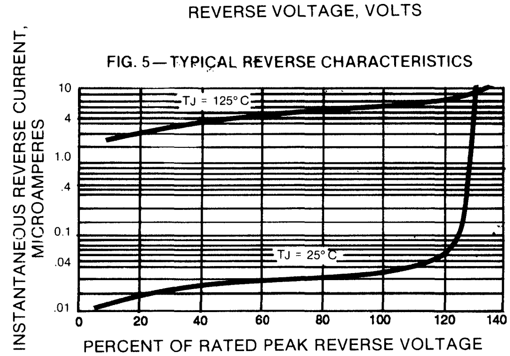
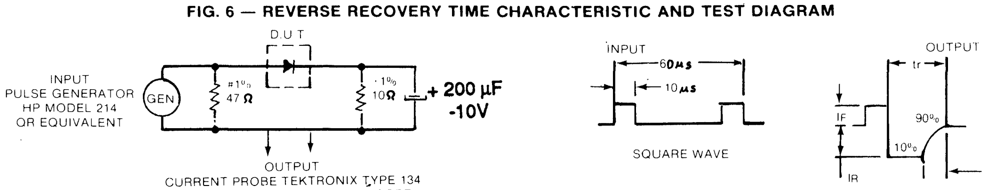


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



BY228 SERIES

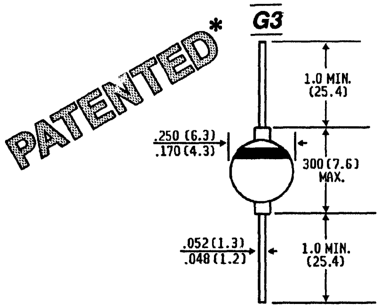
GLASS PASSIVATED JUNCTION
CLAMPER / DAMPER SILICON RECTIFIER

Voltage* - *1500 Volts ***Current* - *2.5 Amperes***

GENERAL DESCRIPTION

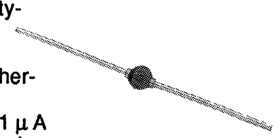
These silicon Glass Passivated Clamper / Damper Rectifiers are designed for TV Applications, such as clamping circuits in horizontal deflection systems and damper applications. The glass passivated construction and Dual Heat - Sink design assures reliable and stable operation.

FEATURES



Dimensions in inches and (millimeters)

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction
- 2.5 Ampere operation at $T_A = 50°C$ with no thermal runaway
- Typical I_R less than 0.1 μA
- Hermetically sealed package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any ***Weight:*** .04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 50 - 60 Hz, resistive or inductive load..
For capacitive load, derate current by 20%.

	SYMBOLS	*BY228*	*UNITS*
Maximum Non Repetitive Peak Reverse Voltage	V_{RSM}	1650	Volts
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1500	Volts
Maximum RMS Voltage	V_{RMS}	1050	Volts
Maximum DC Blocking Voltage	V_{DC}	1500	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 50°C$	$I_{(AV)}$	2.5	Amps
Peak Forward Surge Current 10ms single half sine -wave superimposed on rated load	I_{FSM}	50.0	Amps
Maximum Instantaneous Forward Voltage at 5.0A	V_F	1.6	Volts
Working Peak Forward Current at $T_A = 75°C$	I_{FWM}	5.0	Amps
Peak Repetitive Forward Surge Current at $T_A = 75°C$	I_{FRM}	10.0	Amps
Maximum Peak Reverse Current $T_A = 25°C$ at Rated Peak Reverse Voltage $T_J = 140°C$	I_R	5.0 200	μA
Maximum Reverse Recovery Time (Note 1)	T_{RR}	20.0	μS
Maximum Forward Recovery Time (Note 3)	T_{FR}	1.0	μS
Typical Junction Capacitance (Note 2)	C_J	40.0	pf
Typical Thermal Resistance (Note 4)	$R_{\theta JA}$	20.0	°C/W
Operating Temperature Range	T_J	-65 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +200	°C

NOTES: 1. Measured with $I_F = 1.0A$, $I_R = 50mA$, $di/dt = 50mA/\mu s$.. 2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Measured with $I_F = 5.0A$ with tr - 0.1 μs
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

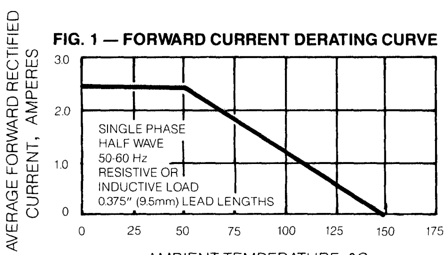


FIG. 2 — MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

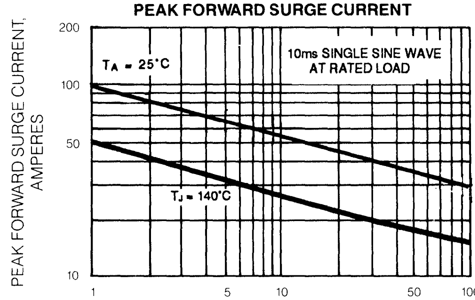


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

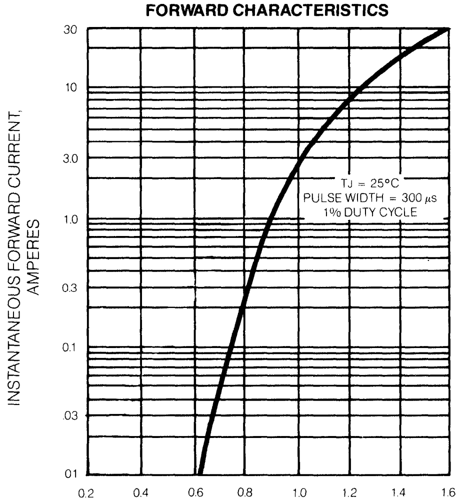


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

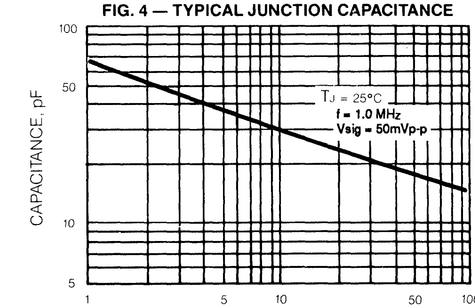


FIG. 5 — MAXIMUM PEAK REPETITIVE FORWARD SURGE CURRENT

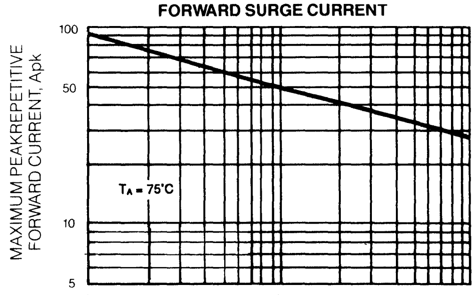
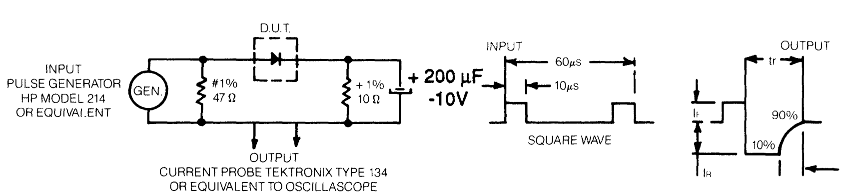


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



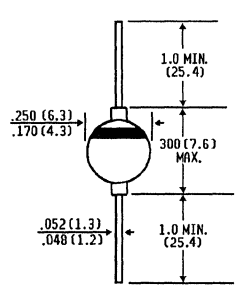
CG3 AND DG3

GLASS PASSIVATED JUNCTION CLAMPER / DAMPER SILICON RECTIFIER

***Voltage** - 1400 to 1500 Volts* ***Current** - 3.0 Ampere*

PATENTED*

G3

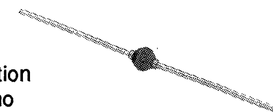


Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- Specially designed for clamping circuits horizontal deflection systems and damper applications
- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction
- 3.0 Ampere operation at T_A = 50°C with no thermal runaway
- Typical I_R less than 0.1 μA
- Hermetically sealed package
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	CG3	DG3	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1400	1500	Volts
Maximum RMS Voltage	V_{RMS}	980	1050	Volts
Maximum DC Blocking Voltage	V_{DC}	1400	1500	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 50°C	$I_{(AV)}$	3.0		Amps
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method)	I_{FSM}	100		Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.2		Volts
Maximum DC Reverse Current T_A= 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 100		µA
Maximum Full Load Reverse Current Full Cycle Average, .375", (9.5mm) Lead Length T_A = 70 °C	$I_{R(AV)}$	200		µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	15.0	20.0	µs
Typical Junction Capacitance (Note 2)	C_J	4.0		pf
Typical Thermal Resistance (Note 3)	RθJA	20.0		°C/W
Operating Storage Temperature Range	T_J, T_{STG}	-65 to +175		°C

NOTES:
1. Measured with I_F = 0.5A, I_R = 50mA.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1—FORWARD CURRENT DERATING CURVE

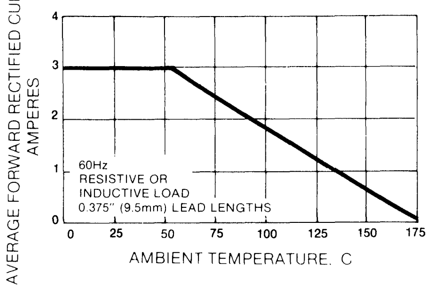


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

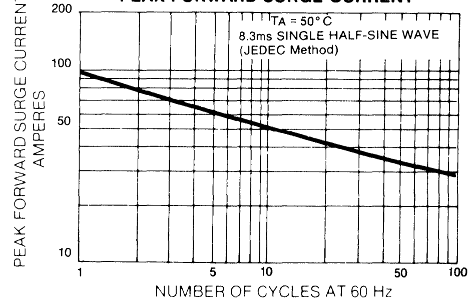


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

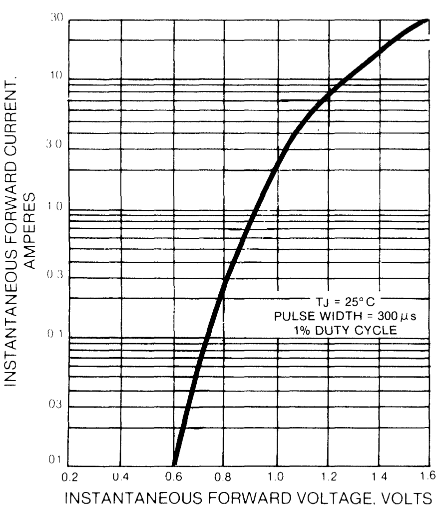


FIG. 4—TYPICAL JUNCTION CAPACITANCE

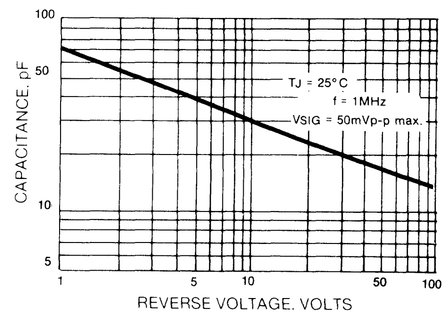


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

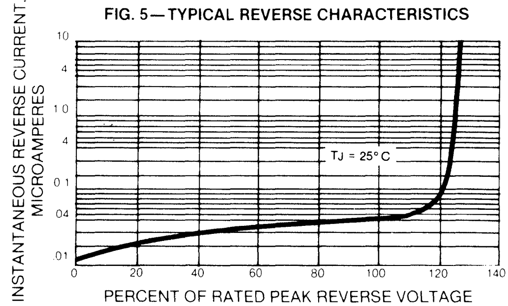
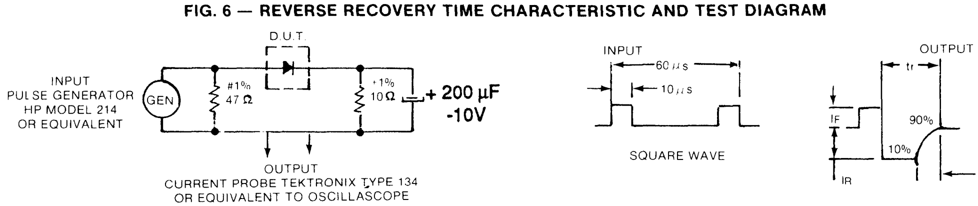


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



FAST RECOVERY GLASS PASSIVATED RECTIFIERS

1.0 AMPERE TO 3.0 AMPERES
50 VOLTS TO 1000 VOLTS

GENERAL INSTRUMENT

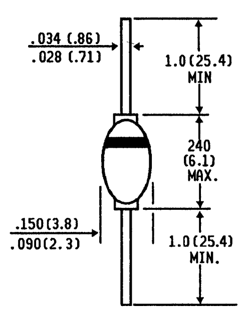
1N4942 THRU 1N4948

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*

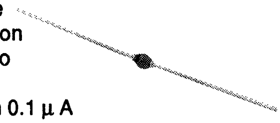
DO-204AP



Dimensions in inches and (millimeters)

* *Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES



- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ Glass passivated cavity-free junction in D0-204AP package
- ◆ 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- ◆ Typical I_R less than 0.1 µ A
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Fast switching for high efficiency
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	1N4942	1N4944	1N4946	1N4947	1N4948	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
*Minimum Avalanche Breakdown Voltage at 50 µ A	V_{BR}	220	440	660	880	1100	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$			1.0			Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			25.0			Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F			1.3			Volts
at 2.0A, T_A = 40°C	V_F			2.5			Volts
*Maximum DC Reverse Current T_A = 25°C	I_R			1.0			µA
at Rated DC Blocking Voltage T_A = 175°C	I_R			500			µA
*Maximum Reverse Recovery Time (Note 1)T_J=25°C	T_{RR}	150	150	250	250	500	ns
Typical Junction Capacitance (Note 2)	C_J			15.0			pf
Typical Thermal Resistance (Note 4)	RθJA			50.0			°C/W
*Operating and Storage Temperature Range	T_J,T_{STG}			-65 to +175			°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 25A.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Available to JAN and JAN TX Military Specifications MIL-ST-19500/359
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

*JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

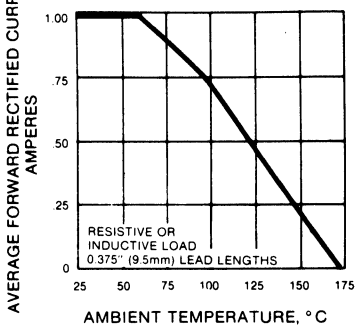


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

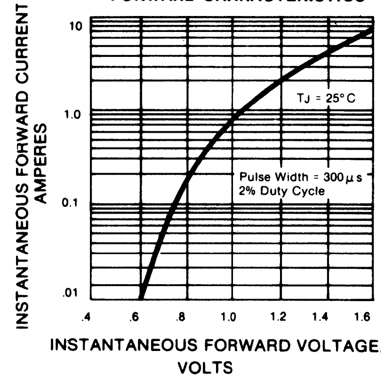


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

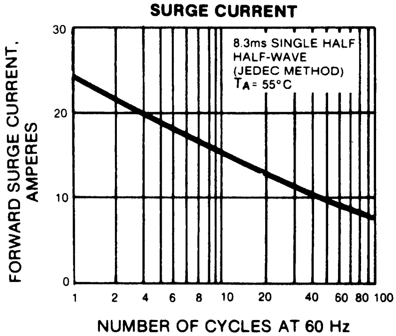


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

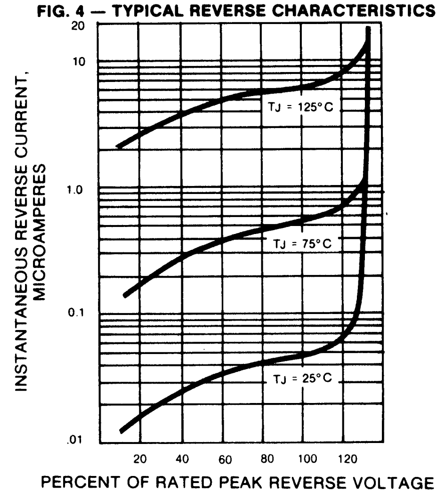


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

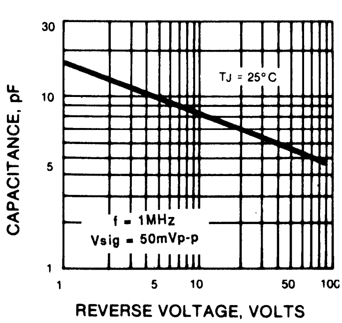
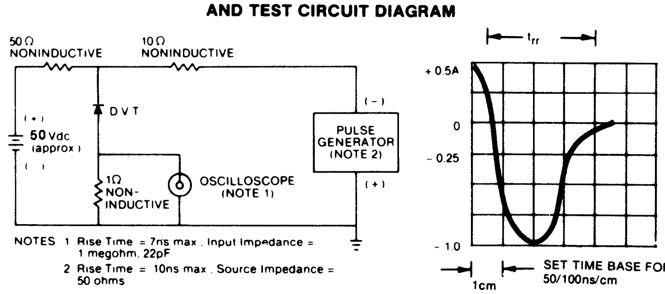


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



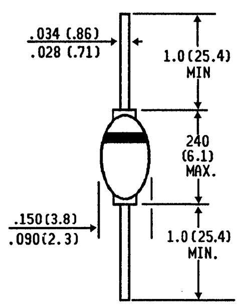
1N5615 THRU 1N5623

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*

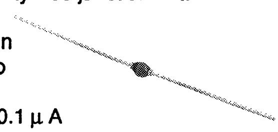
DO-204AP



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES



- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in a D0-204AP package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- Fast switching for high efficiency
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	1N5615	1N5617	1N5619	1N5621	1N5623	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
*Minimum Avalanche Breakdown Voltage at 50 µ A	V_{BR}	220	440	660	880	1100	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$			1.0			Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			50.0			Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F			1.2			Volts
*Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 100°C / T_A = 200°C	I_R			0.5 / 25.0 / 1500			µA
*Maximum Reverse Recovery Time (Note 1)T_J=25°C	T_{RR}	150	150	250	300	500	ns
*Maximum Junction Capacitance (Note 2)	C_J	45	35	25	20	15	pf
Typical Thermal Resistance (Note 4)	$R_{\theta JA}$			50.0			°C/W
*Operating Temperature Range	T_J			-65 to +175			°C
*Storage Temperature Range	T_{STG}			-65 to +200			°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 25A.
2. Measured at 1 MHz and applied reverse voltage of 12 volts.
3. Available to JAN and JAN TX Military Specifications MIL-S-19500/429.
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

*JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

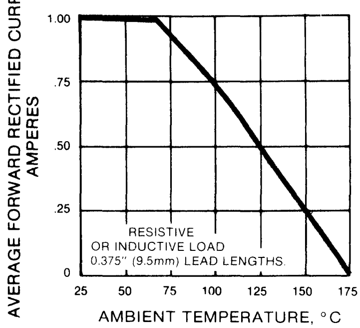


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

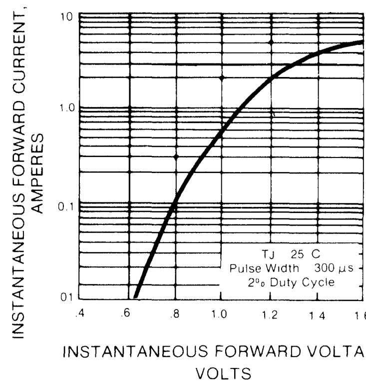


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

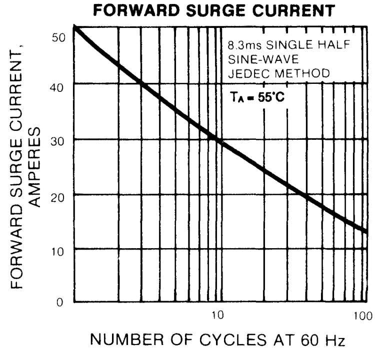


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

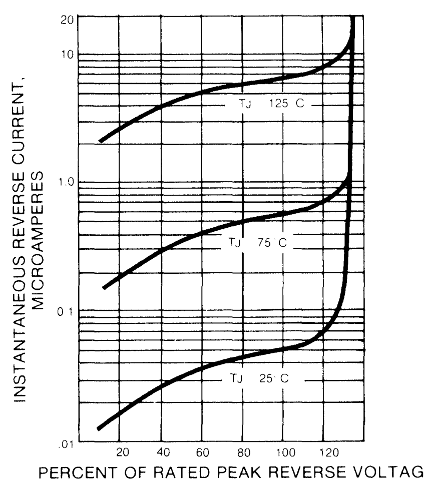


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

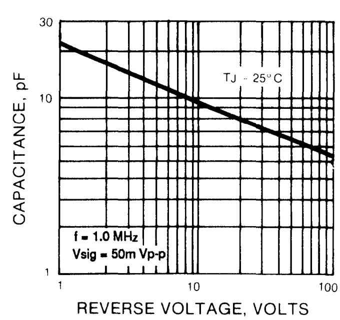
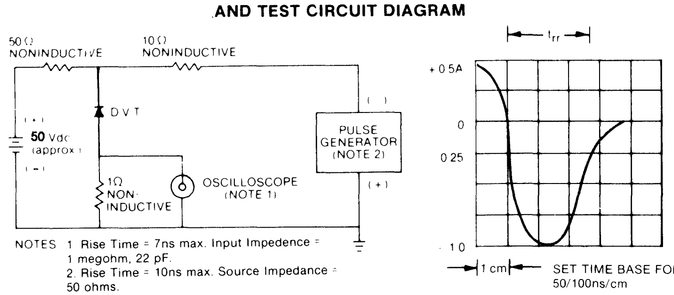


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

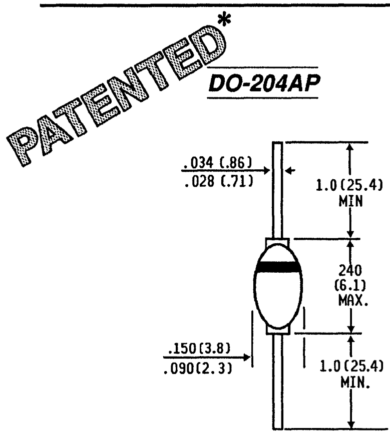


RG1A THRU RG1M

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current**- 1.0 Ampere*

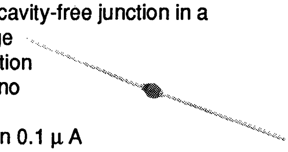
FEATURES



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in a D0-204AP package
- 1.0 Ampere operation at T_A = 55°C with no thermal runaway
- Typical I_R less than 0.1 µ A
- Capable of meeting environmental standards of MIL-S-19500
- Fast switching for high efficiency
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive laod, derate current by 20%.

	SYMBOLS	RG1A	RG1B	RG1D	RG1G	RG1J	RG1K	RG1M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current, .375" (9.5mm) Lead Length at T_A = 55°C	$I_{(AV)}$				1.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				30				Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F				1.3				Volts
Maximum Full Load Reverse Current, Full Cycle Average, .375", (9.5mm) Lead Length at T_A = 25°C / T_A = 100°C	$I_{R(AV)}$				1.0 / 100				µA
Maximum DC Reverse Current at Rated DC Blocking Voltage	I_R				2.0				µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}		150			200	250	500	ns
Typical Junction Capacitance (Note 2)	C_J				15.0				pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$				50.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-65 to +175				°C

NOTES:
1. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

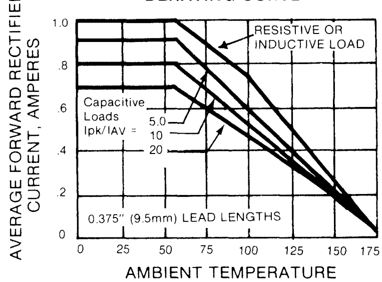


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

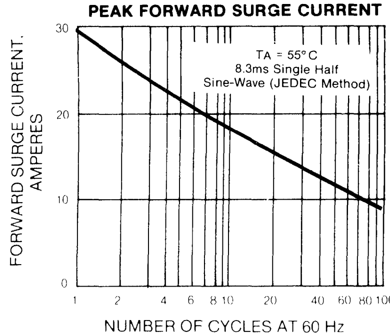


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

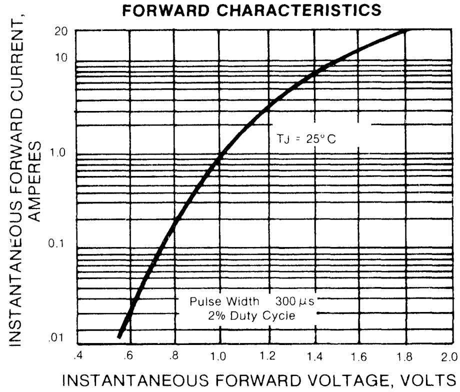


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

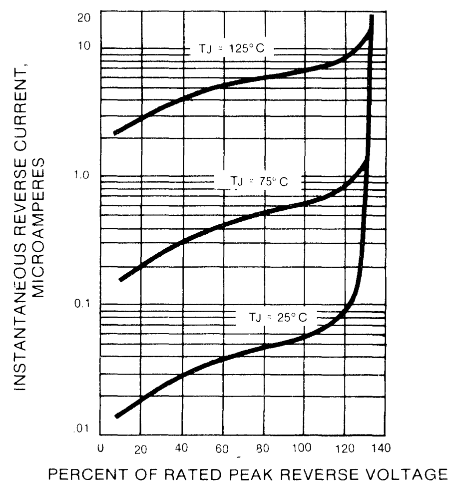


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

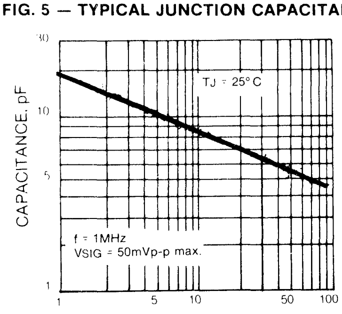
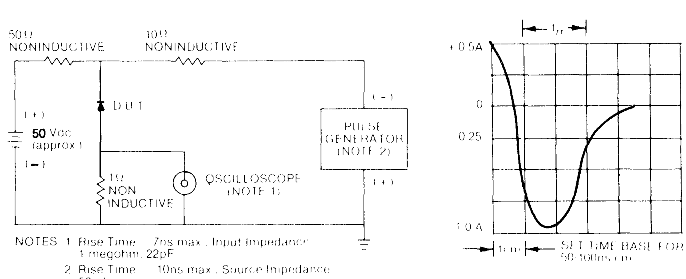


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



GENERAL INSTRUMENT

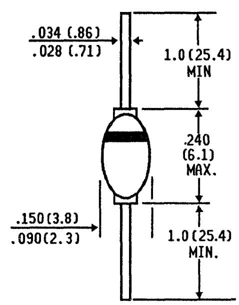
BYV95 AND BYV96 SERIES

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 200 to 1000 Volts* ***Current**- 1.5 Amperes*

PATENTED*

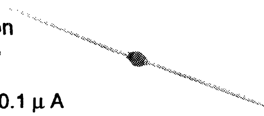
DO-204AP



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES



- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ Glass passivated cavity-free junction in a D0-204AP package
- ◆ 1.5 Ampere operation at T_A = 55°C with no thermal runaway
- ◆ Typical I_R less than 0.1 μ A
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Fast switching for high efficiency up to 100 KHz
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	BYV95A	BYV95B	BYV95C	BYV96D	BYV96E	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	1000	Volts
Minimum Avalanche Breakdown Voltage at 100 μ A	V_{BR}	300	500	800	900	1100	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	1.5					Amps
Peak Forward Surge Current '10ms single half sine-wave superimposed on rated load	I_{FSM}	35.0					Amps
Maximum Instantaneous Forward Voltage at 3.0A T_A = 25°C / T_J = 165°C	V_F	1.6 / 1.35					Volts
Maximum Full Load Reverse Current, Full Cycle Average, .375", (9.5mm) Lead Length at T_J = 25°C / T_J = 165°C	$I_{R(AV)}$	1.0 / 150					μA
Maximum DC Reverse Current, at rated DC Blocking Voltage	I_R	2.0					μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	250			300		ns
Typical Junction Capacitance (Note 2)	C_J	10.0					pf
Typical Thermal Resistance (Note 3)	RΘJA	50.0					°C/W
Operating Temperature Range	T_J	-65 to +175					°C
Storage Temperature Range	TSTG	-65 to +200					°C

NOTES: 1. Measured with I_F = 0.5A, I_R = 1.0A, Irr = .25A.
2. Measured at 1 MHz and applied reverse voltage of 4.0.V_{DC}.
3. Thermal Resistance from Junciton to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

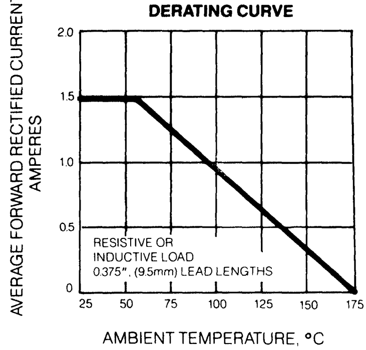


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

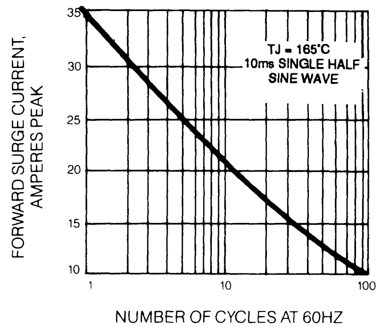


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

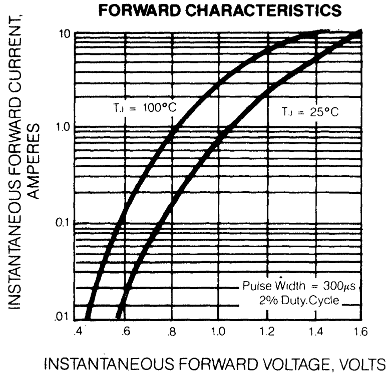


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

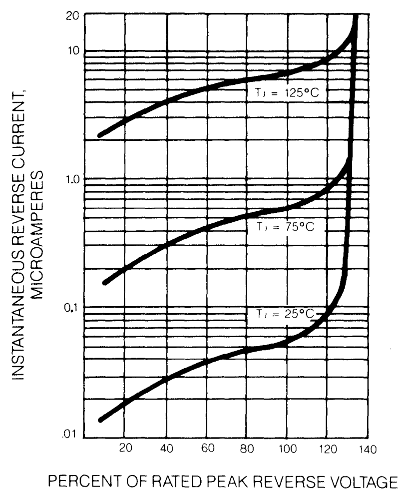


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

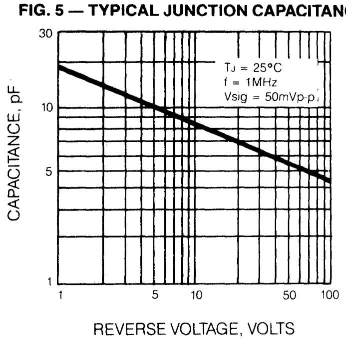
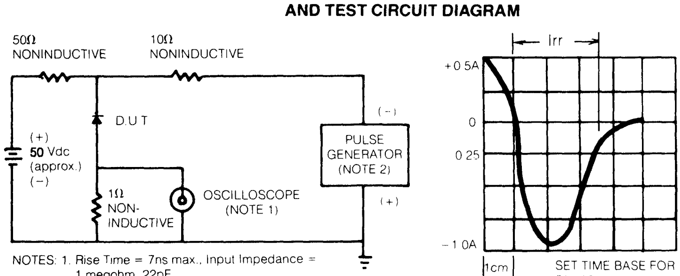


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

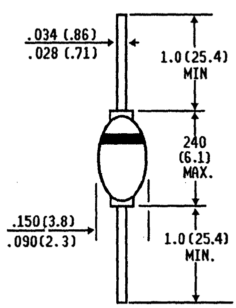
RG2A THRU RG2M

MINIATURE GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current**- 2.0 Amperes*

PATENTED*

DO-204AP

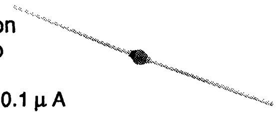


Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction in a D0-204AP package
- 1.0 Ampere operation at $T_A = 55^{\circ}C$ with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- Fast switching for high efficiency
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase,half wave, 60Hz, resistive or inductive load.

	SYMBOLS	RG2A	RG2B	RG2D	RG2G	RG2J	RG2K	RG2M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 55^{\circ}C$	$I_{(AV)}$	2.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0							Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F	1.3							Volts
Maximum Full Load Reverse Current Full Cycle Average, .375", (9.5mm) $T_A = 25^{\circ}C$ / $T_A = 100^{\circ}C$	$I_{R(AV)}$	1.0 / 100							µA
Maximum DC Reverse Current, at Rated DC Blocking Voltage	I_R	5.0							µA
Maximum Reverse Recovery Time (Note 1) $T_J = 25^{\circ}C$	T_{RR}	150				200	250	500	ns
Typical Junction Capacitance (Note 2)	C_J	15.0							pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	50.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Measured with $I_F = 0.5A$, $I_R = 1.0A$, $I_{rr} = 25A$.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

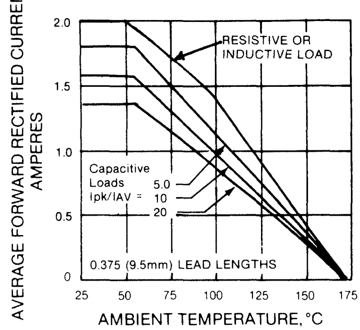


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

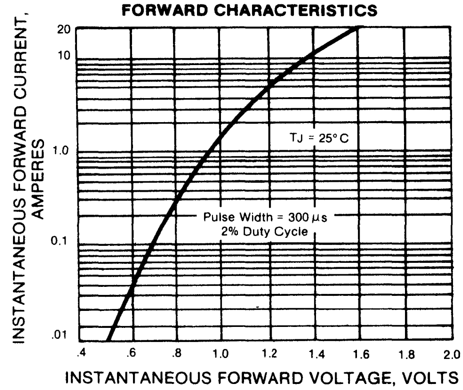


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

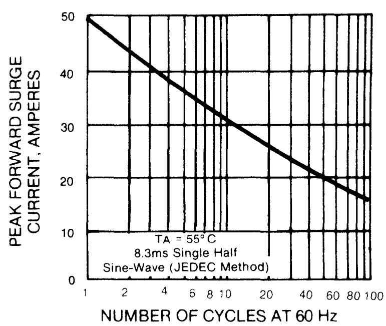


FIG. 4 — TYPICAL REVERSE CHARACTERISTIC

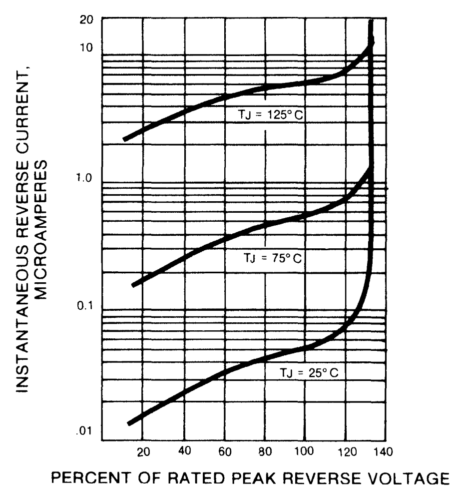


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

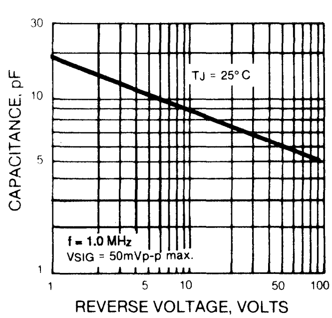
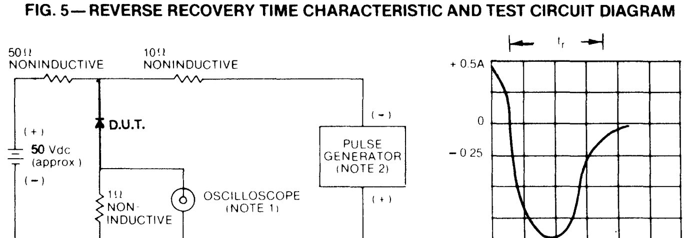


FIG. 5— REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



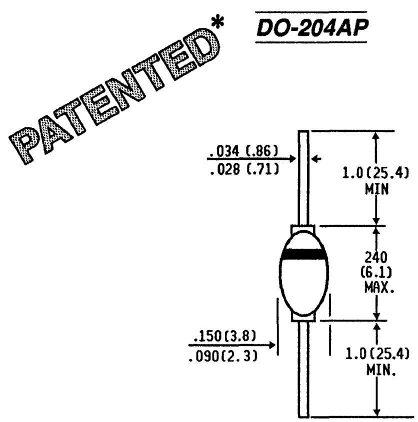
NOTES: 1 Rise Time ≤ 7ns max., Input Impedance 1 megohm, 22pF
2 Rise Time ≤ 10ns max., Source Impedance 50 ohms.

BYW32 THRU BYW36

MINIATURE GLASS PASSIVATED JUNCTION
FAST SWITCHING RECTIFIER

Voltage *- 200 to 600 Volts* ***Current-*** *2.0 Amperes*

* ***DO-204AP***

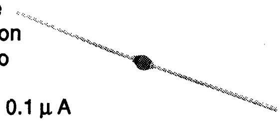


Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ Glass passivated cavity-free junction in a D0-204AP package
- ◆ 2.0 Ampere operation at T_A = 55°C with no thermal runaway
- ◆ Typical I_R less than 0.1 µ A
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Fast switching for high efficiency
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .02 ounce, .56 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*BYW32*	*BYW33*	*BYW34*	*BYW35*	*BYW36*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	2.0					Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load at T_A = 25°C	I_{FSM}	40.0					Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.2					Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage	I_R	5.0					µA
Maximum Full Load Reverse Current Full Cycle Average, .375", (9.5mm) Lead Length T_A = 25°C / T_A = 100 °C	$I_{R(AV)}$	5.0 / 50.0					µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	200					ns
Typical Junction Capacitance (Note 2)	C_J	15.0					pf
Typical Thermal Resistance (Note 3)	RΘJA	50.0					°C/W
Operating Temperature Range	TJ	-65 to +175					°C
Storage Temperature Range	T_{STG}	-65 to 200					°C

NOTES:
1. Measured with I_F = 0.5A, I_R = 1.0A, Irr = 25A.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, P.C. Board Mounted.

FIG. 1 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

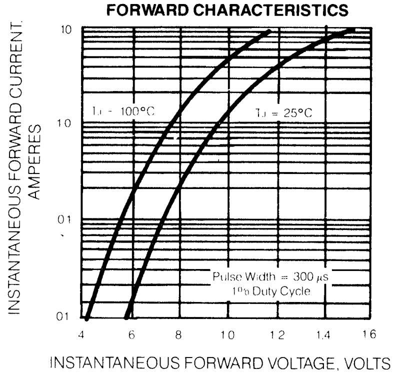


FIG. 2 — FORWARD CURRENT DERATING CURVE

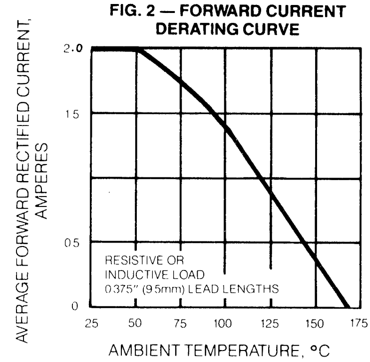


FIG. 3 — TYPICAL JUNCTION CAPACITANCE

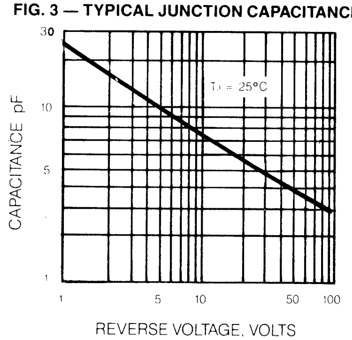


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

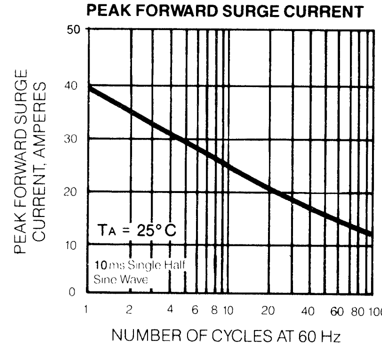


FIG. 5 — TYPICAL RECTIFICATION EFFICIENCY

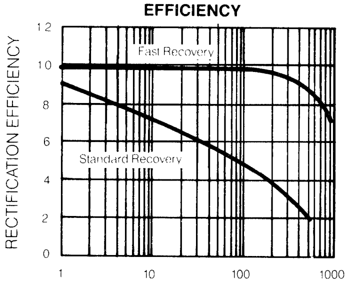
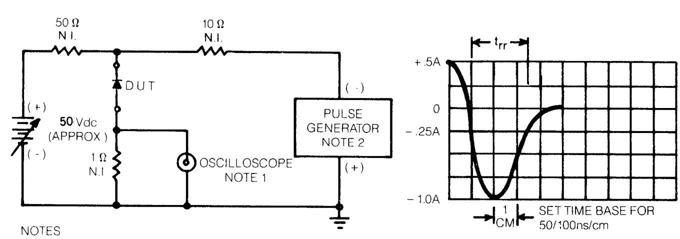


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES
1. RISE TIME = 7nSEC MAX., INPUT IMPEDANCE = 1 MEGOHM, 22pF
2. RISE TIME = 10nSEC MAX., SOURCE IMPEDANCE = 50 OHM.

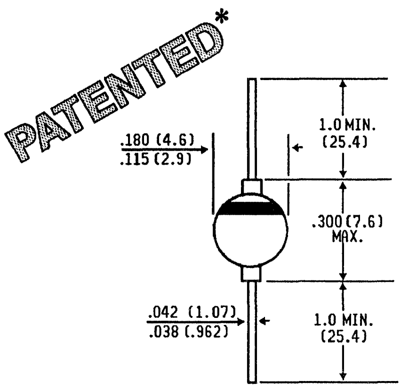
GENERAL INSTRUMENT

1N5415 THRU 1N5420

FAST SWITCHING GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 50 to 600 Volts* ***Current** - 3.0 Amperes*

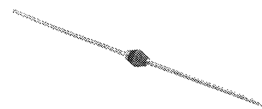
FEATURES



Dimensions in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- ◆ Glass passivated cavity-free junction
- ◆ High temperaturae metallurgically bonded
- ◆ Hermetically sealed package
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Fast switching for high efficiency
- ◆ High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .037 ounce, 1.04 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*1N5415*	*1N5416*	*1N5417*	*1N5418*	*1N5419*	*1N5420*	*UNITS*
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	350	420	Volts
*Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	500	600	Volts
*Minimum Reverse Breakdown Voltage at 50 μ A	V_{BR}	55	110	220	440	550	660	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	3.0						Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 100°C	I_{FSM}	80.0						Amps
Maximum Instantaneous Forward Voltage at 3.0A* / at 9.0A	V_F	1.10 / 1.50						Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage *T_A = 25°C / T_A = 100°C / * T_A = 175°C	I_R	1.0 / 20.0 / 2.0						μA / μA / mA
*Maximum Junction Capacitance (Note 2)	C_J	200	175	150	120	110	100	pf
*Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	150				250	400	ns
Typical Thermal Resistance (Note 4)	RθJA	17.0						°C/W
*Operating and Storage Temperature Range	T_J,T_{STG}	-65 to 175						°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 25A.
2. Measured at 1 MHz and applied reverse voltage of 12.0 volts.
3. Available to JAN and JAN TX Military Specifications MIL-S-19500/411D.
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, with both leads to heat sink.

*JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

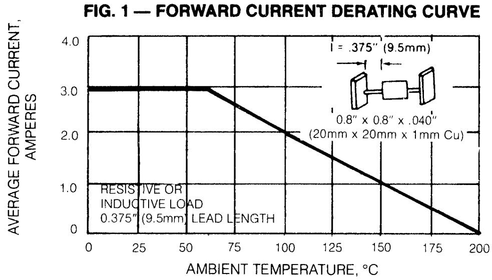


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

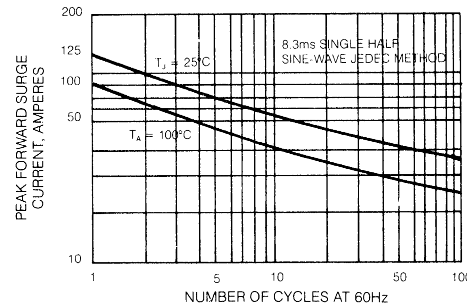


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

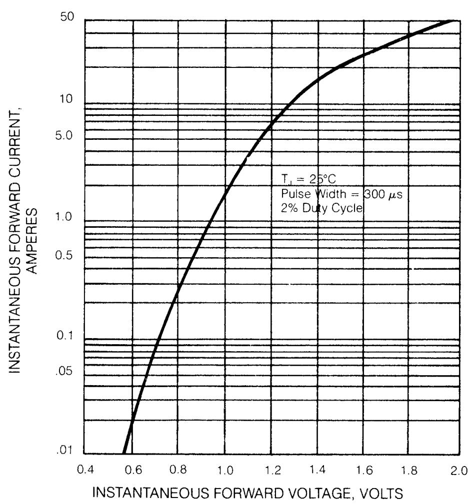


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

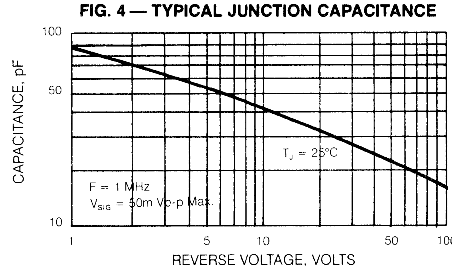


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

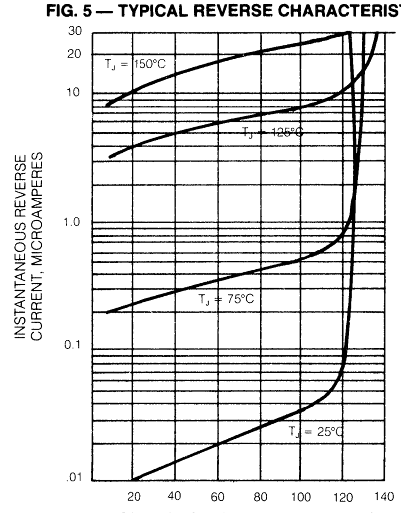
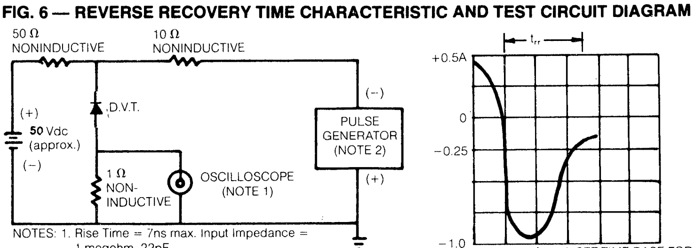


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



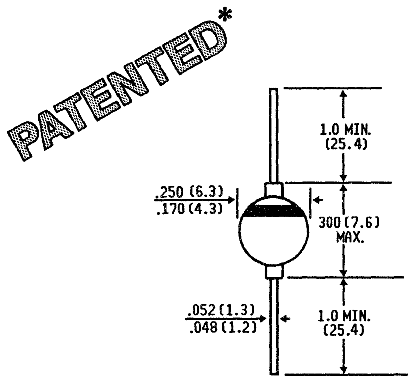
NOTES: 1. Rise Time = 7ns max. Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max. Source Impedance = 50 ohms

GENERAL INSTRUMENT

RG3A THRU RG3M

FAST SWITCHING GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 3.0 Amperes*

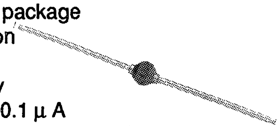


Dimension in inches and (millimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

FEATURES

- ◆ High temperature metallurgically bonded constructed rectifiers
- ◆ Glass passivated cavity-free junction
- ◆ Hermetically sealed package
- ◆ 3.0 Ampere operation at T_A = 55°C with no thermal runaway



- ◆ Typical I_R less than 0.1 μ A
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Fast switching for high efficiency
- ◆ High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .04 ounce, 1.1 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	RG3A	RG3B	RG3D	RG3G	RG3J	RG3K	RG3M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	220	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 55°C	$I_{(AV)}$	3.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100							Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.3							Volts
Maximum Average Reverse Current T_A = 25°C at Rated Peak Reverse Voltage T_A = 100°C	$I_{R(AV)}$	2.0 100							μA
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C	I_R	5.0							μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	150				250	400	500	ns
Typical Junction Capacitance (Note 2)	C_J	40.0							pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	22.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, with both leads attached to heat sink.

FIG. 1 — FORWARD RETIFIED CURRENT DERATING CURVE

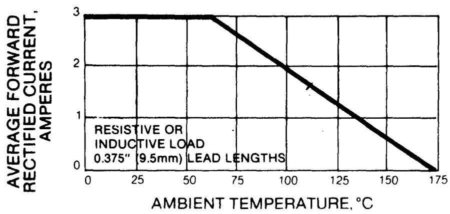


FIG. 2— MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

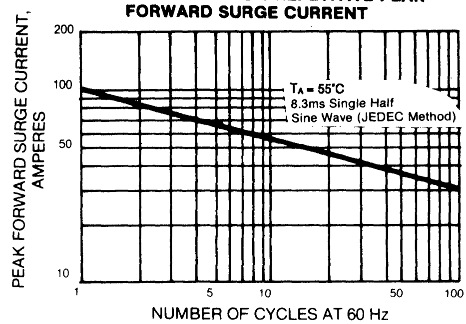


FIG. 3—TYPICAL JUNCTION CAPACITANCE

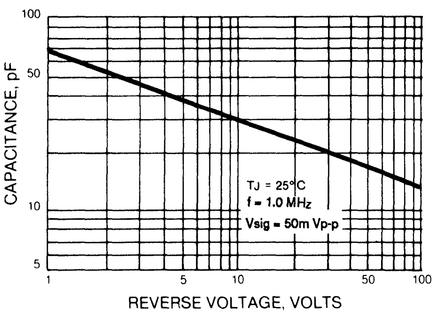


FIG. 4—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

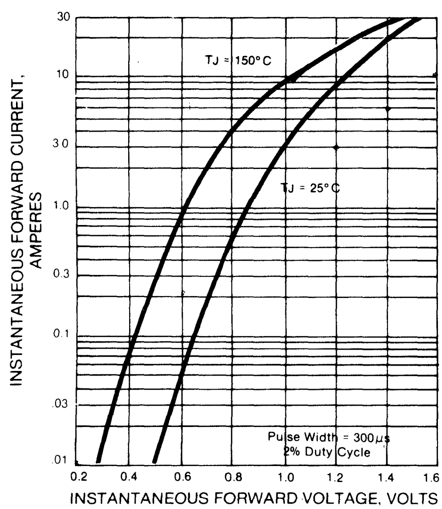


FIG. 5 — TYPICAL REVERSE CHARACTERTISTICS

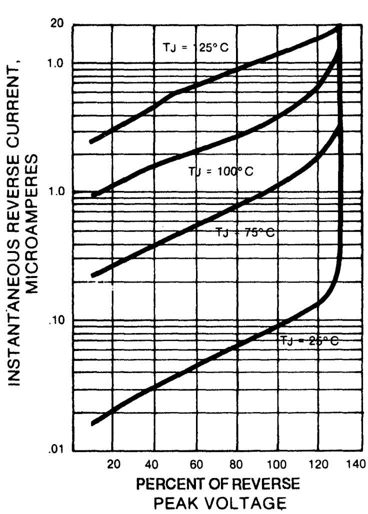
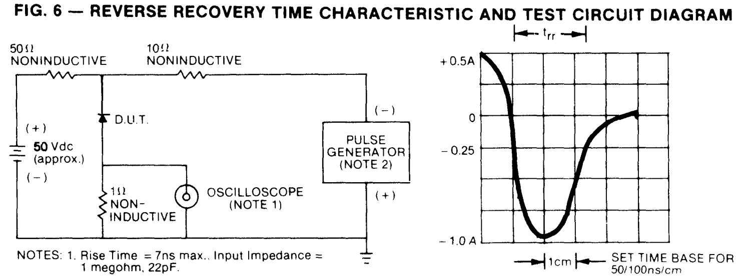


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max.. Input Impedance = 1 megohm, 22pF.

2. Rise Time = 10ns max., Source Impedance = 50 ohms.

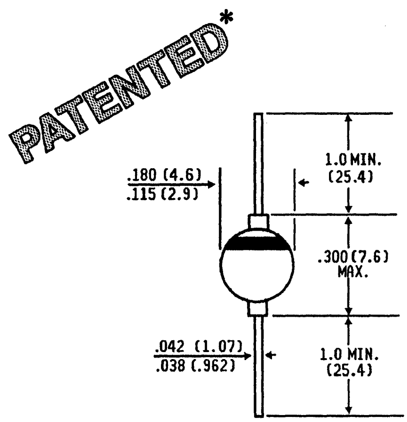
GENERAL INSTRUMENT

RG4A THRU RG4M

FAST SWITCHING GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current**- 3.0 Amperes*

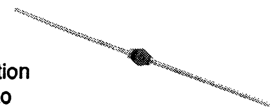
FEATURES



Dimensions in inches
and
(milimeters)

** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction
- Capable of meeting environmental standards of MIL-S-19500
- Fast switching for fast efficiency
- 3.0 Ampere operation at $T_A = 50°C$ with no thermal runaway
- Typical I_R less than 0.1 μ A
- Hermetically sealed package
- High temperature soldering guaranteed: 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .037 ounce, 1.04 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*RG4A*	*RG4B*	*RG4D*	*RG4G*	*RG4J*	*RG4K*	*RG4M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at $T_A = 50°C$	$I_{(AV)}$	3.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100							Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.3							Volts
Maximum Reverse Current at Rated DC Blocking Voltage, $T_A = 25°C$	I_R	5.0							μA
Maximum Average Reverse Current at Peak Reverse Voltage $T_A = 25°C$ / $T_A = 100°C$	$I_{R(AV)}$	2.0 / 100							μA
Typical Junction Capacitance (Note 2)	C_J	50.0							pf
Maximum Reverse Recovery Time (Note 1) $T_J = 25°C$	T_{RR}	150				250	500	500	nS
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	17.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Reverse Recovery Test Conditions : $I_F = 0.5A$, $I_R = 1.0A$, $I_{rr} = 25A$.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, with both leads to heat sink.

Fig. 1—FORWARD CURRENT DERATING CURVE

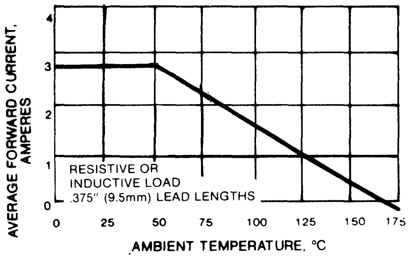


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

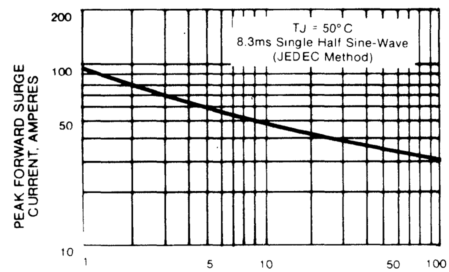


Fig. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

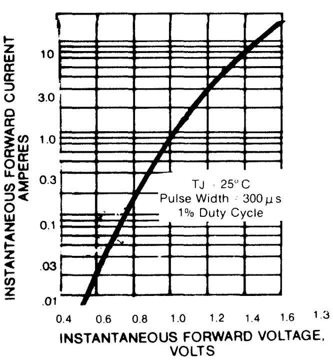


Fig. 4—TYPICAL JUNCTION CAPACITANCE

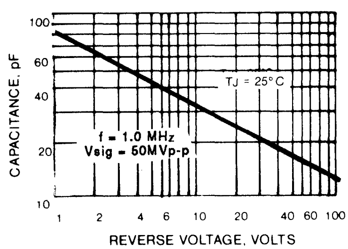


Fig. 5—TYPICAL REVERSE CHARACTERISTICS

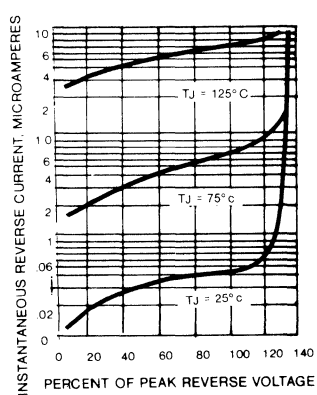
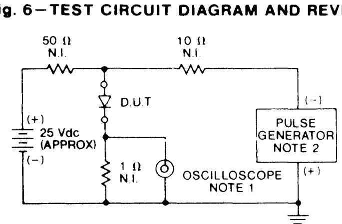
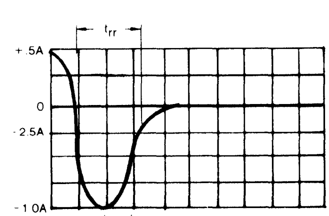


Fig. 6—TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS





NOTES:
1. RISE TIME = 7ns MAX, INPUT IMPEDANCE = 1 MEGOHM, 22pF
2. RISE TIME = 10ns MAX, SOURCE IMPEDANCE = 50 OHM

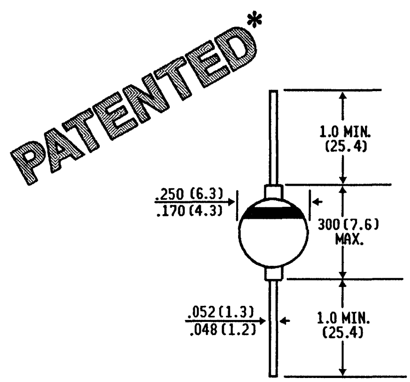
GENERAL INSTRUMENT

BYW72 THRU BYW76

FAST SWITCHING GLASS PASSIVATED SILICON RECTIFIER

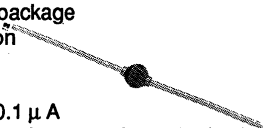
***Voltage** - 200 to 600 Volts* ***Current**- 3.0 Amperes*

FEATURES



Dimension in inches and (millimeters)

- High temperature metallurgically bonded constructed rectifiers
- Glass passivated cavity-free junction
- Hermetically sealed package
- 3.0 Ampere operation at T_A = 45°C with no thermal runaway
- Typical I_R less than 0.1 μ A
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 350°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



** Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No.3,752,701 of 1973*

MECHANICAL DATA

Case: One piece glass, hermetically sealed
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .04 ounce, 1.1gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	BYW72	BYW73	BYW74	BYW75	BYW76	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	300	400	500	600	Volts
Maximum RMS Voltage	V_{RMS}	140	210	280	350	420	Volts
Maximum DC Blocking Voltage	V_{DC}	200	300	400	500	600	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) Lead Lengths at T_A = 45°C	$I_{(AV)}$	3.0					Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load	I_{FSM}	60.0					Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.1					Volts
Maximum Average Reverse Current at Rated Peak Reverse Voltage T_A = 100°C	$I_{R(AV)}$	50.0					μA
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A= 25°C	I_R	5.0					μA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	200					nS
Typical Junction Capacitance (Note 2)	C_J	40.0					pf
Typical Thermal Resistance (Note 3)	RθJC	22.0					°C/W
Operating Temperature Range	T_J	-65 to +175					°C
Storage Temperature Range	T_{STG}	-65 to +300					°C

NOTES:
1. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = 25A.
2. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) Lead Lengths, with both leads attached to heat sink.

FIG. 1 — FORWARD RECTIFIED CURRENT DERATING CURVE

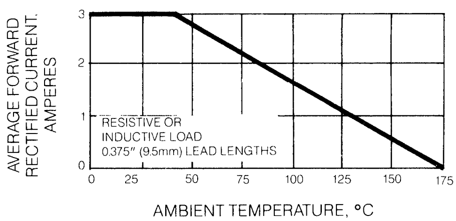


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

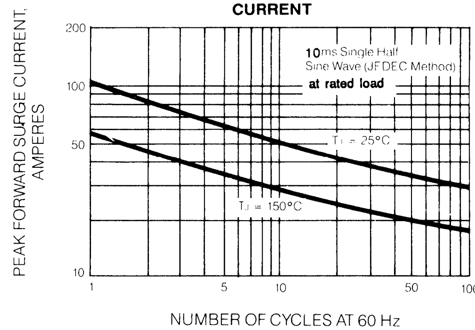


FIG. 3 — TYPICAL JUNCTION CAPACITANCE

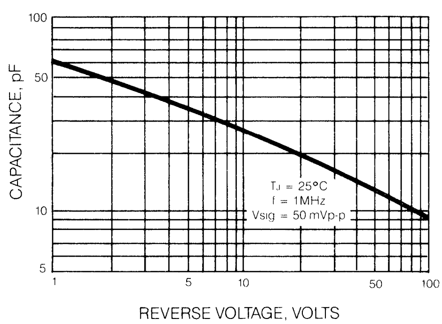


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

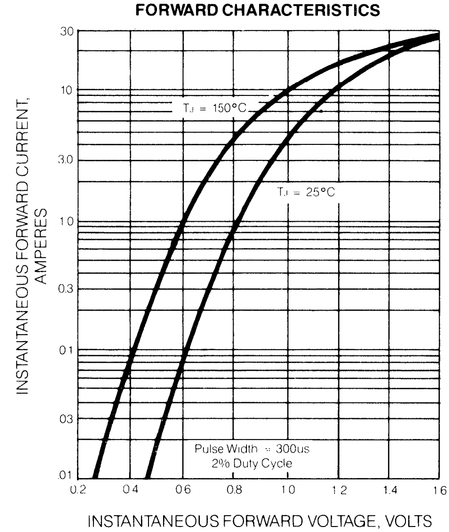


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

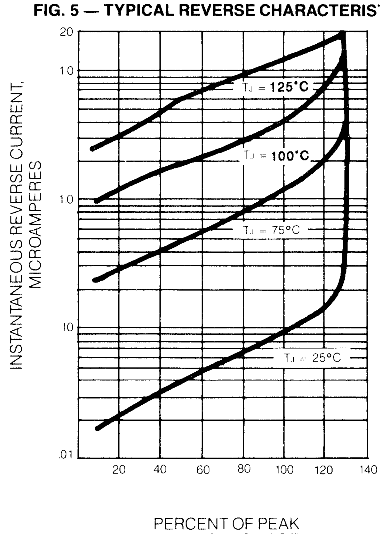
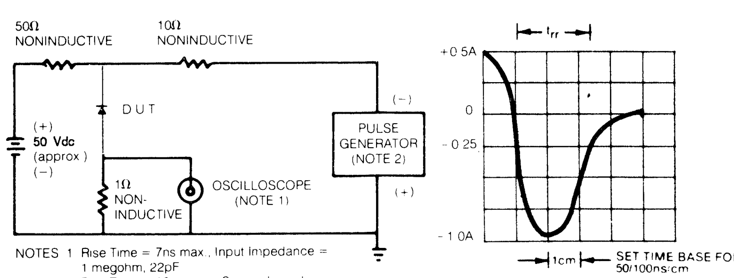


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms

PLASTIC RECTIFIERS

1.0 AMPERE TO 25.0 AMPERES
50 to 1000 Volts

GENERAL INSTRUMENT

PLASTIC RECTIFIER
1.0 to 25 Amperes 50 Volts to 1000 Volts

Principle of Construction

General Instrument has produced successfully for many years Plastic Rectifiers. The key factor of our Plastic Rectifiers is the use of the cell concept.

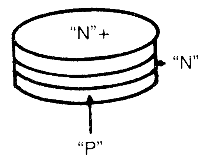
The small size allows many cells to be processed simultaneously in batch form.

This method ensures accurate pretesting of the cells before final assembly, and allows General Instrument to produce high volume of Rectifiers economically.

The cell construction consists of the following steps:

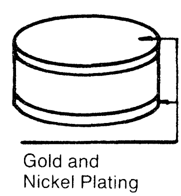
1 – Diffusing a PN junction into a slice of silicon.

Diffused Slice



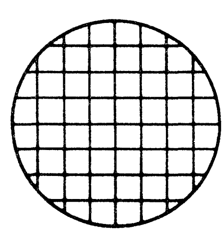
2 – Metallizing the slice of silicon.

Metallized Slice

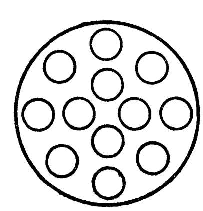


3 - Scribing and breaking the slice into individual dies,
for the 1.0 Ampere devices we use a sandblast technology
for the 3.0 thru 25.0 Ampere devices we use a saw technology.

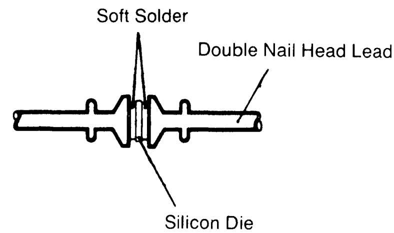
Scribed Wafer



Sandblasted Round Dice



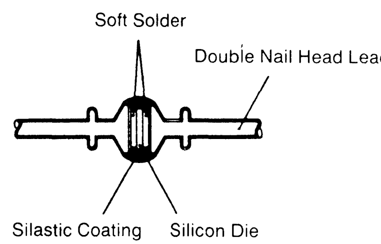
4—Soldering the die between two Double Nail Head Leads.



Soldering die between Double Nail Head Lead

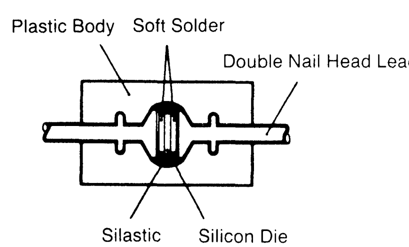
5—Cleaning the assembly by chemical etching, washing and drying.

6—Passivating the finished rectifier with silastic.



7—Overmolding by General Instrument proprietary 4B flame retardant molding compound.

8—Lead tinning, electrical testing marking and packing.



Double Nail Head Plastic Rectifier

FAMILIES OF GENERAL INSTRUMENT PLASTIC RECTIFIERS

Miniature Plastic Silicon Rectifiers 1.0 to 1.5 AMPERES

Types: *1N4001 thru 1N4007*
M100A thru M100M
1N5391 thru 1N5399

Features:

- Low Cost
- Diffused Junction
- Low Leakage
- High Current Capability
- Easily Cleaned with Freon, Alcohol, Chlorothene and similar Solvents
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208
- Case: Jedec DO 41
- High Temperature Soldering Guaranteed 265°C/10 Seconds/.375", 10mm Lead Length at 2.25 kg Tension

Plastic Power Rectifiers 3.0 to 6.0 AMPERES

Types: *1N5400 thru 1N5408*
P300A thru P300M
G1500 thru G1510
G1750 thru G1758
P600A thru P600M

Features:

- High Surge Current Capability
- Void-Free Plastic Packages
- High Current Operation
- Typical Ir less than .1μA
- High Temperature Soldering Guaranteed 265°C/10 Seconds/.375", 10mm Lead Length at 2.25 kg Tension
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208

High Current Silicon Rectifiers 8.0 to 25.0 AMPERES

Types: *NS8AT thru NS8MT*
NP16AT thru NP16MT
AR25A thru AR25M
ARS25A thru ARS25M

Features:

- High Surge Capability
- High Current Capability
- Low Forward Voltage
- Low Leakage

Fast Recovery Plastic Silicon Rectifiers 1.0 to 8.0 AMPERES

Types: *BY396B thru BY399B*	*1N4933 thru 1N4937*
BY500-100 thru BY500-800	*RS8AT thru RS8MT*
G1820 thru G1826	*SRP100A thru SRP100K*
G1850 thru G1856	*SRP300A thru SRP300K*
G1910 thru G1917	*SRP600A thru SRP600K*

Features:

- High Surge Current Capability
- Void-Free Plastic Packages
- High Current Operation
- Typical Ir less than .1μA
- High Temperature Soldering Guaranteed 265°C/10 Seconds/.375", 10mm Lead Length at 2.25 kg Tension
- Controlled Soft Recovery Guarantees low RFI and high Efficiency Switching Characteristics of
- SRP100A thru SRP100K, SRP300A thru SRP300K, BY296P thru BY299P, BY500-100 thru BY500-800 and SRP600A thru SRP600K
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208

QUICK GUIDE TO PLASTIC RECTIFIERS

TYPE	1N4001 thru 1N4007	M100A thru M100M	1N4933* thru 1N4937*	SRP100A* thru SRP100K*	BYX55-350P* and BYX55-600P*	1N5391 thru 1N5399	BY296P* thru BY299P*	1N5400 thru 1N5408	P300A thru P300M	GI500 thru GI510	GI910* thru GI917*	GI850* thru GI856*	SRP300A* thru SRP300K	BY396P* thru BY399P*
CASE	DO41	DO41	DO41	DO41	DO201AD	DO41	DO201AD	DO201AD	DO201AD	DO201AD	DO201AD	DO201AD	DO201AD	DO201AD
I_o (A)	1.0	1.0	1.0	1.0	1.2	1.5	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
@T_A (°C)	75	100	75	55	55	75 at T_L	55	105	105	95	90	90	55	50
V_R = 50 (V)	1N4001	M100A	1N4933	SRP100A		1N5391		1N5400	P300A	GI500	GI910	GI850	SRP300A	
V_R = 100 (V)	1N4002	M100B	1N4934	SRP100B		1N5392	BY296P	1N5401	P300B	GI501	GI911	GI851	SRP300B	BY396P
V_R = 200 (V)	1N4003	M100D	1N4935	SRP100D		1N5393	BY297P	1N5402	P300D	GI502	GI912	GI852	SRP300D	BY397P
V_R = 300 (V)						1N5394		1N5403						
V_R = 400 (V)	1N4004	M100G	1N4936	SRP100G	BYX55-350P	1N5395	BY298P	1N5404	P300G	GI504	GI914	GI854	SRP300G	BY398P
V_R = 500 (V)						1N5396		1N5405						
V_R = 600 (V)	1N4005	M100J	1N4937	SRP100J		1N5397		1N5406	P300J	GI506	GI916	GI856	SRP300J	
V_R = 800 (V)	1N4006	M100K		SRP100K	BYX55-600P	1N5398	BY299P	1N5407	P300K	GI508	GI917		SRP300K	BY399P
V_R = 1000 (V)	1N4007	M100M				1N5399		1N5408	P300M	GI510				
V_R > = 1000 (V)														
SURGE (A)	30	50	30	30	40	50	70	200	200	100	100	100	150	100
V_F (V)	1.1	1.0 1 1	1.2	1.3	1.25	1.4	1.3	1.2	1.1	1.1	1.25	1.25	1.3	1.25

*Fast Recovery

QUICK GUIDE TO PLASTIC RECTIFIERS

TYPE	BY500-100* thru BY500-800*	GI750 thru GI758	P600A thru P600M	GI820* thru GI826*	SRP600A* thru SRP600K*	NS8AT thru NS8MT	RS8AT* thru RS8KT*	NP16AT thru NP16KT	AR25A thru AR25M
CASE	DO201AD	P600	P600	P600	P600	TO220	TO220	TO220CT	AR25
I_o (A)	5.0	6.0	6.0	5.0	6.0	8.0	8.0	16	25.0
@T_A (°C)	45	60	60	55	55	100T_C	100T_C	100T_C	150T_C
V_R = 50 (V)		GI750	P600A	GI820	SRP600A	NS8AT	RS8AT	NP16AT	AR25A
V_R = 100 (V)	BY500-100	GI751	P600B	GI821	SRP600B	NS8BT	RS8BT	NP16BT	AR25B
V_R = 200 (V)	BY500-200	GI752	P600D	GI822	SRP600D	NS8DT	RS8DT	NP16DT	AR25D
V_R = 400 (V)	BY500-400	GI754	P600G	GI824	SRP600G	NS8GT	RS8GT	NP16GT	AR25G
V_R = 600 (V)	BY500-600	GI756	P600J	GI826	SRP600J	NS8JT	RS8JT	NP16JT	AR25J
V_R = 800 (V)	BY500-800	GI758	P600K		SRP600K	NS8KT	RS8KT	NP16KT	AR25K
V_R = 1000 (V)			P600M			NS8MT	RS8MT	NP16MT	AR25M
V_R > = 1000 (V)									
SURGE (A)	200	400	400	300	300	175	150	300	400
V_F (V)	1.35	.9/.95	.9/1.0	1.0	1.3	1.1	1.3	1.1	1.0

*Fast Recovery

GENERAL INSTRUMENT

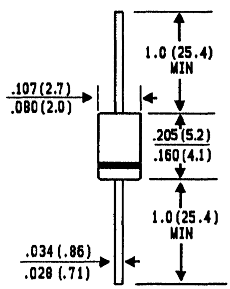
1N4001 THRU 1N4007

MINIATURE PLASTIC SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.0 Ampere*

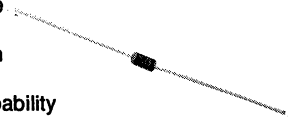
FEATURES

DO-41



Dimension in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Low cost construction utilizing void-free molded plastic technique
- Low cost
- Diffused junction
- Low leakage
- High current capability
- Easily cleaned with Freon, Alcohol, Chlorothene and similar solvents
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-41, molded plastic case
Terminals: Plated axial leads, solderable per MIL-S-202, Method 208
Polarity: Color band denotes cathode end
Weight: 0.012 ounce, 0.3 gram
Mounting Position: Any
Handling precautions: None

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N 4001	1N 4002	1N 4003	1N 4004	1N 4005	1N 4006	1N 4007	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
*Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 75°C	$I_{(AV)}$	1.0							Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.1							Volts
*Maximum Full Load Reverse Current Full Cycle Average .375", (9.5mm) lead lengths at T_L = 75°C	$I_{R(AV)}$	30.0							µA
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 50.0							µA
Typical Reverse Recovery Time (Note 1) T_A = 25°C	T_{RR}	30.0							µs
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J	15.0							pf
Typical Thermal Resistance (Note 3)	$R\theta JA$	26.0							°C/W
*Operating and Storage Temperature Range,	T_J, T_{STG}	-50 to +175							°C

NOTES:
1. Measured on Tektronix Type "S" recovery plug-in. Tedtronix 545 Scope or equivalent, IFM = 20mA, IRM =1mA
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resestance from Junction to Ambiient at. 375" (9.5mm) lead lengths, P.C. Board mounted.

*JEDEC Registered Value

FIG. 1 — FORWARD CURRENT DERATING CURVE

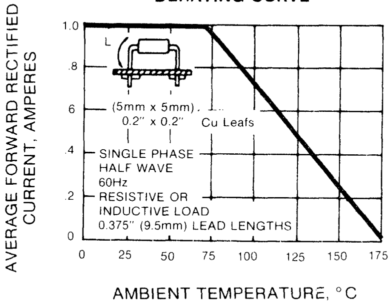


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

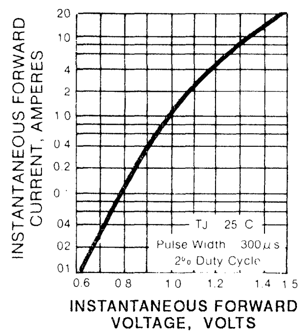


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

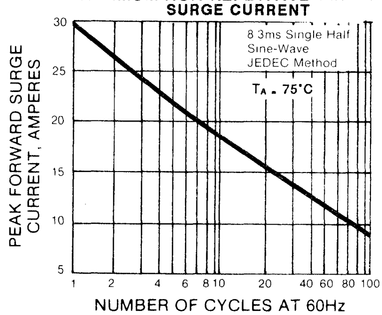


FIG. 4 — PEAK FORWARD SURGE CURRENT

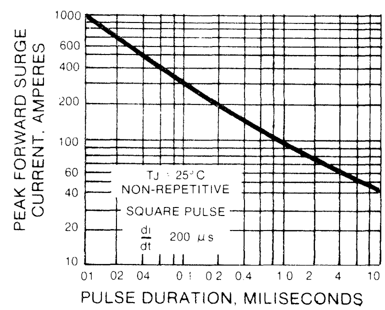


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

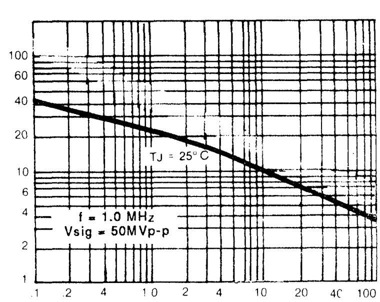
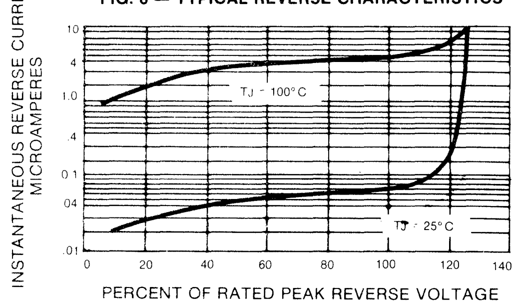


FIG. 6 — TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

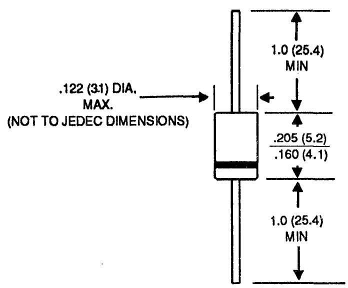
1N4001P THRU 1N4007P

MINIATURE PLASTIC SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.0 Ampere*

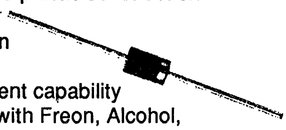
FEATURES

DO-41 MODIFIED



Dimension in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free molded plastic construction
- Low cost
- Diffused junction
- Low leakage
- High surge current capability
- Easily cleaned with Freon, Alcohol, Chlorothene and similar solvents
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: DO-41 modified case
Terminals: Plated axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode end
Weight: 0.012 ounce, 0.3 gram
Mounting Position: Any
Handling Precautions: None

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N 4001P	1N 4002P	1N 4003P	1N 4004P	1N 4005P	1N 4006P	1N 4007P	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
*Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 75°C	$I_{(AV)}$	1.0							Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.1							Volts
*Maximum Full Load Reverse Current Full Cycle Average .375", (9.5mm) lead lengths at T_L = 75°C	I_R	30.0							µA
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 50.0							µA
Typical Reverse Recovery Time (Note 1) T_A = 25°C	T_{RR}	30.0							µs
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J	30.0							pf
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	50.0							°C/W
*Operating and Storage Temperature Range,	T_J, T_{STG}	-50 to +175							°C

NOTES:
1. Measured on Tektronix Type "S" recovery plug-in. Tektronix 545 Scope or equivalent, IFM = 20mA, IRM =1mA
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resestance from Junction to Ambient at. 375" (9.5mm) lead lengths, P.C. Board mounted.
*JEDEC Registered Value

FIG. 1 — FORWARD CURRENT DERATING CURVE

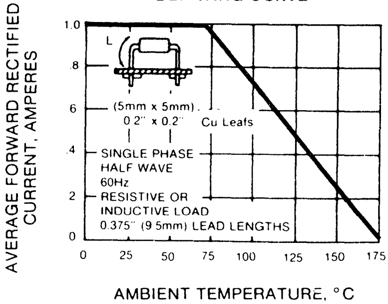


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

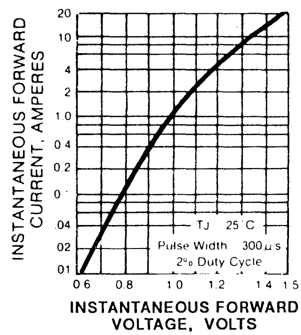


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

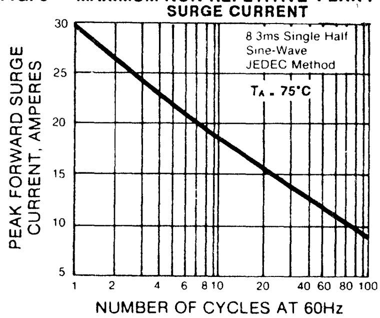


FIG. 4 — PEAK FORWARD SURGE CURRENT

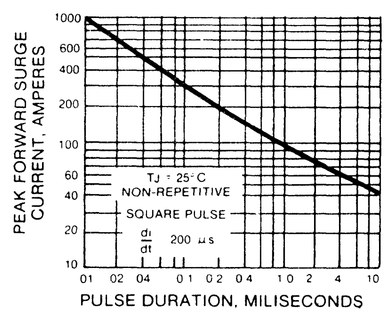


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

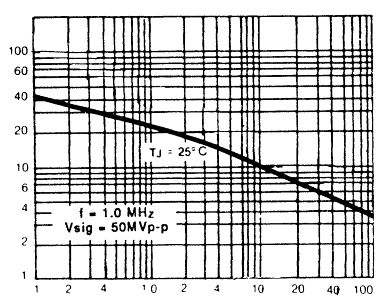
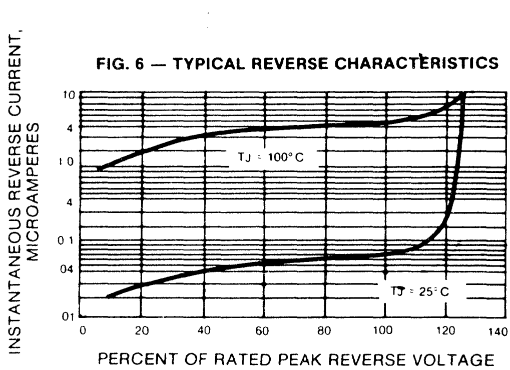


FIG. 6 — TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

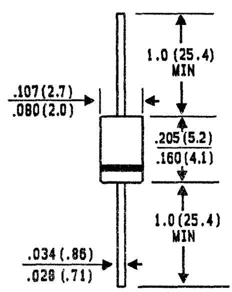
M100A THRU M100M

MINIATURE PLASTIC SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.0 Ampere*

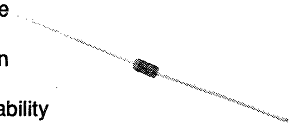
FEATURES

DO-41



Dimensions in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Low cost construction utilizing void-free molded plastic technique
- Low cost
- Diffused junction
- Low leakage
- High surge capability
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-41, molded plastic case
Terminals: Plated axial leads, solderable per MIL-ST-202, Method 208
Polarity: Color band denotes cathode end
Weight: 0.012 ounce, 0.3 gram
Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*M100 A*	*M100 B*	*M100 D*	*M100 G*	*M100 J*	*M100 K*	*M100 M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 100°C	$I_{(AV)}$	1.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.0					1.1		Volts
Maximum Full Load Reverse Current Full Cycle Average .375", (9.5mm) lead lengths at T_A = 55°C	$I_{R(AV)}$	100							μA
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	1.0 50.0							μA
Typical Reverse Recovery Time (Note 2)	T_{RR}	2.0							μs
Typical Junction Capacitance (Note 1) T_J = 25°C	C_J	30.0							pf
Typical Thermal Resistance (Note 3)	RθJA	26.0							°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-50 to +150							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 VDC.
2. Measured with IF = 0 .5A, IR = 1.0 A, Irr = .25A
3. Thermal Resestance from Junction to Ambiient at . 375" (9.5mm) lead lengths, P.C. Board mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

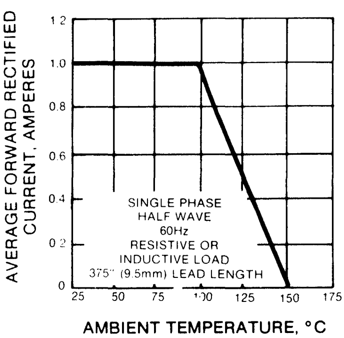


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

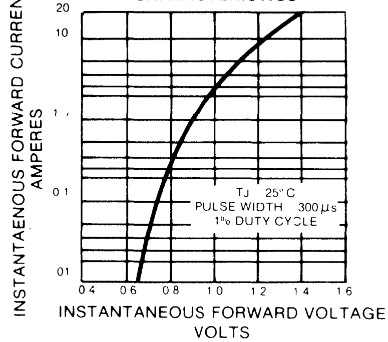


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

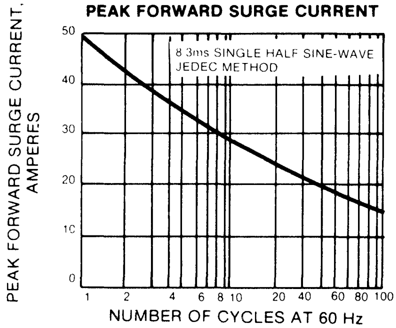


Fig. 4—TYPICAL JUNCTION CAPACITANCE

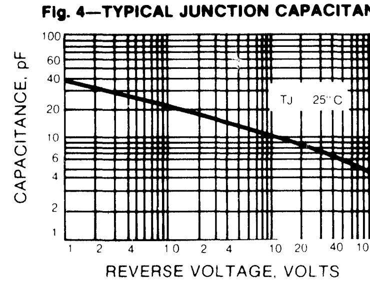
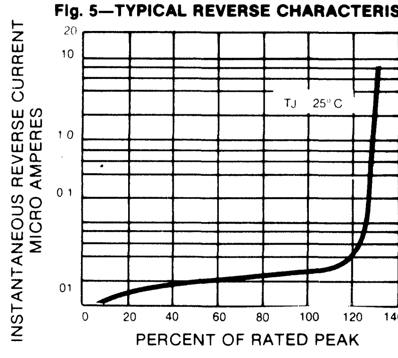


Fig. 5—TYPICAL REVERSE CHARACTERISTICS



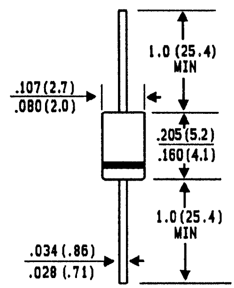
1N5391 THRU 1N5399

MINIATURE PLASTIC SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.5 Amperes*

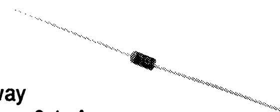
FEATURES

DO-41



Dimensions in inchtes and (millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- 1.5 Ampere operation at T_L = 70 °C with no thermal runaway



- Typical I_R less than 0.1μA
- Low cost construction utilizing void-free molded plastic technique
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: JEDEC DO-41, molded plastic case
Terminals: Plated axial leads, solderable per MIL-S-202, Method 208
Polarity: Color band denotes cathode end
Weight:: 0.012 ounce, 0.3 gram
Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	1N 5391	1N 5392	1N 5393	1N 5394	1N 5395	1N 5396	1N 5397	1N 5398	1N 5399	UNITS
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	300	400	500	600	800	1000	Volts
*Maximum RMS Voltage	V_{RMS}	35	70	140	210	280	350	420	560	700	Volts
*Maximum DC Blocking Voltage	V_{DC}	50	100	200	300	400	500	600	800	1000	Volts
*Maximum Average Forward Rectified Current .500, (12.7mm) lead lengths at T_L = 70°C	$I_{(AV)}$					1.5					Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}					50.0					Amps
*Maximum Instantaneous Forward Voltage at 1.5A, T_A = 70°C	V_F					1.4					Volts
* Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R					5.0 300					μA
*Maximum Full Load Reverse Current Full Cycle Average,.375",(9.5mm) Lead Length at T_L=70°C	$I_{R(AV)}$					300					μA
Typical Reverse Recovery Time (Note 2)	T_{RR}					2.0					μs
Typical Junction Capacitance (Note 1)	C_J					15.0					pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$					26.0					°C/W
*Maximum DC Blocking Voltage Temperature	T_A					+150					°C
*Operating Junction Temperature Range	T_J					-50 to +170					°C
*Storage Temperature Range	T_{STG}					-50 to +175					°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 VDC.
2. Measured with I_F = 0.5A, IR = 1.0A, Irr = .25a.
3. Thermal Resistance from Junction to Ambient at ,375" (9.5mm) lead lengths, P.C. Board mounted.

*JEDEC Registered Value.

FIG. 1 — FORWARD CURRENT DERATING CURVE

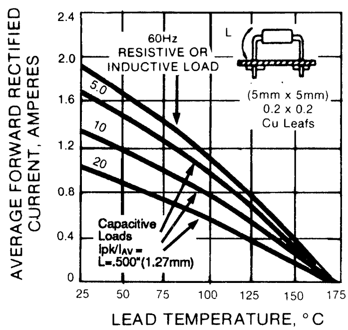


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS

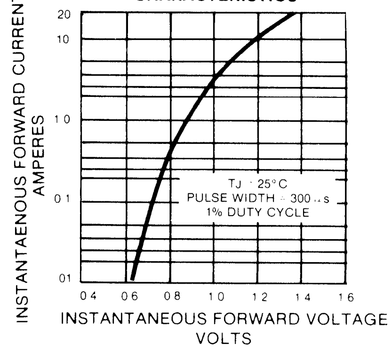


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

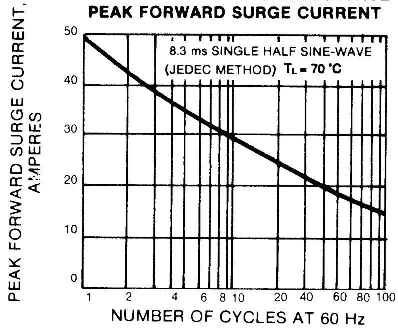


Fig. 4—TYPICAL JUNCTION CAPACITANCE

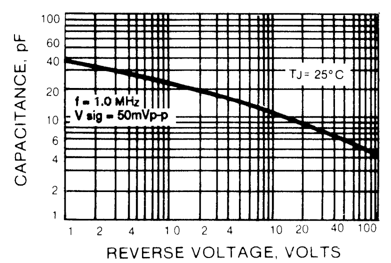
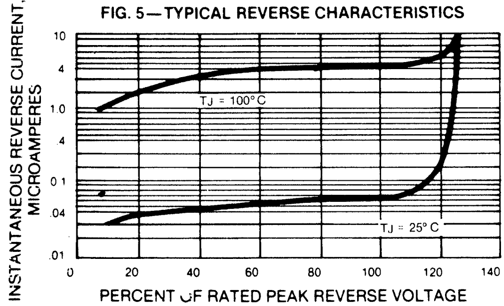


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

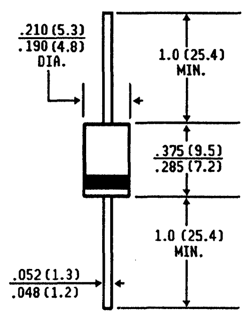


1N5400 THRU 1N5408

MEDIUM CURRENT SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 3.0 Amperes*

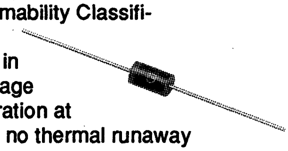
DO-201AD



Dimensions in inches
and
(millimeters)

FEATURES

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic in DO-201AD package
- 3.0 Ampere operation at T_L = 105 °C with no thermal runaway
- Typical I_R less than 0.1µA
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-201AD Molded plastic
Terminals: Plated Axial leads, solderable per MIL-S-202, Method 208
Polarity: Band denotes cathode
Weight: 0.04 ounce, 1.1 gram
Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*1N 5400*	*1N 5401*	*1N 5402*	*1N 5403*	*1N 5404*	*1N 5405*	*1N 5406*	*1N 5407*	*1N 5408*	*UNITS*
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	300	400	500	600	800	1000	Volts
*Maximum RMS Voltage	V_{RMS}	35	70	140	210	280	350	420	560	700	Volts
*Maximum DC Blocking Voltage to T_A = 150°C	V_{DC}	50	100	200	300	400	500	600	800	1000	Volts
*Maximum Average Forward Rectified Current .5", (12.5mm) lead lengths at T_L = 105°C	$I_{(AV)}$	3.0									Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	200									Amps
*Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.2									Volts
* Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 150°C	I_R	10.0 500									µA
*Maximum Full Load Reverse Current Full Cycle Average, .5", (12.5 mm) Lead Length at T_L = 105°C	$I_{R(AV)}$	500									µA
Typical Junction Capacitance (Note 1)T_J = 25°C	C_J	28.0									pf
*Typical Thermal Resistance (Note 2)	$R\theta JA$	15.0									°C/W
*Operating Jucntion Temperature Range	T_J	-50 to +170									°C
*Storage Temperature Range,	T_{STG}	-50 to +175									°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient at ,375" (9.5mm) lead lengths, P.C. Board mounted.
*JEDEC Registered Value.

FIG. 1 — FORWARD CURRENT DERATING CURVE

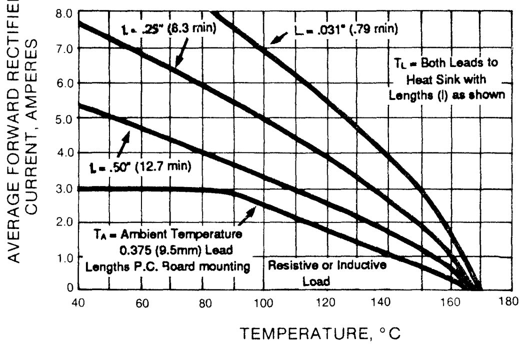


FIG. 2—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

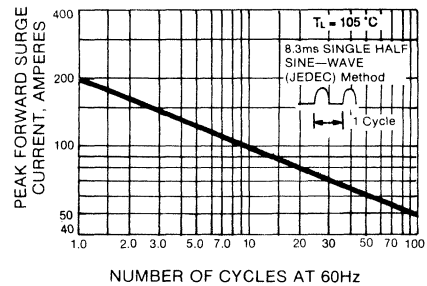


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

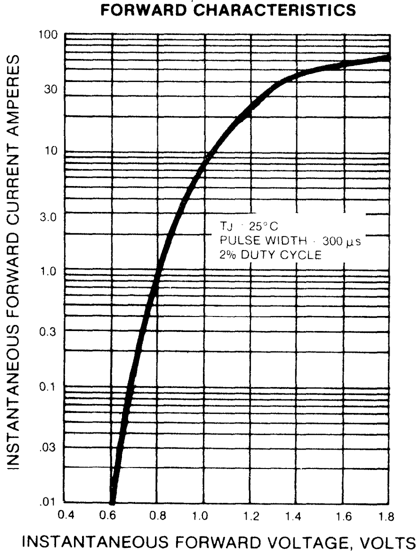


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

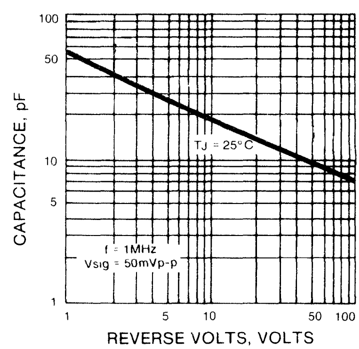
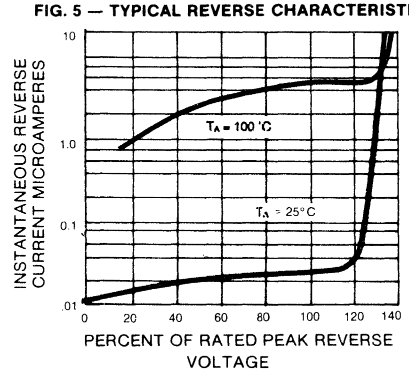


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

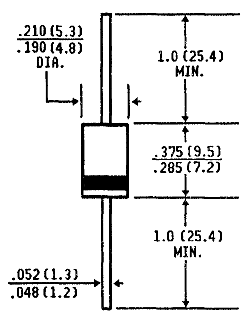


GENERAL INSTRUMENT

GI500 THRU GI510

MEDIUM CURRENT SILICON RECTIFIER
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 3.0 Amperes*

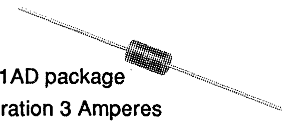
DO-201AD



Dimensions in inches
and
(millimeters)

FEATURES

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Typical I_R less than 0.1 μA
- Void-free DO-201AD package
- High current operation 3 Amperes at T_A = 95°C
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC D0-201AD Molded plastic

Terminals: Plated Axial leads, solderable per MIL-S-202, Method 208

Polarity: Band denotes cathode

Weight: 0.04 ounce, 1.1 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GI 500	GI 501	GI 502	GI 504	GI 506	GI 508	GI 510	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 95°C	$I_{(AV)}$	3.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100							Amps
Maximum Instantaneous Forward Voltage at 9.4A T_J = 25°C / T_J = 175°C	V_F	1.1 / 1.0							Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 100°C	I_R	5.0 / 50.0							μA
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J	28.0							pf
Typical Reverse Recovery Time (Note 3)	T_{RR}	2.5							μs
Typical Thermal Resistance (Note 1)	$R_{\Theta JA}$	15.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-50 to +175							°C

NOTES:
1. Thermal Resistance from Junction to applied at ambient .375" (9.5mm) lead lengths, P.C. Board mounted. .
2. Measured at 1MHz and applied reverse voltage of 4.0 volts.
3. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = 0.25A

FIG. 1 — FORWARD CURRENT DERATING CURVE

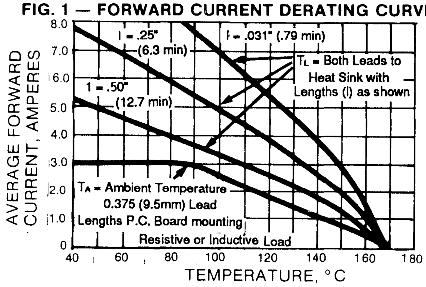


FIG. 2 — MAXIMUM PEAK FORWARD SURGE CURRENT

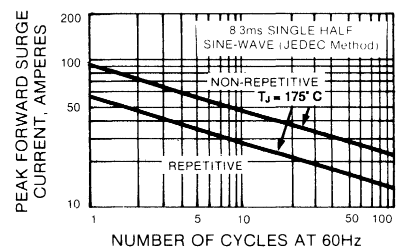


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

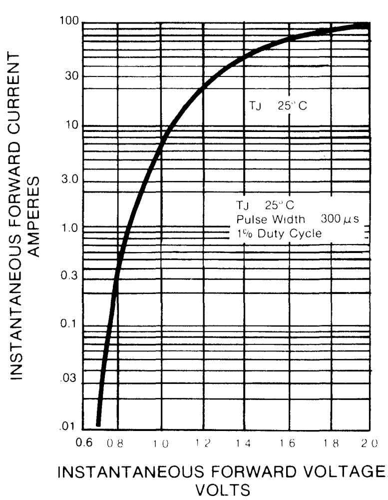


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

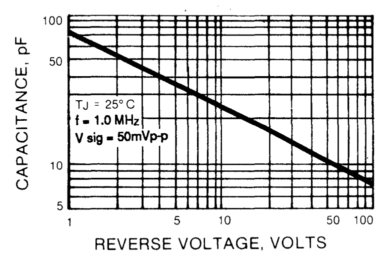
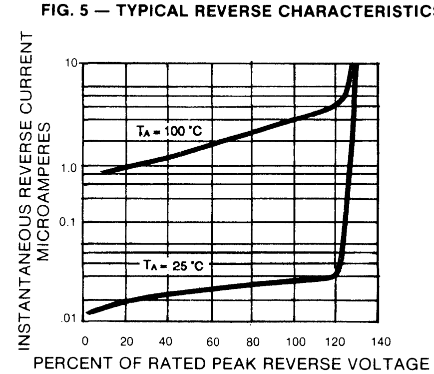


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



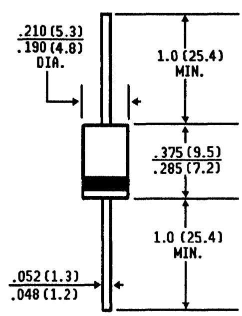
P300A THRU P300M

MEDIUM CURRENT SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 3.0 Amperes*

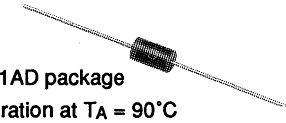
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Typical I_R less than 0.1 μ A



- Void-free DO-201AD package
- 3.0 Ampere operation at T_A = 90°C with no thermal runaway
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: JEDEC DO-201AD Molded plastic

Terminals: Plated Axial leads, solderable per MIL-S-202, Method 208

Polarity: Band denotes cathode

Weight: 0.04 ounce, 1.1 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*P300 A*	*P300 B*	*P300 D*	*P300 G*	*P300 J*	*P300 K*	*P300 M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 90°C	$I_{(AV)}$				3.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				200				Amps
Maximum Instantaneous Forward Voltage at 3.0A T_J = 25°C	V_F				1.2				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R				5.0 25.0				μA
Typical Junction Capacitance (Note 1) TJ = 25°C	C_J				28.0				pf
Typical Reverse Recovery Time (Note 2)	T_{RR}				2.5				μs
Typical Thermal Resistance (Note 3)	$R\theta JA$				15.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-50 to +175				°C

NOTES:

1. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = .25A
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, P.C. Board mounted.

FIG. 1—FORWARD CURRENT DERATING CURVE

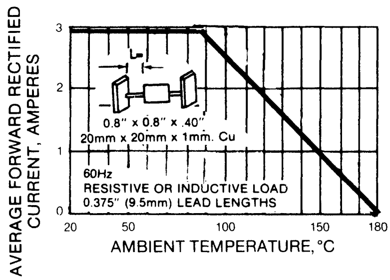


FIG. 2—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

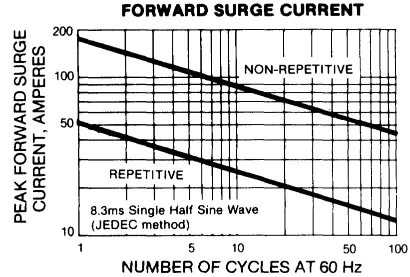


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

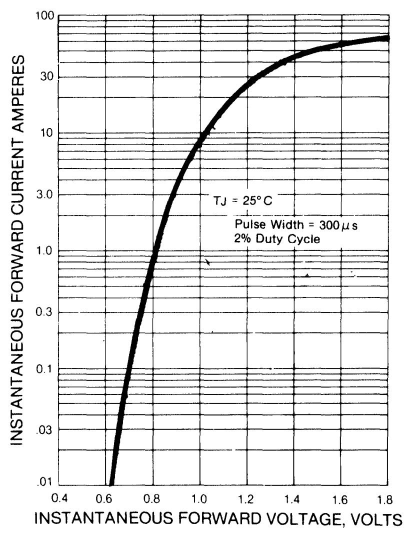


FIG. 4—TYPICAL JUNCTION CAPACITANCE

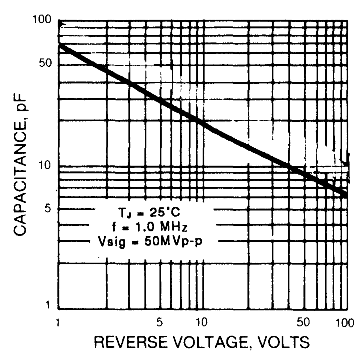
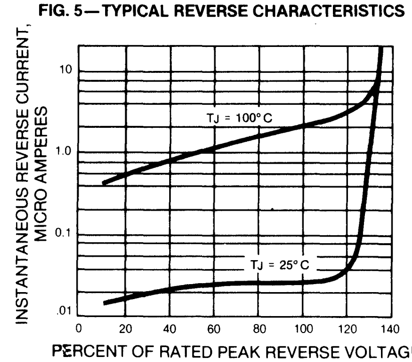


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

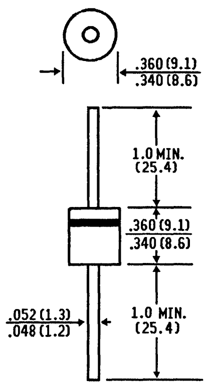


GI750 THRU GI758

HIGH CURRENT PLASTIC SILICON RECTIFIER

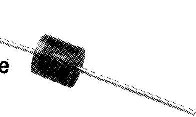
***VOLTAGE** - 50 to 800 Volts* ***CURRENT** - 6.0 Amperes*

FEATURES



Dimensions in inches
and
(millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High Current Capability
- Diffused Junction
- Completely Insulated Case
- Uniform Molded Body
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic

Terminals: Plated Axial leads, solderable per MIL-STD -202, Method 208

Polarity: Band denotes cathode

Weight: 0.07 ounce, 2.1 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*GI750*	*GI751*	*GI752*	*GI754*	*GI756*	*GI758*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	Volts
Maximum Average Forward Rectified Current at T_A = 60°C P.C. Board Mounting (Fig. 1) T_L = 60°C .125", (3.18mm) Lead Lengths (Fig. 2)	$I_{(AV)}$	6.0 22.0						Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	400						Amps
Maximum Instantaneous Forward Voltage at 6.0A 100A	V_F	0.90 1.25					0.95 1.30	Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 1.0						µA mA
Typical Thermal Resistance (Note 1)	$R_{\theta JL}$	10.0						°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-50 to +175						°C

NOTES:
1. Thermal Resistance from Junction to Lead at .50"(12.7mm) lead lengths, with both leads attached to heat sinks.

FIG. 1 — MAXIMUM FORWARD CURRENT DERATING CURRENT

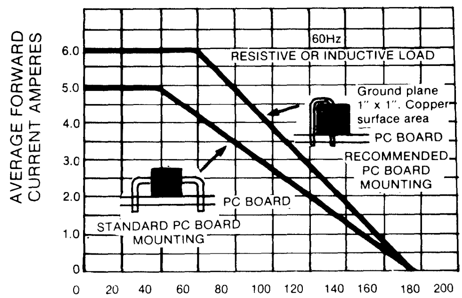


FIG. 2 — MAXIMUM FORWARD CURRENT DERATING CURVE

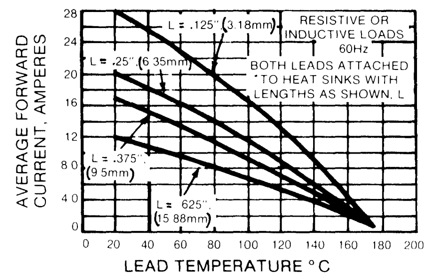


FIG. 3 — TYPICAL FORWARD CHARACTERISTICS

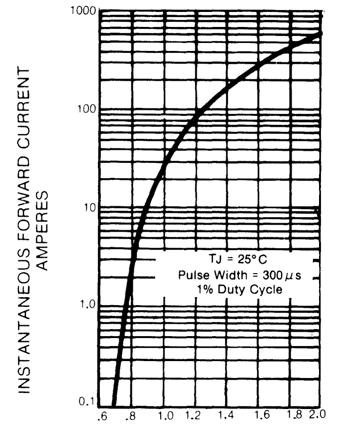


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

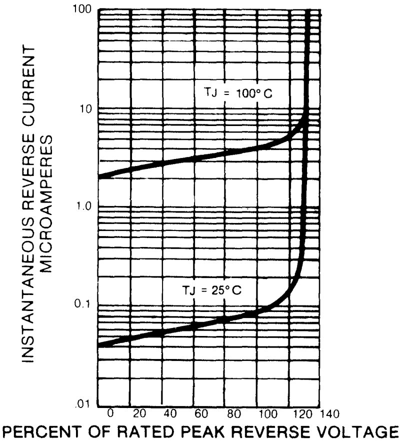


FIG. 5 — MAXIMUM PEAK FORWARD SURGE CURRENT

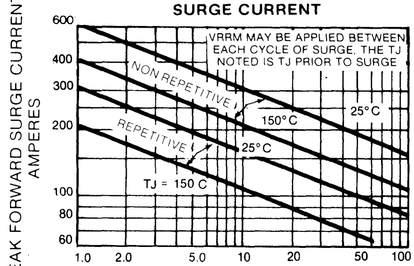
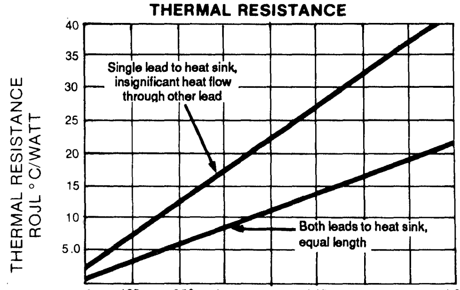


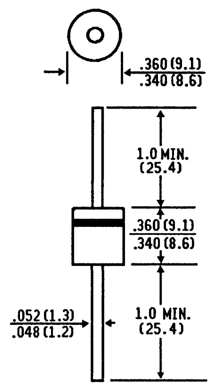
FIG. 6 — TYPICAL STEADY STATE THERMAL RESISTANCE



P600A THRU P600M

HIGH CURRENT PLASTIC SILICON RECTIFIER

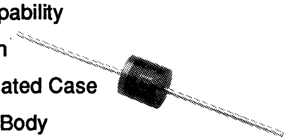
***VOLTAGE** - 50 to 1000 Volts*   ***CURRENT** - 6.0 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High Current Capability
- Diffused Junction
- Completely Insulated Case
- Uniform Molded Body
- High Surge Capability
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic

Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Band denotes cathode

Weight: 0.07 ounce, 2.1 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.

	SYMBOLS	*P600A*	*P600B*	*P600D*	*P600G*	*P600J*	*P600K*	*P600M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375" T_A = 60°C .375" (9.5mm) Lead Lengths (Fig 1) T_L = 60°C .375" (9.5mm) Lead Lengths (Fig 2)	$I_{(AV)}$	6.0 22.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	400							Amps
Maximum Instantaneous Forward Voltage at 6.0A 100A	V_F	0.90 1.30						1.0 1.4	Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	5.0 1.0							µA mA
Typical Thermal Resistance (Note 1)	$R\theta JL$	10.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-50 to +175							°C

NOTES:
1. Thermal Resistance from Junction to Lead at .50"(12.7mm) lead lengths, with both leads attached to heat sinks.

FIG. 1 — OUTPUT CURRENT VS AMBIENT TEMPERATURE

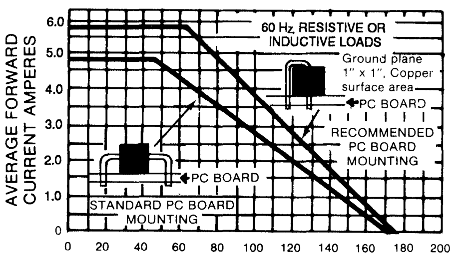


FIG. 2 — OUTPUT CURRENT VS LEAD TEMPERATURE

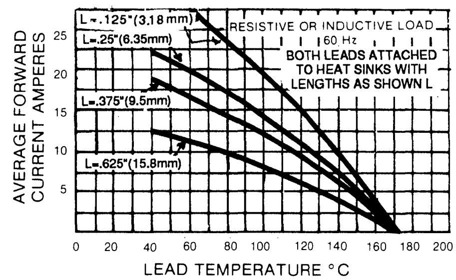


FIG. 3 — TYPICAL FORWARD CHARACTERISTIC

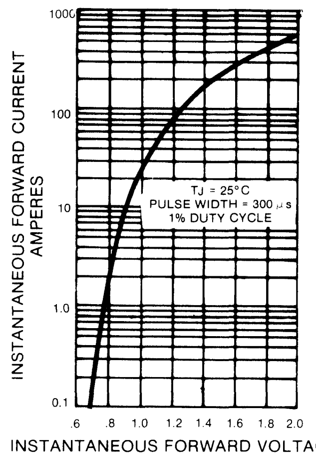


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

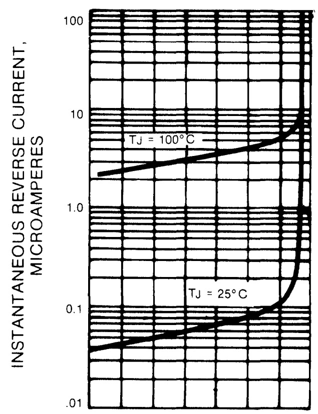


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

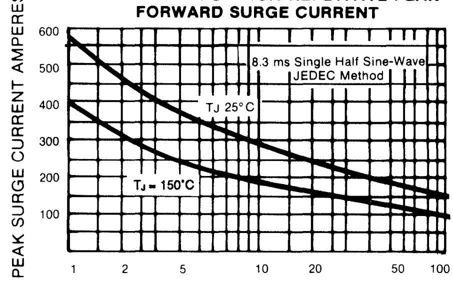
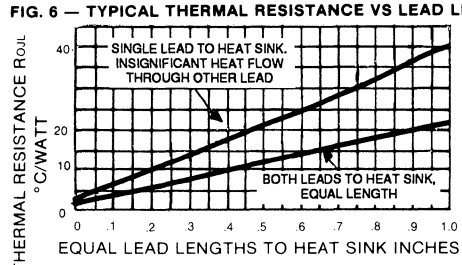


FIG. 6 — TYPICAL THERMAL RESISTANCE VS LEAD LENGTH



GENERAL INSTRUMENT

PLASTIC RECTIFIERS

8.0 AMPERE TO 30 AMPERES
50 VOLTS TO 1000 VOLTS

GENERAL
INSTRUMENT

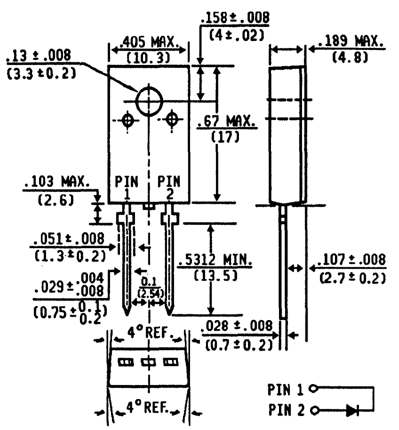
NSF8AT THRU NSF8MT

ALL PURPOSE GLASS PASSIVATED RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 8.0 Amperes*

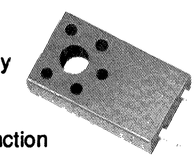
FEATURES

ITO-220



Dimensions in inches and (millimeters)

- Isolated Overmolded Package
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High surge capability
- High current capability
- Low forward voltage
- Glass passivated junction
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Weight: .08 ounces, 2.24 grams

Mounting Position: Any

Mounting Torque: 5 in. - lbs. max.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	NSF8 AT	NSF8 BT	NSF8 DT	NSF8 GT	NSF8 JT	NSF8 KT	NSF8 MT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	8.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	175							Amps
Maximum Instantaneous Forward Voltage at 8.0A	V_F	1.1							Volts
Maximum Average Reverse Current T_C = 25°C at Peak Reverse Voltage T_C = 100°C	$I_{R(AV)}$	10.0 100							μA
Typical Junction Capacitance (Note 2)	C_J	55							pf
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.0							°C/W
Operating and Storage Temperature Range,	T_C,T_{STG}	-65 to +150							°C

NOTES:
1. Thermal Resistance Junction to Case.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 volts.

Fig. 1—FORWARD CURRENT DERATING CURVE

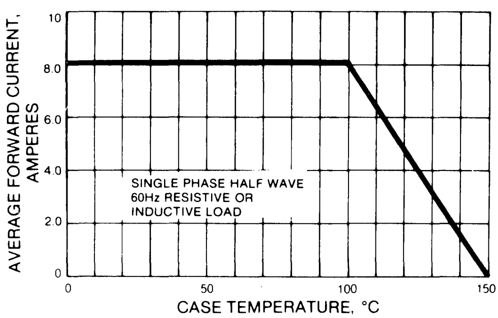


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

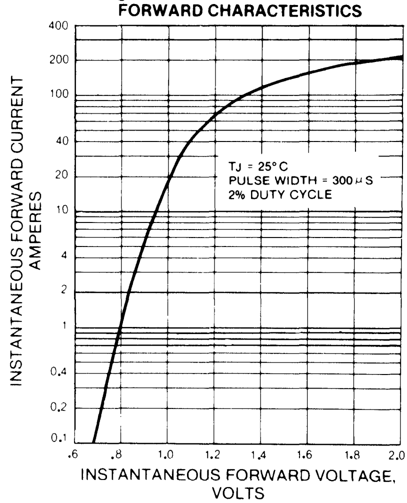


FIG. 3 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

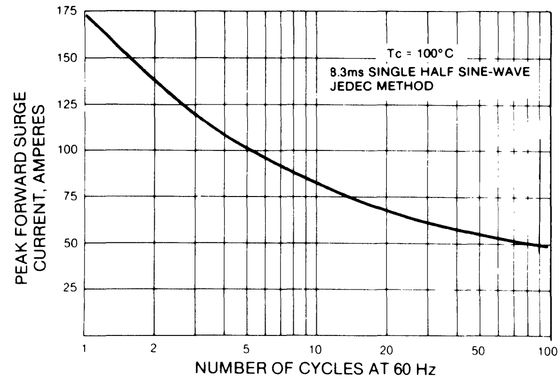


Fig. 4—TYPICAL REVERSE CHARACTERISTICS

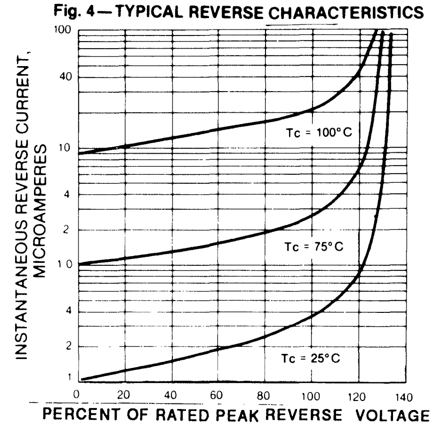
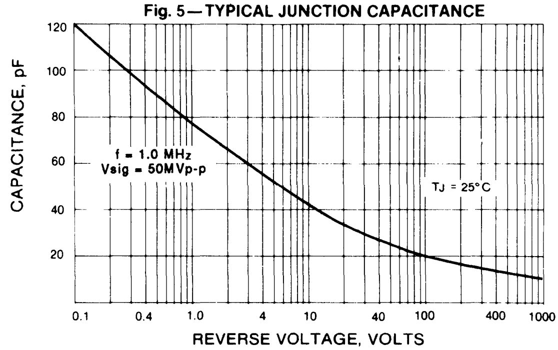


Fig. 5—TYPICAL JUNCTION CAPACITANCE



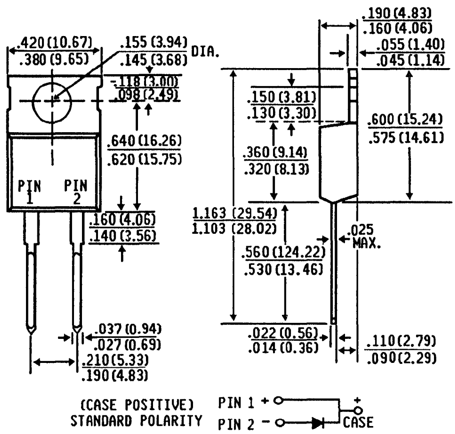
NS8AT THRU NS8MT

HIGH CURRENT PLASTIC SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 8.0 Amperes*

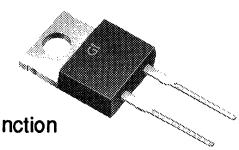
FEATURES

TO-220



Dimensions in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High current capability
- High surge capability
- Low forward voltage
- Glass passivated chip junction
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: TO-220 molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Weight: 0.08 ounce, 2.24 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*NS8 AT*	*NS8 BT*	*NS8 DT*	*NS8 GT*	*NS8 JT*	*NS8 KT*	*NS8 MT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current T_C = 100°C	$I_{(AV)}$				8.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				175				Amps
Maximum Instantaneous Forward Voltage at 8.0A	V_F				1.1				Volts
Maximum Reverse Current at Rated DC Blocking Voltage T_C = 25°C / T_C = 100 °C	I_R				10.0 / 100				µA
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J				55.0				pf
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$				3.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-50 to +150				°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. Measured at 1 MHz and applied reversed voltage of 4.0 volts.

Fig. 1—FORWARD CURRENT DERATING CURVE

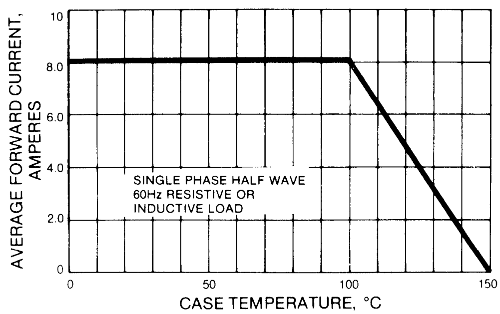


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

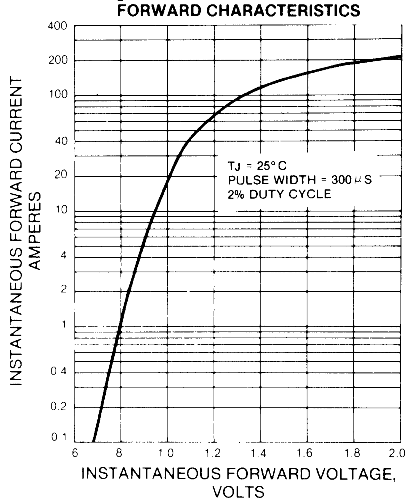


FIG. 3 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

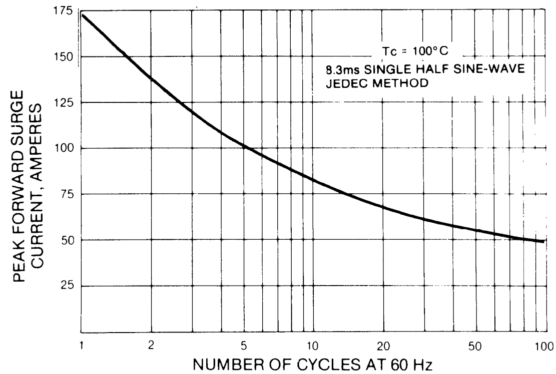


Fig. 4—TYPICAL REVERSE CHARACTERISTICS

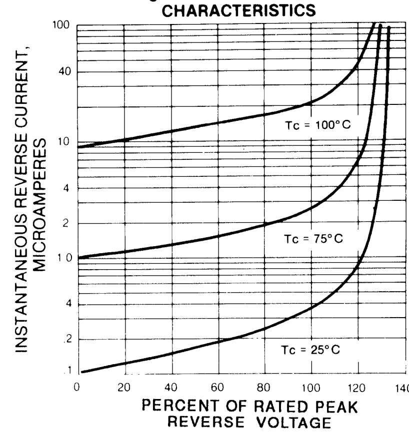
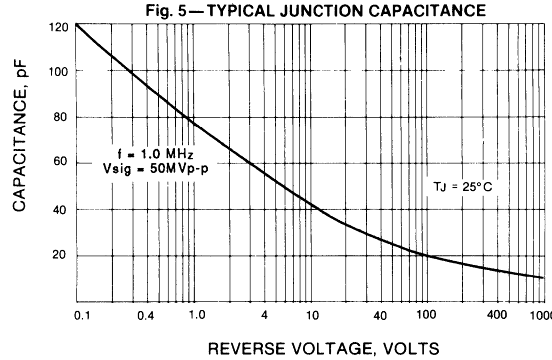


Fig. 5—TYPICAL JUNCTION CAPACITANCE



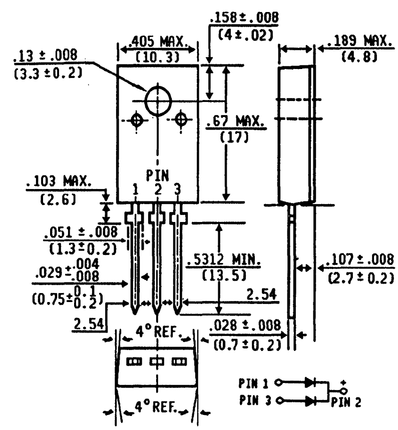
NPF16AT THRU NPF16MT

ALL PURPOSE GLASS PASSIVATED RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 16.0 Ampere*

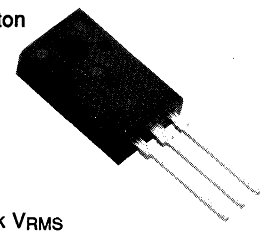
FEATURES

ITO-220 CT



Dimensions in inches and (millimeters)

- Isolated Overmolded package
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Dual rectifier construciton
- Dual glass passivated chip junctions
- High surge capability
- Low forward voltage
- High current capability
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 Fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Weight: 0.08 ounce, 2.24 gram

Mounting Position: Any

Mounting Torque: 5 in. - lbs.max.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	NPF16 AT	NPF16 BT	NPF16 DT	NPF16 GT	NPF16 JT	NPF16 KT	NPF16 MT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at Tc= 100°C	$I_{(AV)}$	16.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg	I_{FSM}	175							Amps
Maximum Instantaneous Forward Voltage at 8A per leg	V_F	1.1							Volts
Maximum Reverse Current at Rated DC Blocking Voltage Tc = 25°C / Per leg Tc = 100°C	I_R	10.0 / 100							μA
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J	55.0							pf
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$	3.0							°C/W
Operating and Storage Temperature Range	T_C, T_{STG}	-65 to +150							°C

NOTES:
1. Thermal Resistance from Junction to Case.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.

Fig. 1—FORWARD CURRENT DERATING CURVE

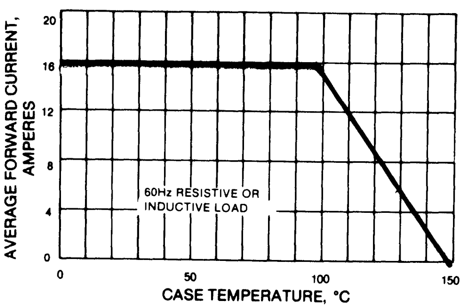


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

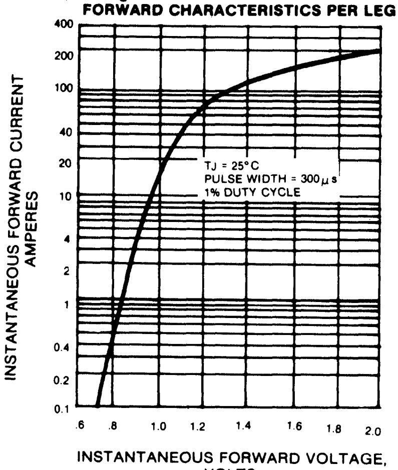


Fig. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

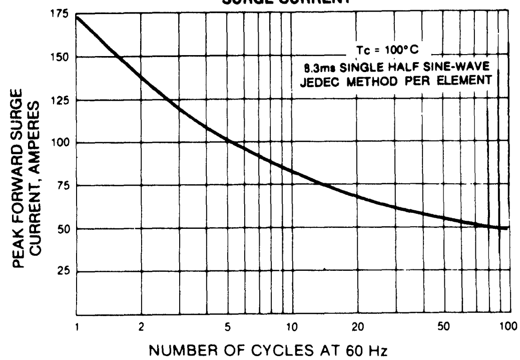


FIG. 4—TYPICAL REVERSE CHARACTERISTICS PER LEG

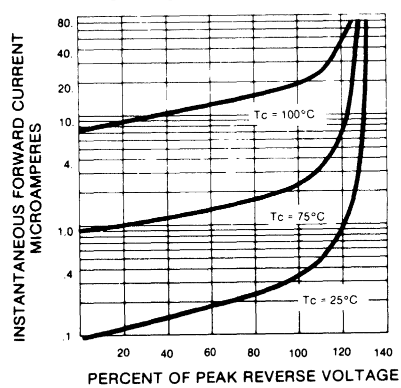
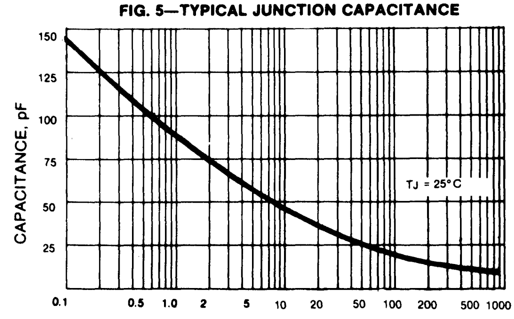


FIG. 5—TYPICAL JUNCTION CAPACITANCE



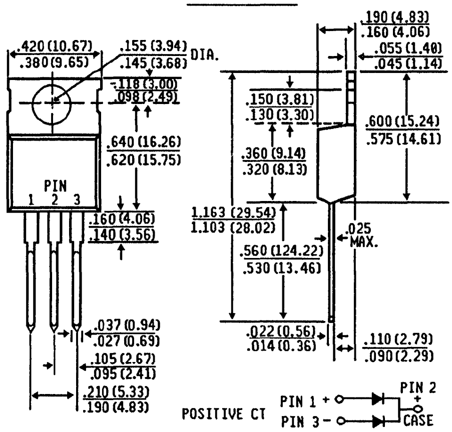
NP16AT THRU NP16MT

HIGH CURRENT PLASTIC SILICON RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 16.0 Ampere*

FEATURES

TO-220CT



Dimensions in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Dual rectifier construciton, postive center-tap
- Dual glass pssivated chip junctions
- High surge capability
- Low forward voltage
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: TO-220CT molded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Weight: 0.08 ounce, 2.24 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*NP16 AT*	*NP16 BT*	*NP16 DT*	*NP16 GT*	*NP16 JT*	*NP16 KT*	*NP16 MT*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at T_c = 100°C per Device	$I_{(AV)}$	16.0							Amps
Peak Forward Surge Current 8.3ms single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	300.0							Amps
Maximum Instantaneous Forward Voltage at 8A per leg	V_F	1.1							Volts
Maximum Reverse Current at Rated DC Blocking Voltage T_c = 25°C Per leg T_C = 100°C	I_R	10.0 100							µA
Typical Junction Capacitance (Note 2)	C_J	55.0							pf
Typical Thermal Resistance per leg (Note 1)	$R\theta JC$	3.0							°C/W
Operating and Storage Temperature Range	T_C, T_{STG}	-55 to +150							°C

NOTES:
1. Thermal Resistance from Junction to Case for each element.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts for each element.

Fig. 1—FORWARD CURRENT DERATING CURVE

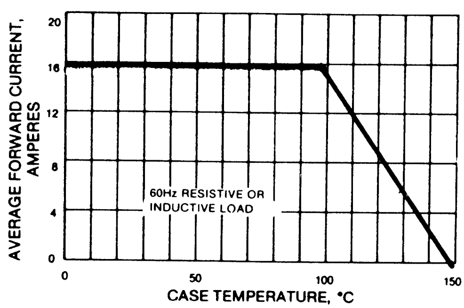


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

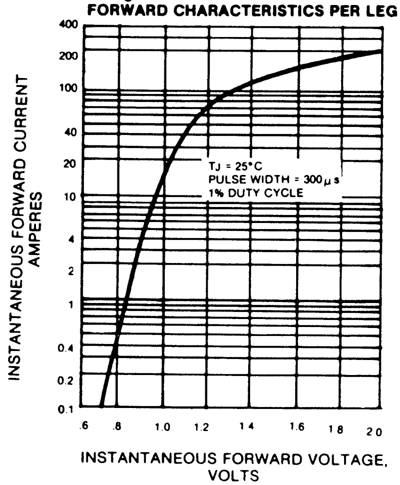


Fig. 3—MAXIMUM NON-REPETITIVE SURGE CURRENT

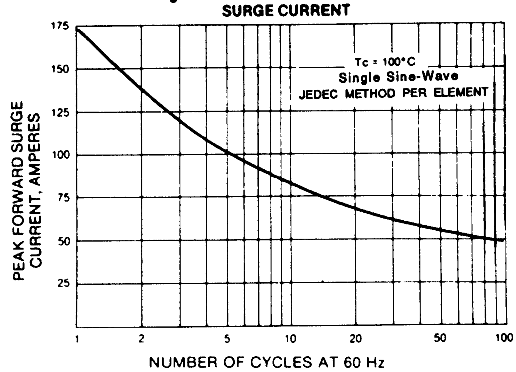


FIG. 4—TYPICAL REVERSE CHARACTERISTICS PER LEG

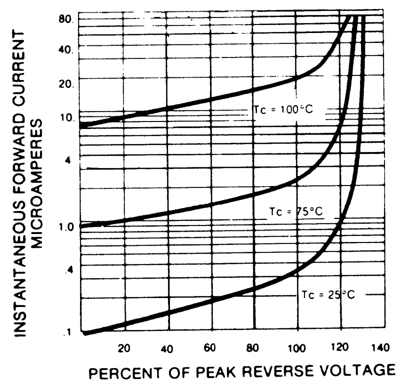
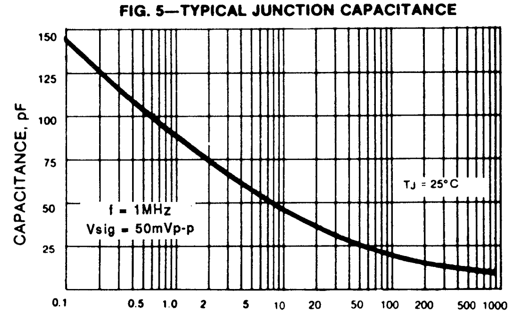


FIG. 5—TYPICAL JUNCTION CAPACITANCE



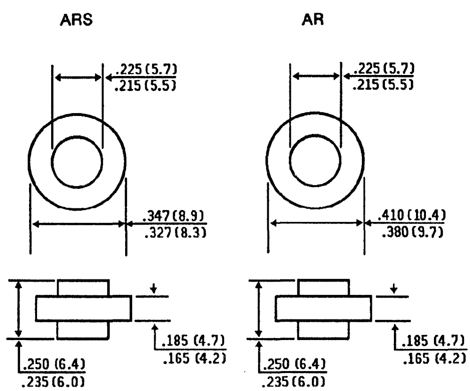
GENERAL INSTRUMENT

ARS25 / AR25 SERIES

HICH CURRENT PLASTIC SILICON RECTIFIER

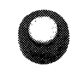
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 25.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Low cost construction utilizing void-free molded plastic technique
- Low cost
- Diffused junction
- Low leakage
- High surge capability
- High temperature soldering guaranteed: 250°C for 10 seconds



MECHANICAL DATA

Case: Transfer, molded plastic case

Terminals: Plated terminals, solderable per MIL-STD-202, Method 208

Polarity: Color Ring denotes cathode end

Weight: 0.07 ounce, 1.8 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*ARS25A AR25A*	*ARS25B AR25B*	*ARS25D AR25D*	*ARS25G AR25G*	*ARS25J AR25J*	*ARS25K AR25K*	*ARS25M AR25M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375", (4.5mm) lead lengths at T_C = 150°C	$I_{(AV)}$	25.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_J = 150°C	I_{FSM}	400							Amps
Maximum Instantaneous Forward Voltage at 25.0A	V_F	1.0							Volts
Maximum DC Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	5.0 250							μA
Typical Reverse Recovery Time (Note 2)	T_{RR}	3.0							μs
Typical Junction Capacitance (Note 1) TJ = 25°C	C_J	300							pf
Typical Thermal Resistance (Note 3)	RΘJC	1.0							°C/W
Operating and Storage Temperature Range,	T_J,T_{STG}	-50 to +175							°C
Polarity and Voltage Denotation Color Band		Red	Yellow	Silver	Orange	Green	Blue	Violet	

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = .25A.
3. Thermal Resistance from Junction to Case, single side cooled.

FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

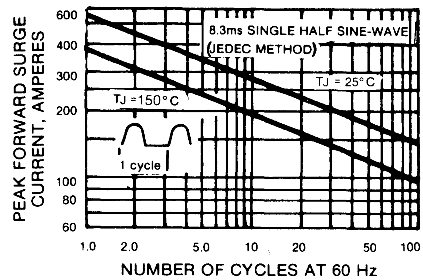


FIG. 1 — MAXIMUM FORWARD CURRENT DERATING CURVE

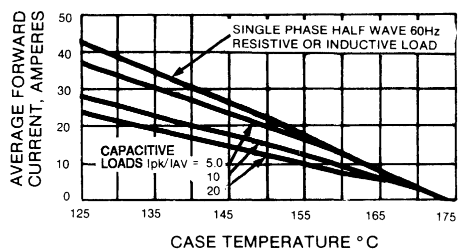


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

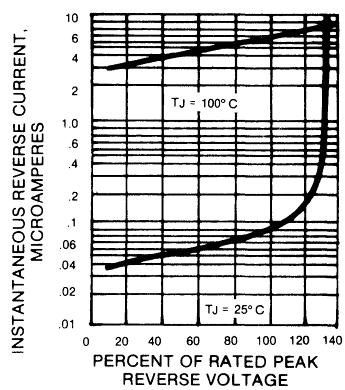


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

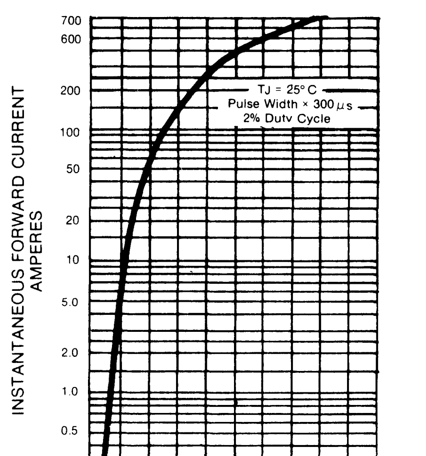
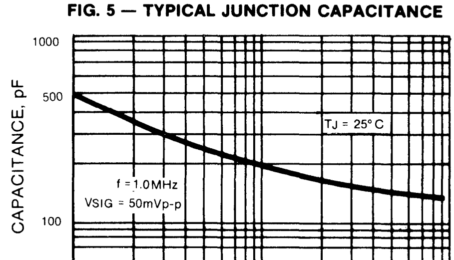


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

FAST RECOVERY PLASTIC RECTIFIERS

1.0 AMPERE TO 8.0 AMPERES
50 VOLTS TO 1000 VOLTS

GENERAL INSTRUMENT

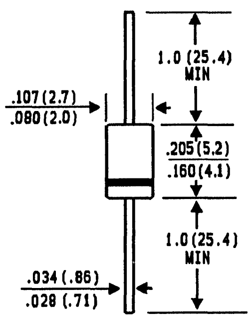
1N4933 THRU 1N4937

MINIATURE PLASTIC FAST SWITCHING RECTIFIER

***VOLTAGE** - 50 to 600 Volts* ***CURRENT** - 1.0 Ampere*

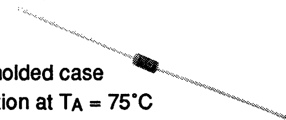
FEATURES

DO-41



Dimension in inches and (millimeters)

- Low cost
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Fast switching for high efficiency
- Void-free plastic molded case
- 1.0 Ampere operation at T_A = 75°C with no thermal runaway
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-41, molded case

Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: 0.012 ounce, 0.34 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*1N4933*	*1N4934*	*1N4935*	*1N4936*	*1N4937*	*UNITS*
*Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
*Maximum RMS Voltage	V_{RMS}	35	70	145	280	420	Volts
*Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
*Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 75°C	$I_{(AV)}$			1.0			Amps
*Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_A = 75°C	I_{FSM}			30.0			Amps
*Maximum Instantaneous Forward Voltage at 1.0A	V_F			1.2			Volts
*Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R			5.0 100			μA
*Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}			200			nS
*Maximum Reverse Recovery Current (Note 1)	I_{RM}(Rec)			2.0			Amps
Typical Junction Capacitance (Note 2)	C_J			15.0			pf
Typical Thermal Resistance (Note 3)	$R\theta JA$			41.0			°C/W
*Operating and Storage Temperature Range,	T_J,T_{STG}			-50 to +150			°C

NOTES:
1. Reverse Recovery Test Conditions: IF = 1.0A, VR = 30V., di/dt = 50A/μs.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, P.C. Board mounted.

*JEDEC registered values

FIG. 1 — FORWARD CURRENT DERATING CURVE

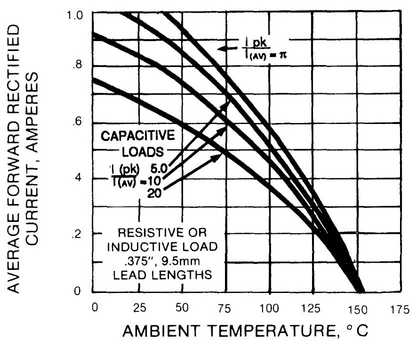


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

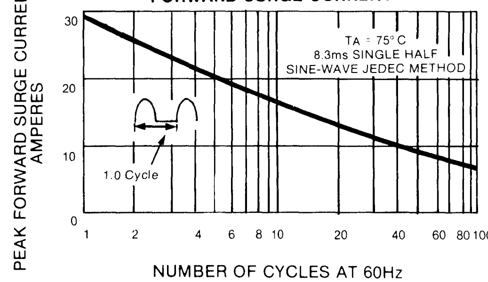


FIG. 3 — TYPICAL JUNCTION CAPACITANCE

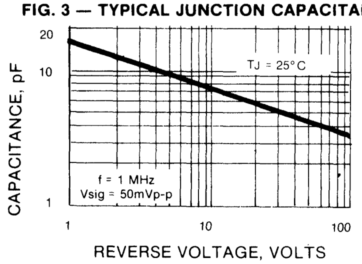


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

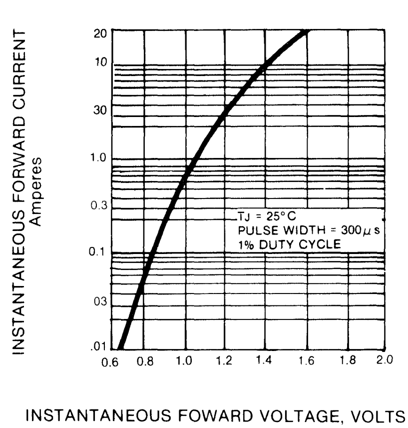


FIG. 5 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

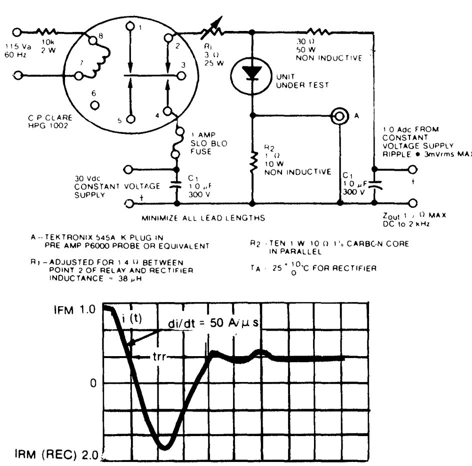
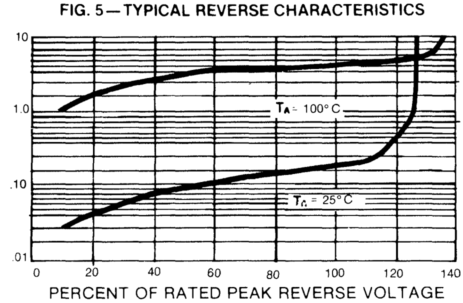


FIG. 5—TYPICAL REVERSE CHARACTERISTICS



GENERAL INSTRUMENT

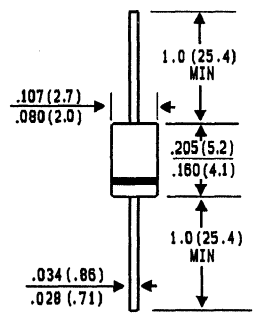
SRP100A THRU SRP100K

SOFT RECOVERY FAST SWITCHING PLASTIC RECTIFIER

***VOLTAGE** - 50 to 800 Volts* ***CURRENT** - 1.0 Ampere*

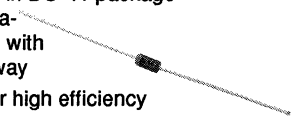
FEATURES

DO-41



Dimension in inches
and
(millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic in DO-41 package
- 1.0 Ampere operation at $T_A = 55^{\circ}C$ with no thermal runaway
- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-41 molded plastic

Terminals: Plated Axial leads, solderable per MIL-ST-202, Method 208

Polarity: Band denotes cathode

Mounting Position: Any

Weight: 0.012 ounce, 0.34 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	SRP 100A	SRP 100B	SRP 100D	SRP 100G	SRP 100J	SRP 100K	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at $T_A = 55^{\circ}C$	$I_{(AV)}$	1.0						Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0						Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.3						Volts
Maximum DC Reverse Current $T_A = 25^{\circ}C$ at Rated DC Blocking Voltage $T_A = 100^{\circ}C$	I_R	10.0 200						μA
Maximum Reverse Recovery Time (Note 2) $T_J = 25^{\circ}C$	T_{RR}	100				200		ns
Typical Junction Capacitance (Note 1) $T_J = 25^{\circ}C$	C_J	12.0						pf
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	41.0						°C/W
Operating Temperature Range	T_J	--50 to +125						°C
Storage Temperature Range	T_{STG}	-50 to +150						°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, P.C. Board mounted.

FIG. 1 — FORWARD CURRENT DERATING CURVE

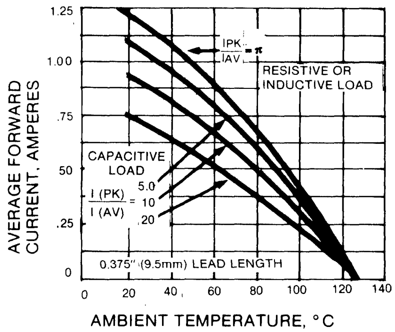


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

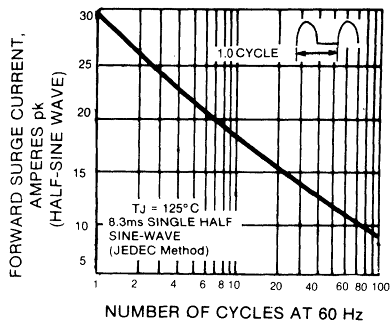


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

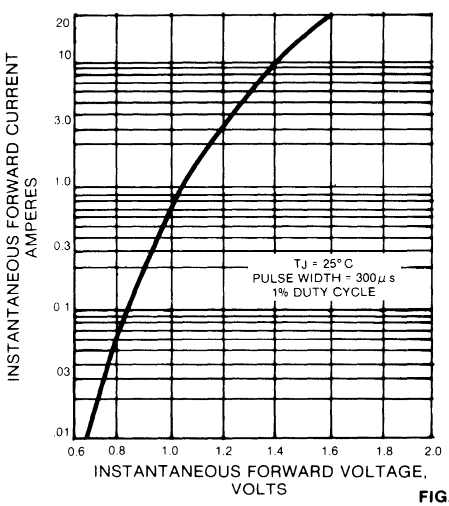


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

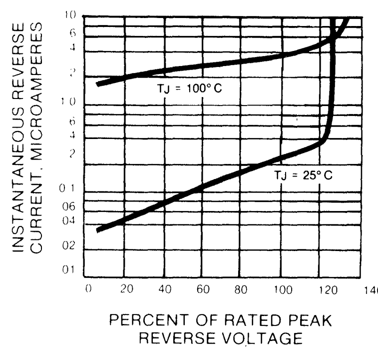


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

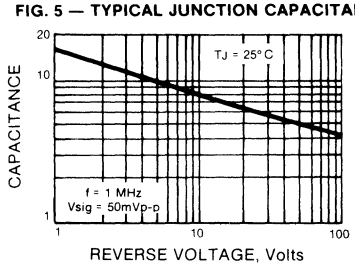
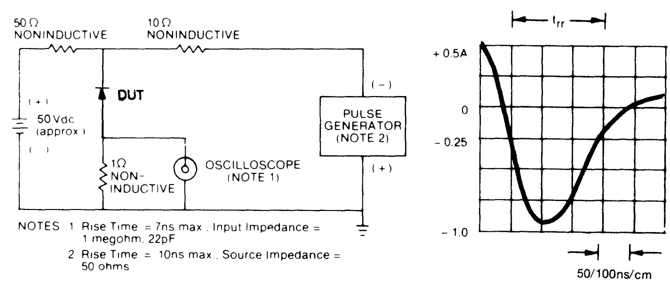


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



GENERAL INSTRUMENT

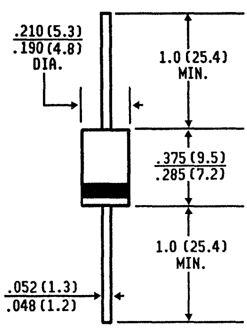
BYX55-350P AND BYX55-600P

SOFT RECOVERY, FAST SWITCHING PLASTIC RECTIFIER

***VOLTAGE** - 350 to 600 Volts* ***CURRENT** - 1.2 Amperes*

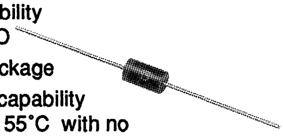
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic package
- High surge current capability
- 1.2 Ampere at T_A = 55°C with no thermal runaway
- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-201AD molded plastic

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: .04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	BYX55-350P	BYX55-600P	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	350	600	Volts
Maximum RMS Voltage	V_{RMS}	210	350	Volts
Maximum DC Blocking Voltage	V_{DC}	300	500	Volts
Maximum Average Forward Rectified Current .375", (4.5mm) lead lengths at T_A = 55°C	$I_{(AV)}$	1.2		Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load at T_J = 125°C	I_{FSM}	40.0		Amps
Maximum Instantaneous Forward Voltage at 5.0A	V_F	1.25		Volts
Maximum Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 750		μA
Maximum Reverse Recovery Time (Note 2) T_A = 25°C	T_{RR}	350		ns
Typical Junction Capacitance (Note 1)	C_J	28.0		pf
Typical Thermal Resistance (Note 3)	$R\Theta JA$	15.0		°C/W
Operating Temperature Range	T_J	-50 to +125		°C
Storage Temperature Range	T_{STG}	-50 to +150		°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery TESt Conditions: I_F = 1.0A, V_R = 30V, di/dt = 20 A/μs..
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths with both leads to heat sink.

FIG. 1 — FORWARD CURRENT DERATING CURVE

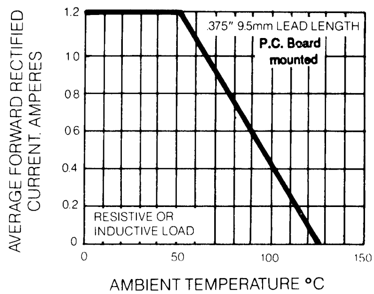


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

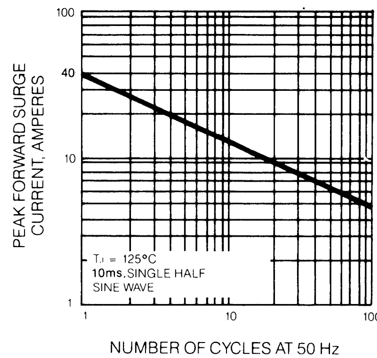


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

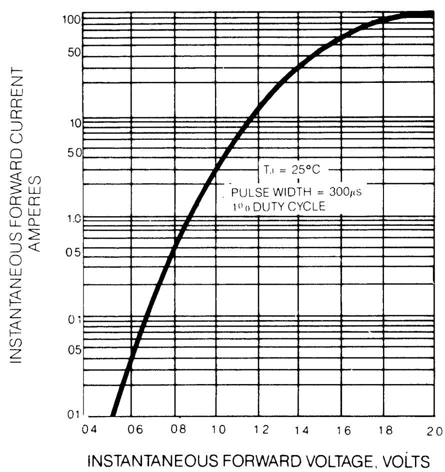


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

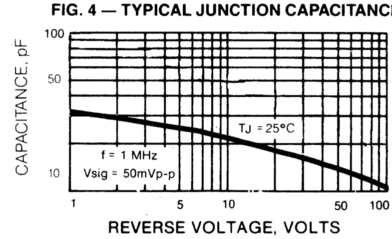


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

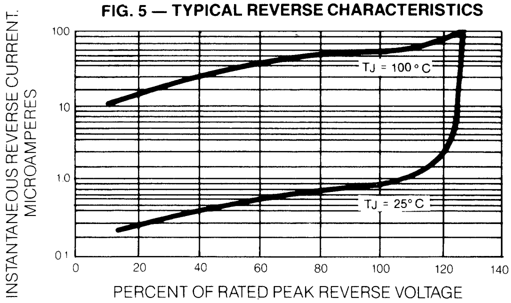
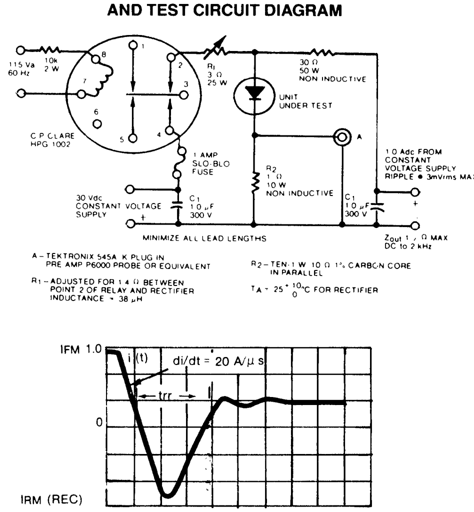


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



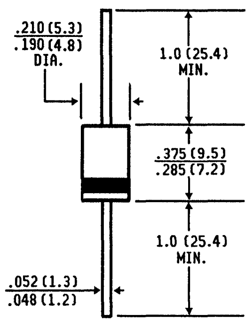
BY296P THRU BY299P

SOFT RECOVERY PLASTIC RECTIFIER

***VOLTAGE** - 100 to 800 Volts*   ***CURRENT** - 2.0 Amperes*

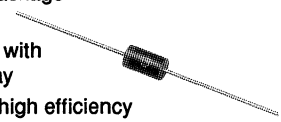
FEATURES

DO-201AD



Dimensions in inches
and
(millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic package
- 2.0 Ampere operation at T_A = 55°C with no thermal runaway



- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic

Terminals: Axial leads, solderable per MIL-ST-202, Method 208

Polarity: Color band denotes cathode

Mounting Position: Any

Weight: .04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*BY296P*	*BY297P*	*BY298P*	*BY299P*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	100	200	400	800	Volts
Maximum RMS Voltage	V_{RMS}	70	140	280	560	Volts
Maximum DC Blocking Voltage	V_{DC}	100	200	400	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 55°C	$I_{(AV)}$	2.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load	I_{FSM}	70.0				Amps
Maximum Repetitive Peak Forward Surge (Note 1)	I_{FRM}	10.0				Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.3				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 500				μA
Maximum Reverse Recovery Time (Note 3) T_J = 25°C	T_{RR}	500				ns
Maximum Forward Recovery Time at 100mA	T_{FR}	1.0				μs
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J	28.0				pf
Typical Thermal Resistance (Note 4)	$R_{\Theta JA}$	15.0				°C/W
Operating Temperature Range	T_J	-50 to +125				°C
Storage Temperature Range	T_{STG}	-50 to +150				°C

NOTES:

1. Repetitive Peak Forward Surge Current at f<15KHz
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Reverse Recovery Tset Conditions: I_F = 10mA, I_R = 10mA, Irr = 1.0mA
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths with both leads to heat sink.

FIG. 1 — FORWARD CURRENT DERATING CURVE

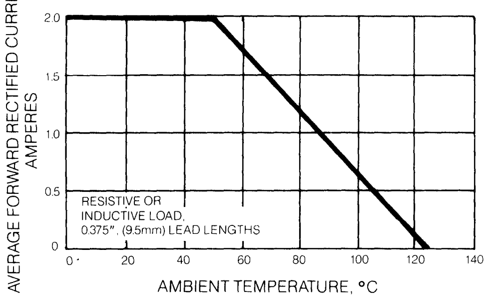


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

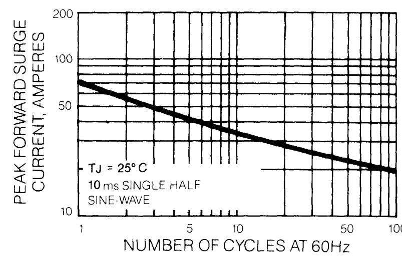


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

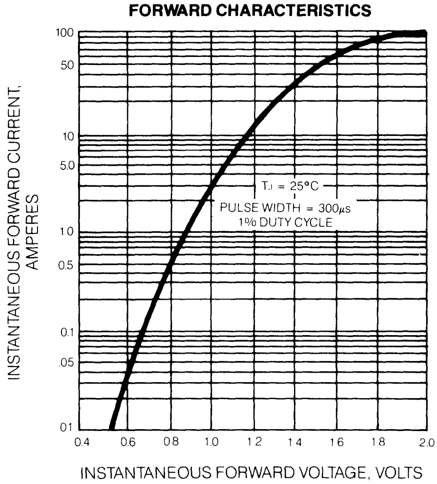


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

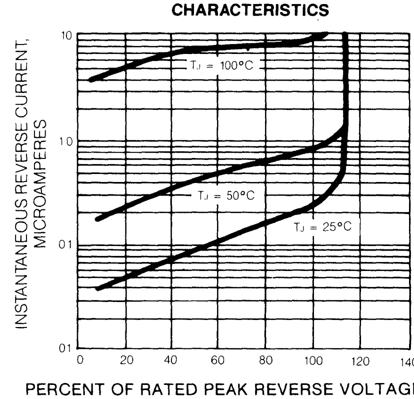
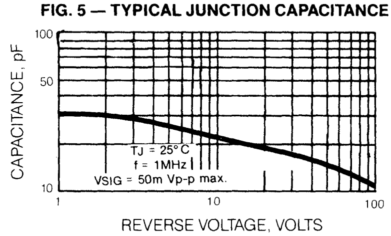


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

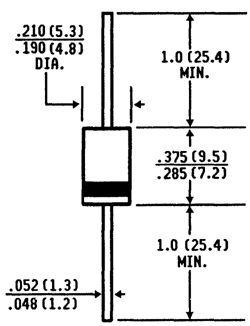
GI850 THRU GI856

SOFT RECOVERY, FAST SWITCHING PLASTIC RECTIFIER

***VOLTAGE** - 50 to 600 Volts* ***CURRENT** - 3.0 Amperes*

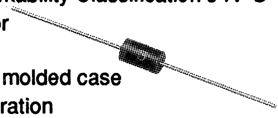
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Fast switching for high efficiency
- Void-free plastic molded case
- High current operation
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-201AD molded plastic
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denotes cathode
Mounting Position: Any
Weight: .04 ounce, 1.1 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	GI850	GI851	GI852	GI854	GI856	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
Maximum Non-repetitive Peak Reverse Voltage	V_{RSM}	75	150	250	450	650	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 90°C	$I_{(AV)}$	3.0					Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100					Amps
Maximum Instantaneous Forward Voltage at 3A T_J = 25°C at 9.4A T_J = 175°C	V_F	1.25 1.10					Volts
Maximum DC Reverse Current T_A = 25°C	I_R	10.0					μA
at Rated DC Blocking Voltage T_A = 100°C		150	150	200	250	300	
Typical Junction Capacitance T_J = 25°C (Note 1)	C_J	28.0					pf
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	200					ns
Maximum Reverse Recovery Current (Note 2)	$I_{RM(REC)}$	2.0					Amps
Typical Thermal Resistance (Note 3)	RθJA	15.0					°C/W
Operating and Storage Temperature Range,	T_J, T_{STG}	-50 to +150					°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions: IF = 1.0A, VR = 30V, di/dt = 50A/μs.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, with both leads to heat sink.

FIG. 1 — FORWARD CURRENT DERATING CURVE

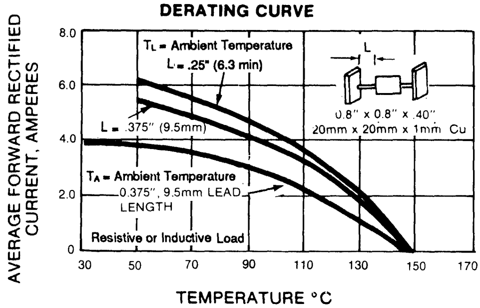


FIG. 2 — MAXIMUM PEAK FORWARD SURGE CURRENT

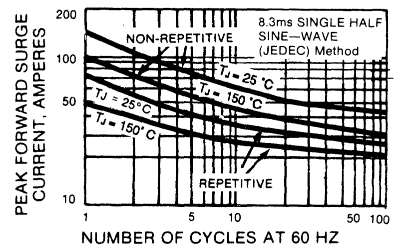


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

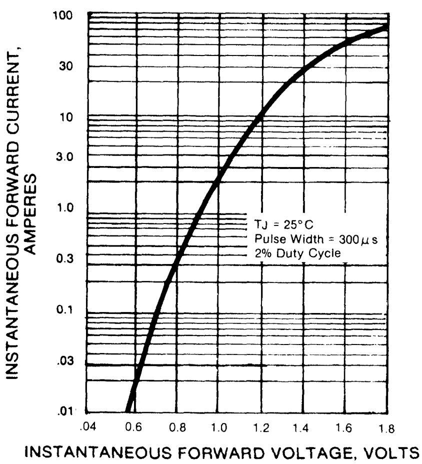


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

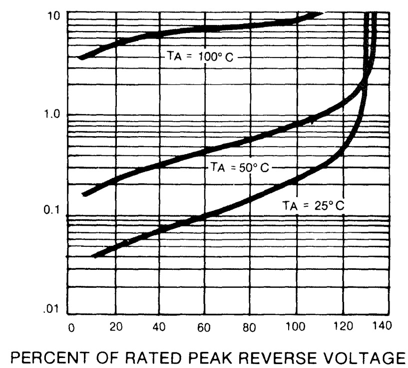
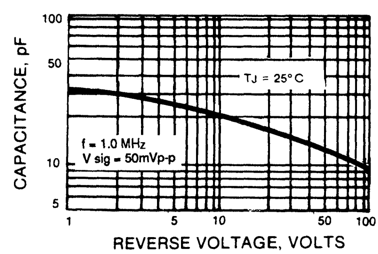


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



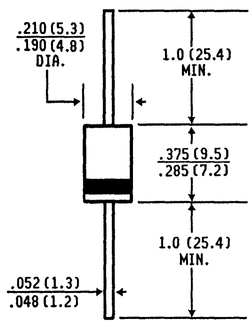
GENERAL INSTRUMENT

GI910 THRU GI917

SOFT RECOVERY MEDIUM-SWITCHING PLASTIC RECTIFIER

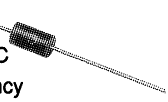
***VOLTAGE** - 50 to 800 Volts* ***CURRENT** - 3.0 Amperes*

DO-201AD



Dimensions in inches and (millimeters)

FEATURES



- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic
- High current operation 3.0 Amperes at $T_A = 90°C$
- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: JEDEC DO-201AD molded plastic

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color Band denotes cathode

Mounting Position: Any

Weight: 0.04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	GI910	GI911	GI912	GI914	GI916	GI917	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at $T_A = 90°C$	$I_{(AV)}$	3.0						Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	100						Amps
Maximum Instantaneous Forward Voltage at 3.0A $T_J = 25°C$ / 9.4A $T_J = 175°C$	V_F	1.25 / 1.10						Volts
Maximum DC Reverse Current $T_A = 25°C$ / at Rated DC Blocking Voltage $T_A = 100°C$	I_R	10.0 / 300						μA
Typical Junction Capacitance (Note 1) $T_J = 25°C$	C_J	28.0						pf
Maximum Reverse Recovery Time $T_J = 25°C$ (Note 2)	T_{RR}	750						ns
Maximum Reverse Recovery Current	$I_{RM(REC)}$	2.0						Amps
Typical Thermal Resistance (Note 3)	$R_{\Theta JA}$	15.0						°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-50 to +150						°C

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
2. Reverse Recovery Test Conditions: I_F = 1.0A, V_R = 30V di/dt = 50 A/μs.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, both leads to a heat sink.

FIG. 2 — MAXIMUM FORWARD SURGE CURRENT

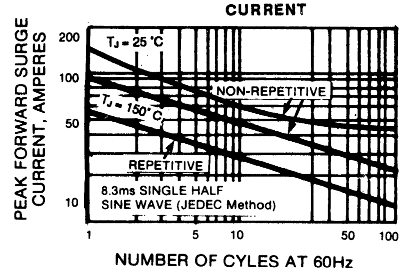


FIG. 1 — FORWARD CURRENT DERATING CURVE

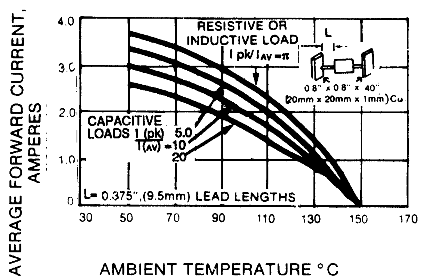


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

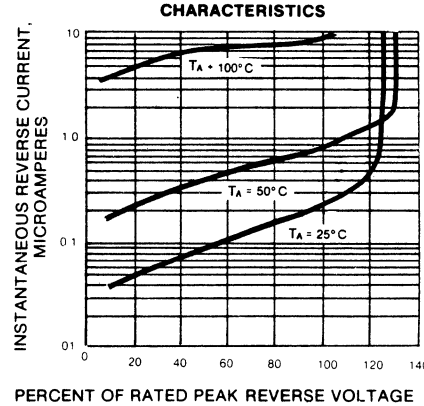


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

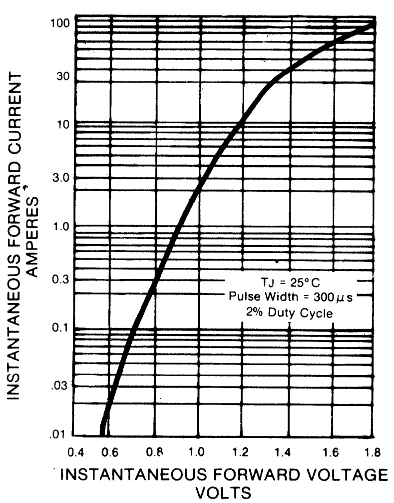


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

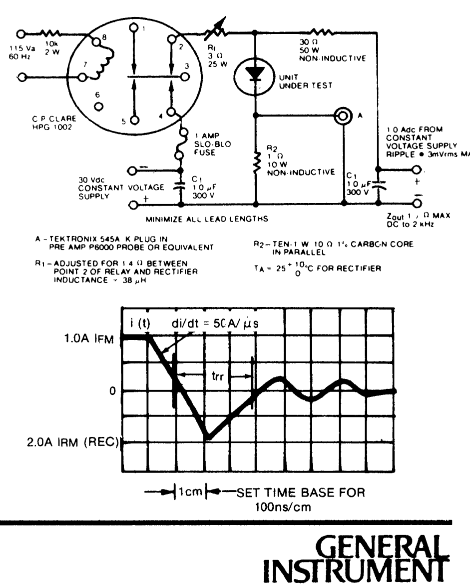
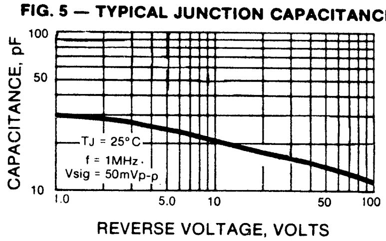


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



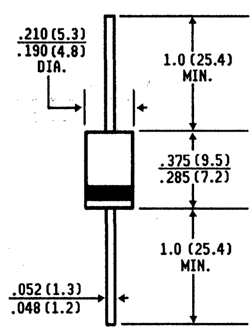
SRP300A THRU SRP300K

SOFT-RECOVERY, FAST-SWITCHING PLASTIC RECTIFIER

***VOLTAGE** - 50 to 800 Volts* ***CURRENT** - 3.0 Amperes*

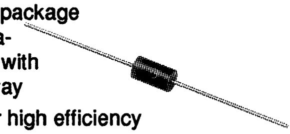
FEATURES

DO-201AD



Dimension in inches and (millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic package
- 3.0 Ampere operation at T_A = 55°C with no thermal runaway



- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: JEDEC DO-201AD molded plastic

Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color Band denotes cathode

Mounting Position: Any

Weight: 0.04 ounce, 1.1 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 HZ, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	SRP 300A	SRP 300B	SRP 300D	SRP 300G	SRP 300J	SRP 300K	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 55°C	$I_{(AV)}$	3.0						Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150						Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.3						Volts
Maximum DC Reverse Current T_A = 25°C	I_R	10.0						μA
at Rated DC Blocking Voltage T_A = 100°C		200			300	400	500	
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	100	100	150	150	200	200	ns
Typical Junction Capacitance (Note 1) T_J = 25°C	C_J	28.0						pf
Typical Thermal Resistance (Note 3)	RθJA	15.0						°C/W
Storage and Operating Temperature Range,	T_J, T_{STG}	-50 to +150						°C

NOTES:

1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions: I_F = 0. .5A, I_R = 1.0A, Irr = .25A.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths with both leads to heat sink.

FIG. 1—FORWARD CURRENT DERATING CURVE

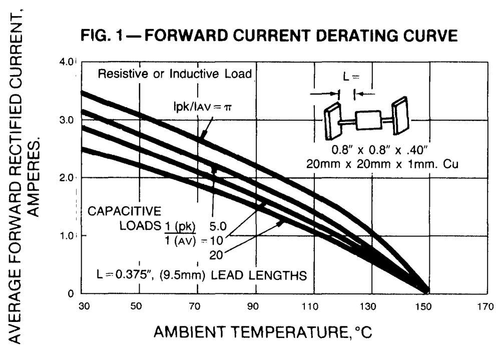


FIG. 2—MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

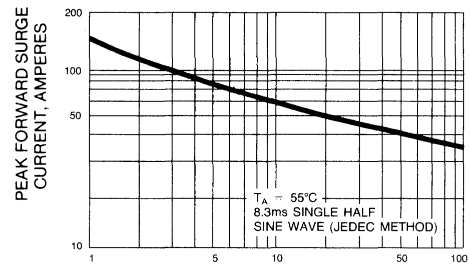


FIG. 3—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

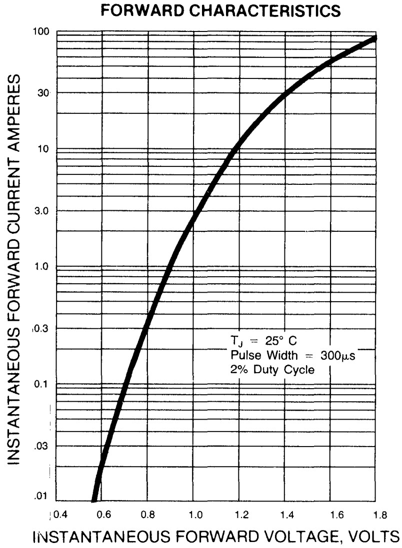


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

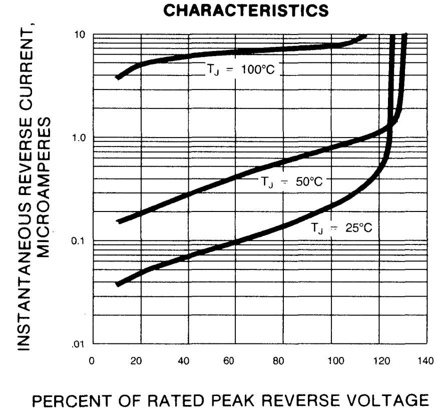


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

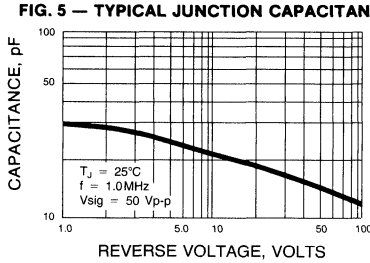
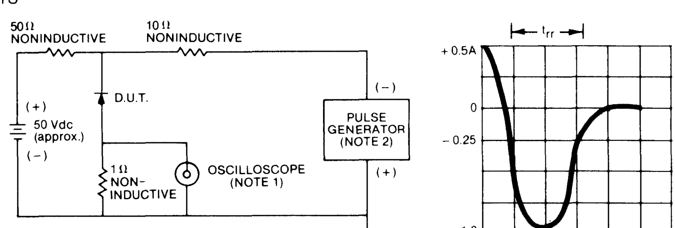


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

GENERAL INSTRUMENT

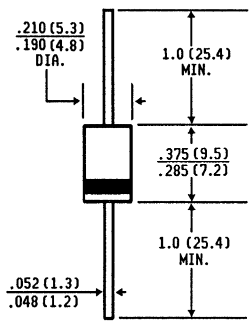
BY396P THRU BY399P

SOFT RECOVERY, FAST SWITCHING PLASTIC RECTIFIER

***VOLTAGE** - 100 to 800 Volts* ***CURRENT** - 3.0 Amperes*

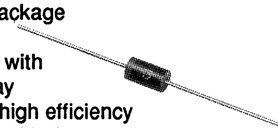
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- High surge current capability
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- Void-free plastic package
- 3.0 Ampere operation at $T_A = 50°C$ with no thermal runaway
- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: JEDEC DO-201AD molded plastic
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color Band denotes Cathode end
Mounting Position: Any
Weight: .04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*BY396P*	*BY397P*	*BY398P*	*BY399P*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	100	200	400	800	Volts
Maximum RMS Voltage	V_{RMS}	70	140	280	560	Volts
Maximum DC Blocking Voltage	V_{DC}	100	200	400	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at $T_A = 50°C$	$I_{(AV)}$	3.0				Amps
Peak Forward Surge Current 10ms single half sine-wave superimposed on rated load at $T_A = 25°C$	I_{FSM}	100				Amps
Maximum Repetitive Peak Forward Surge (Note 1)	I_{FRM}	10.0				Amps
Maximum Instantaneous Forward Voltage at 3.0A	V_F	1.25				Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 100°C$	I_R	10.0 500				μA
Maximum Reverse Recovery Time (Note 3)T_J=25°C	T_{RR}	500.0				ns
Maximum Forward Recovery Time 100mA T_J =25°C	T_{FR}	1.0				μs
Typical Junction Capacitance (Note 2)	C_J	28.0				pf
Typical Thermal Resistance (Note 4)	$R\Theta JA$	15.0				°C/W
Operating Temperature Range	T_J	-50 to +125				°C
Storage Temperature Range	T_{STG}	-50 to +150				°C

NOTES:
1. Repetitive Peak Forward Surge Current at f<15KHz.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Reverse Recovery Test Conditions: I_F = 10mA, I_R = 10mA, Irr = 1.0mA.
4. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths with both leads to heat sink.

FIG. 1 — FORWARD CURRENT DERATING CURVE

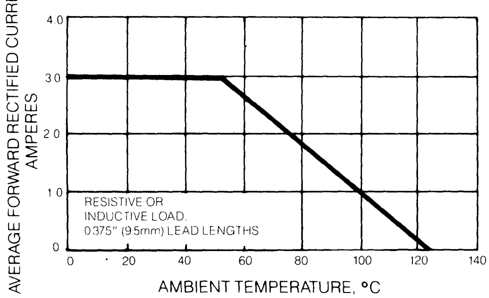


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

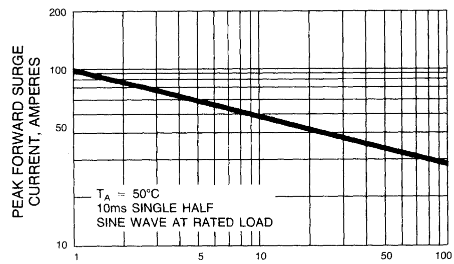


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

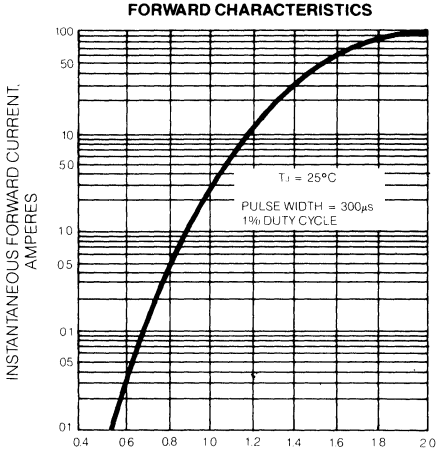


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

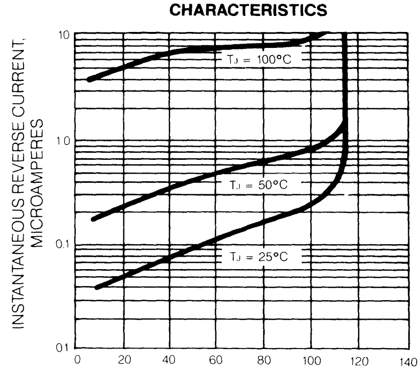
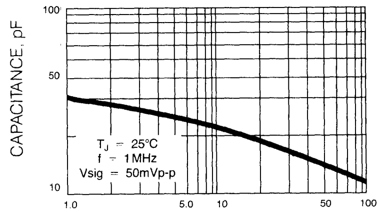


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

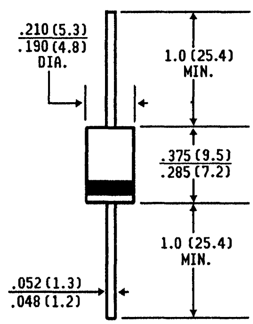
BY500-100 THRU BY500-600

SOFT RECOVERY, FAST SWITCHING PLASTIC RECTIFIER

***VOLTAGE** - 100 to 800 Volts* ***CURRENT** - 5.0 Ampere*

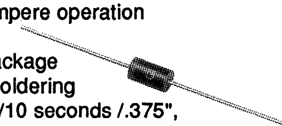
FEATURES

DO-201AD



Dimensions in inches and (millimeters)

- ◆ High surge current capability
- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- ◆ Fast switching for high efficiency
- ◆ High current 5.0 Ampere operation at T_L = 45°C
- ◆ Void-free plastic package
- ◆ High temperature soldering guaranteed: 265°C/10 seconds /.375", (9.5mm) lead lengths at 5 lbs., (2.3kg) tension
- ◆ Especially designed for applications such as Switch Mode Power Supplies, Inverters, Converters, TV Scanning, Ultrasonic-Systems, speed controlled DC Motors, low RF Interference and free Wheeling Rectifiers



MECHANICAL DATA

Case: JEDEC DO-201AD molded plastic
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color Band denotes Cathode end
Mounting Position: Any
Weight: .04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*BY500-100*	*BY500-200*	*BY500-400*	*BY500-600*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	100	200	400	800	Volts
Maximum RMS Voltage	V_{RMS}	70	140	280	560	Volts
Maximum DC Blocking Voltage	V_{DC}	100	200	400	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_L = 45°C	$I_{(AV)}$	5.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load at T_A = 25°C	I_{FSM}	200				Amps
Maximum Repetitive Peak Forward Surge	I_{FRM}	10.0				Amps
Maximum Instantaneous Forward Voltage at 5.0A	V_F	1.35				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 1.0				µA mA
Maximum Reverse Recovery Time (Note 3) T_J=25°C	T_{RR}	200				ns
Maximum Reverse Recovery Current (Note 3)	$I_{RM(REC)}$	2.0				Apk
Typical Junction Capacitance T_J = 25°C (Note 2)	C_J	28.0				pf
Typical Thermal Resistance (Note 1)	RΘJA	15.0				°C/W
Operating Temperature Range	T_J	-50 to +125				°C
Storage Temperature Range	T_{STG}	-50 to +150				°C

NOTES:
1. Thermal Resistance from Junction to Ambient at 375",(9.5mm) lead lengths with both leads to heat sink.
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
3. Reverse Recovery Test Conditions: I_F = 1.0A, V_R = 30V di/dt = 50A/µs.

FIG. 1 — FORWARD CURRENT DERATING CURVE

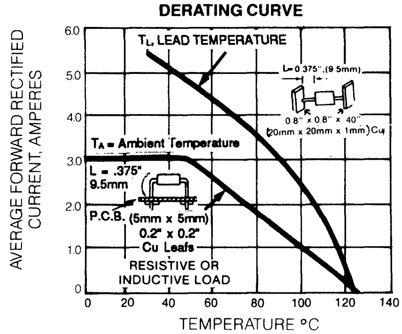


Fig. 2 – TYPICAL REVERSE CHARACTERISTICS

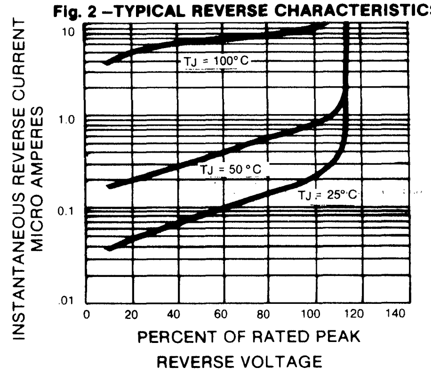


FIG. 4 — MAXIMUM PEAK FORWARD SURGE CURRENT

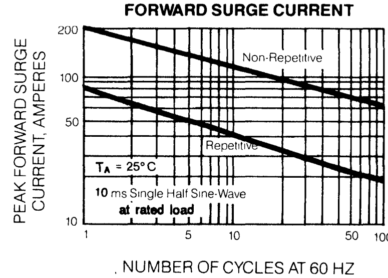


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

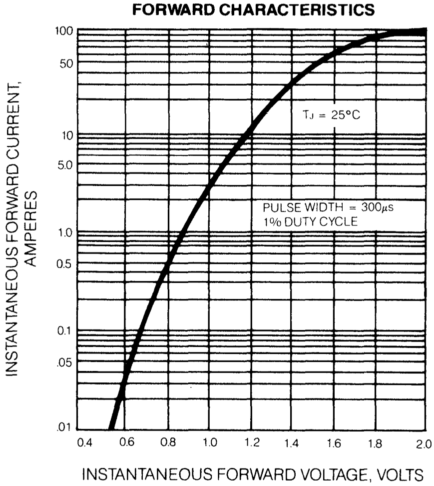
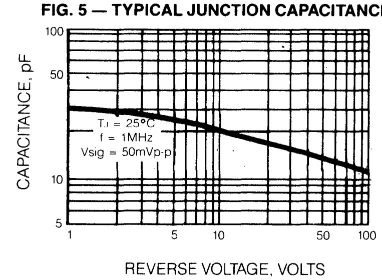


FIG. 5 — TYPICAL JUNCTION CAPACITANCE



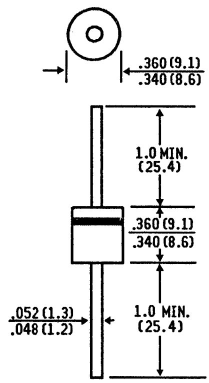
GENERAL INSTRUMENT

GI820 THRU GI826

HIGH CURRENT FAST SWITCHING PLASTIC RECTIFIER

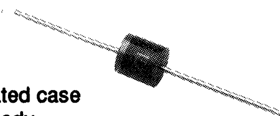
***VOLTAGE** - 50 to 600 Volts*   ***CURRENT** - 5.0 Amperes*

FEATURES



Dimensions iin inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High surge current capability
- High current operation
- Fast switching for high efficiency
- Diffused junction
- Completely insulated case
- Uniform molded body
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic
Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color Band denotes cathode
Mounting Position: Any
Weight: 0.07 ounce, 2.1 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	GI820	GI821	GI822	GI824	GI826	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
Maximum Non-repetitive Peak Reverse Voltage	V_{RSM}	75	150	250	450	650	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 55°C	$I_{(AV)}$	5.0					Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	300					Amps
Maximum Instantaneous Forward Voltage at 5.0A at 15.7A T_J = 150°C	V_F	1.10 1.05					Volts
Maximum Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 1.0					µA mA
Typical Junction Capacitance T_J = 25°C (Note 3)	C_J	300					pf
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	200					nS
Maximum Reverse Recovery Current (Note 1)	$I_{RM(REC)}$	2.0					Amps
Typical Thermal Resistance (Note 2)	$R_{\Theta JA}$	10.0					°C/W
Operating and Storage Temperature Range,	T_J, T_{STG}	-50 to +150					°C

NOTES:
1. Reverse Recovery Test Conditions: IF = 1.0A, VR = 30V, di/dt = 50A/µs.
2 Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, with both leads to heat sink.
3. Measured at 1 MHz and applied reverse voltage of 4.0 volts.

FIG. 1 — FORWARD CURRENT DERATING CURVE

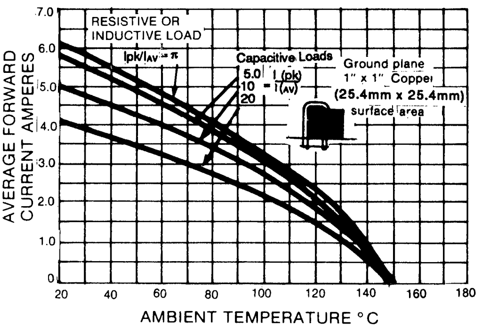


FIG. 2 — FORWARD CURRENT DERATING CURVE

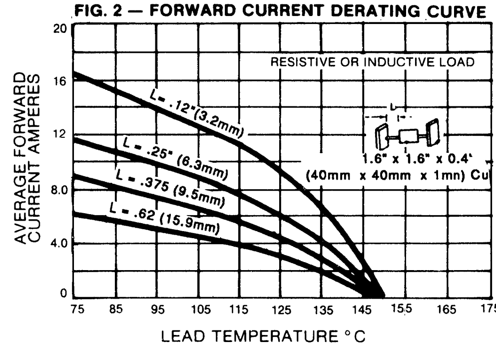


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

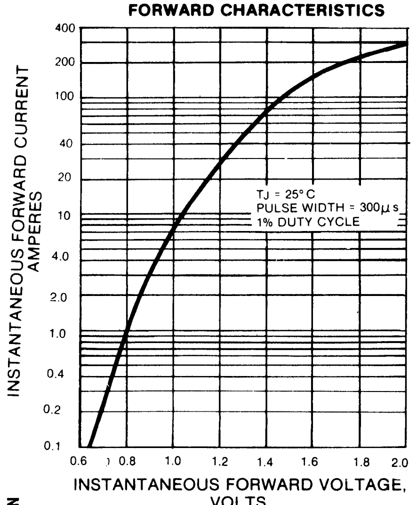


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

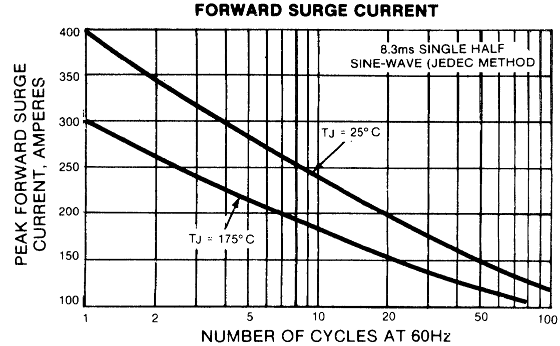


FIG. 5 — TYPICAL THERMAL RESISTANCE

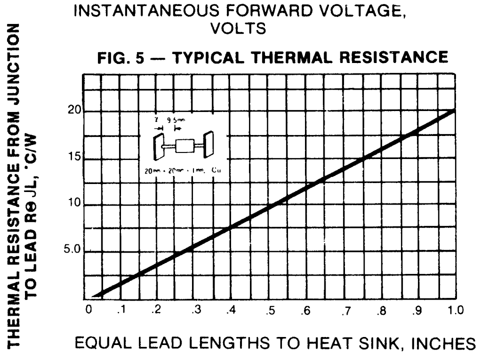
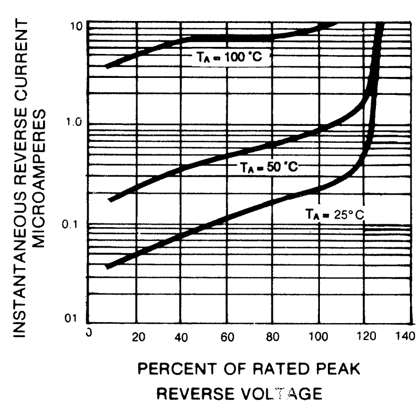


FIG. 6 — TYPICAL REVERSE CHARACTERISTICS



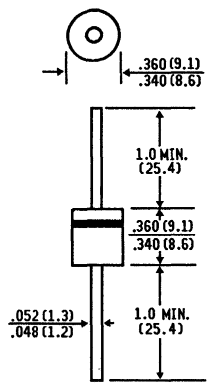
GENERAL INSTRUMENT

SRP600A THRU SRP600K

HIGH CURRENT SOFT RECOVERY FAST-SWITCHING PLASTIC RECTIFIER

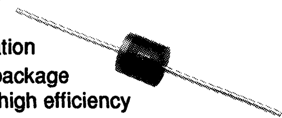
***VOLTAGE** - 50 to 800 Volts* ***CURRENT** - 6.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High surge current capability
- High current operation
- Void-free plastic package
- Fast switching for high efficiency
- High temperature soldering guaranteed: 265°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded plastic

Terminals: Plated Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color Band denotes cathode

Mounting Position: Any

Weight: 0.07 ounce, 2.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	SRP 600A	SRP 600B	SRP 600D	SRP 600G	SRP 600J	SRP 600K	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	Volts
Maximum Average Forward Rectified Current .375", (9.5mm) lead lengths at T_A = 55°C	$I_{(AV)}$			6.0				Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			300				Amps
Maximum Instantaneous Forward Voltage at 6.0A	V_F			1.3				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R			10.0 1.0				µA mA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	100	100	150	150	200	200	ns
Typical Junction Capacitance (Note 2) T_J = 25°C	C_J			300				pf
Typical Thermal Resistance (Note 3)	$R\theta JA$			10.0				°C/W
Operating Temperature Range	TJ			- 50 to +125				°C
Storage Temperature Range	T_{STG}			-50 to +150				°C

NOTES:
1. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
2. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal Resistance from Junction to Ambient at .375" (9.5mm) lead lengths, with both leads to heat sink.

FIG. 1 — FORWARD CURRENT DERATING CURVE

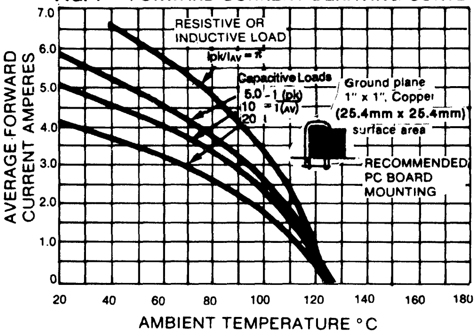


FIG. 2 — FORWARD CURRENT DERATING CURVE

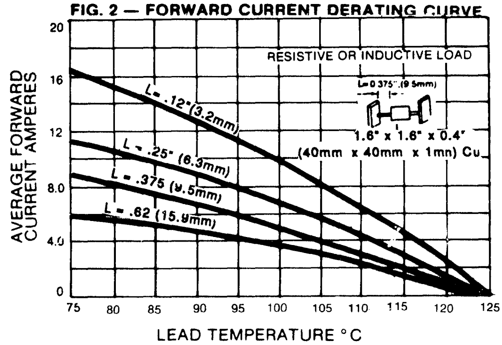


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

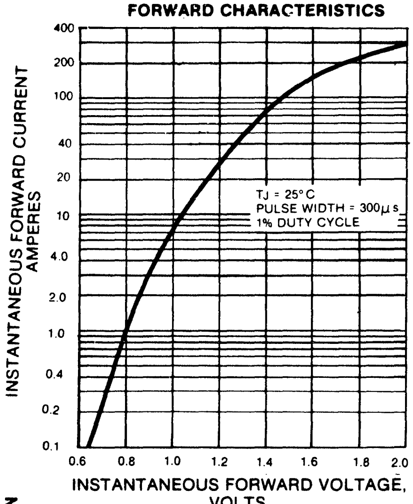


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

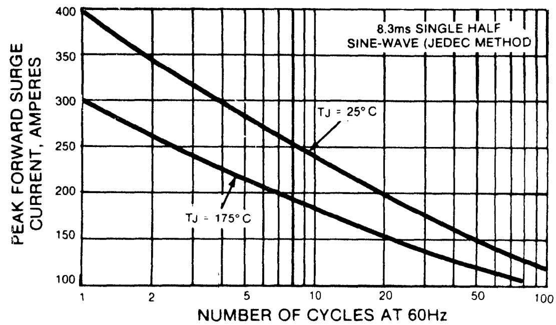


FIG. 5 — TYPICAL THERMAL RESISTANCE

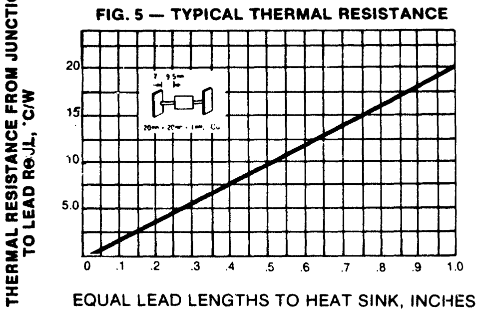
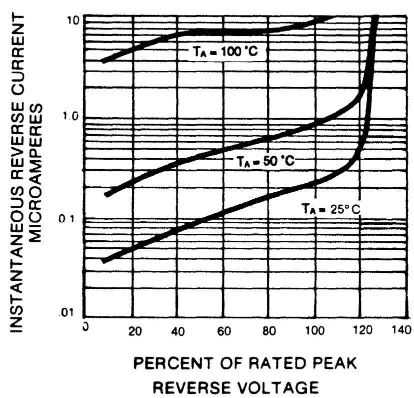


FIG. 6 — TYPICAL REVERSE CHARACTERISTICS



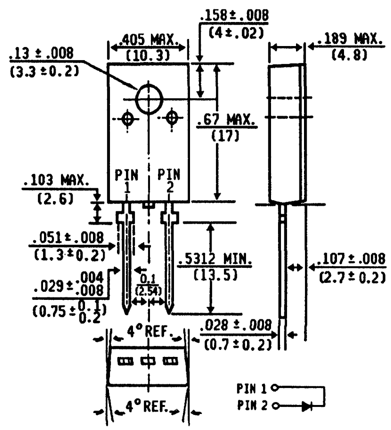
GENERAL INSTRUMENT

RSF8AT THRU RSF8MT

FAST SWITCHING GLASS PASSIVATED RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 8.0 Amperes*

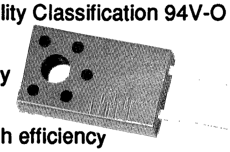
ITO-220



Dimensions in inches and (millimeters)

FEATURES

- Isolated Overmolded Package
- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High surge capacity
- High current capability
- Low forward voltage
- Fast switching for high efficiency
- Glass passivated junction
- Internal Insulation: 1.5k V_{RMS}



MECHANICAL DATA

Case: ITO-220 fully overmolded plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: As marked

Weight: .08 ounces, 2.24 grams

Mounting Position: Any

Mounting Torque: 5 in. - lbs. max.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	RSF8 AT	RSF8 BT	RSF8 DT	RSF8 GT	RSF8 JT	RSF8 KT	RSF8 MT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	8.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150							Amps
Maximum Instantaneous Forward Voltage at 8.0A	V_F	1.3							Volts
Maximum Reverse Current T_C = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 250							μA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	150			200		250	500	ns
Typical Junction Capacitance (Note 1)	C_J	55							pf
Typical Thermal Resistance (Note 3)	$R_{\theta JC}$	3.0							°C/W
Operating and Storage Temperature Range	T_C,T_{STG}	-65 to +150							°C

NOTES:

1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = .25A.
3. Thermal Resistance from Junction to Case.

FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

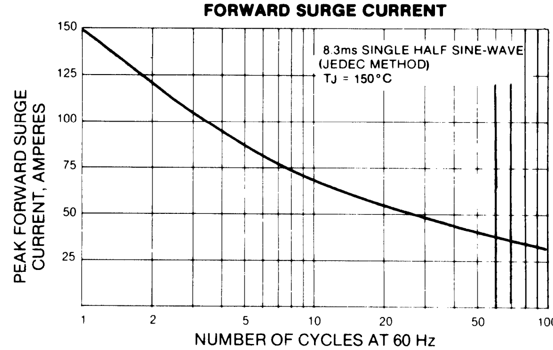


Fig. 1—FORWARD CURRENT DERATING CURVE

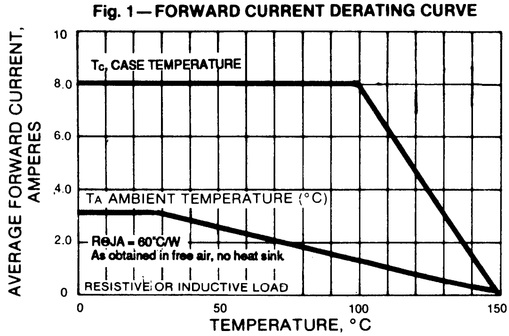


Fig. 4—TYPICAL REVERSE CHARACTERISTICS

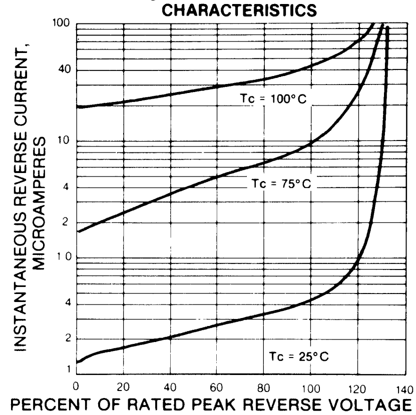


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

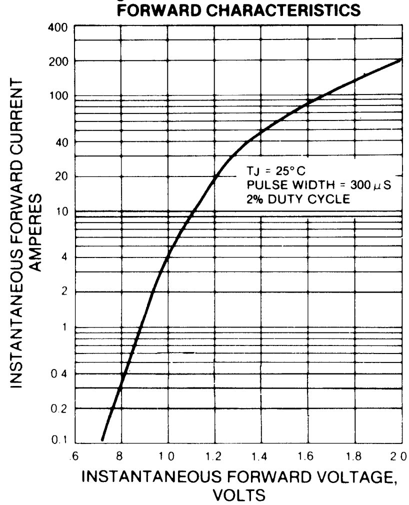
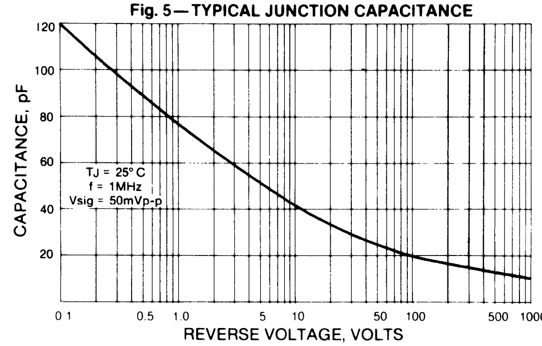


Fig. 5—TYPICAL JUNCTION CAPACITANCE



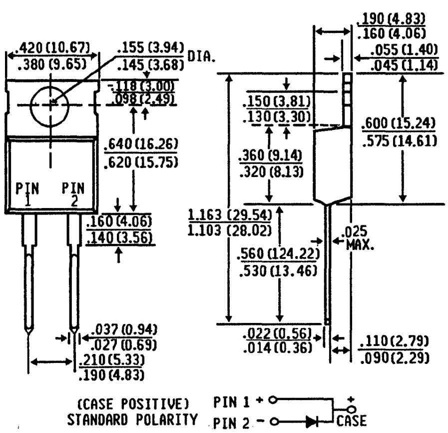
RS8AT THRU RS8MT

HIGH CURRENT FAST SWITCHING PLASTIC RECTIFIER

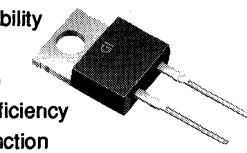
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 8.0 Amperes*

FEATURES

TO-220



Dimensions in inches and (millimeters)



- The plastic package carries Underwriters Laboratory Flammability Classification 94V-O
- High forward surge capability
- High current operation
- Low forward voltage drop
- Fast switching for high efficiency
- Glass passivated chip junction
- High temperature soldering guaranteed: 265°C/10 seconds/.25",(6.35mm) lead lengths at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: JEDEC TO-220 molded plastic

Terminals: Plated Leads solderable per MIL-STD-202, Method 208

Polarity: As marked

Weight:: .08 ounces, 2.224 grams

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	RS8 AT	RS8 BT	RS8 DT	RS8 GT	RS8 JT	RS8 KT	RS8 MT	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at T_C = 100°C	$I_{(AV)}$	8.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150							Amps
Maximum Instantaneous Forward Voltage at 8.0A	V_F	1.3							Volts
Maximum Reverse Current T_J = 25°C at Rated DC Blocking Voltage T_C = 100°C	I_R	10.0 250							µA
Maximum Reverse Recovery Time (Note 2) T_J = 25°C	T_{RR}	150			200	250		500	ns
Typical Junction Capacitance (Note 1)	C_J	55							pf
Typical Thermal Resistance (Note 3)	$R_{\theta JC}$	3.0							°C/W
Operating and Storage Temperature Range,	T_J, T_{STG}	-50 to +150							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Reverse Recovery Test Conditions : I_F = 0.5A, I_R = 1.0A, Irr = .25A.
3. Thermal Resistance from Junction to Case attached to heat sink.

Fig. 1—FORWARD CURRENT DERATING CURVE

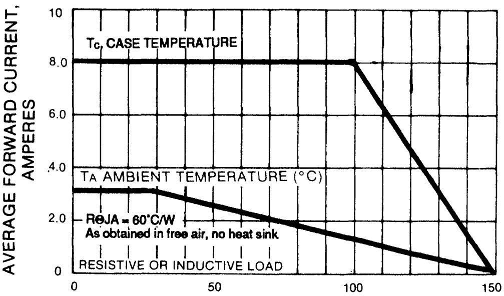


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

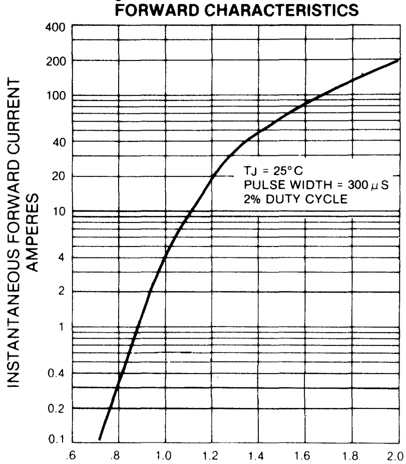


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

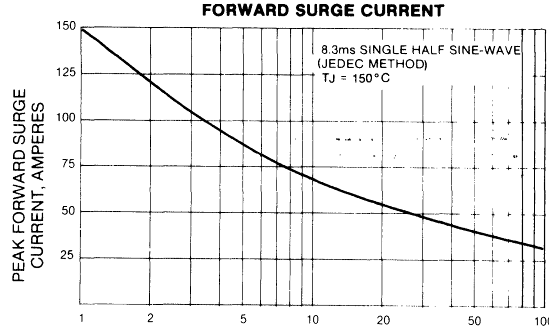


Fig. 4—TYPICAL REVERSE CHARACTERISTICS

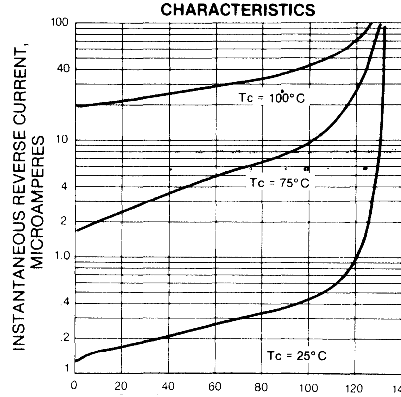
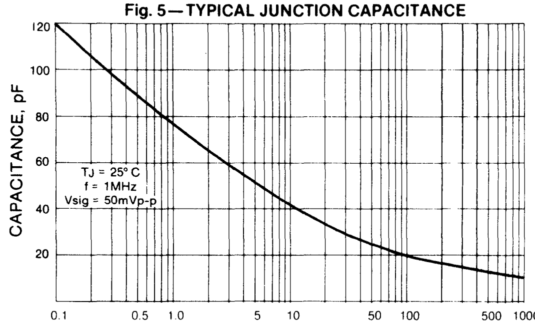


Fig. 5—TYPICAL JUNCTION CAPACITANCE



GENERAL INSTRUMENT

BRIDGE RECTIFIERS

0.9 AMPERE TO 35 AMPERES
50 VOLTS TO 1000 VOLTS

GENERAL INSTRUMENT

BRIDGE RECTIFIERS
0.9 to 35 Amperes 50 Volts to 1000 Volts

Families of General Instrument Bridge Rectifiers

All types of rectifier cells, which are produced by GENERAL INSTRUMENT, are available in bridge configurations, molded in various plastic packages.

The basic types of packages are
- Round Plastic Package (Fig. 1)
- IN-LINE Plastic Package (Fig. 2)
- DUAL-IN-LINE Plastic Package (Fig. 3)
- **Square Plastic Package for Chassis Mounting (Fig. 4)**

These bridge families are available with different terminals, such as wire leads, FASTON or soldering lugs.

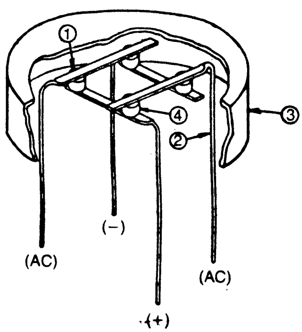


Fig. 1 **Round Bridge**

ITEM DESCRIPTION
1. **Solder Preforms**
2. **Formed Copper Leads**
3. **Plastic Case**
4. **Cells or GPP Chips**

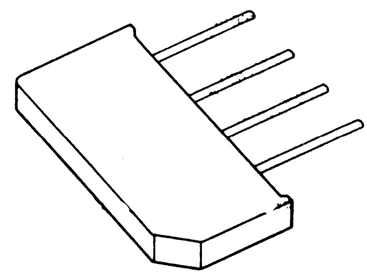


Fig. 2 **IN-LINE Bridge**

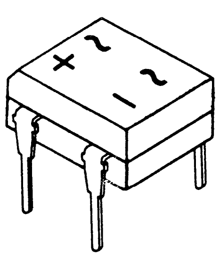


Fig. 3 **DUAL-IN-LINE Bridge**

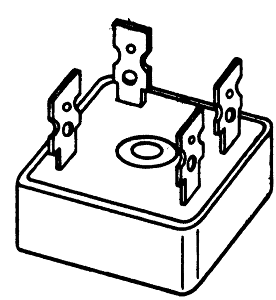


Fig. 4 **Chassis Mounted Bridge**

FAMILIES OF GENERAL INSTRUMENT BRIDGE RECTIFIERS

Dual-In-Line Single Phase Bridge Rectifiers 0.9 to 1.0 AMPERE

Types:

DF005M thru DF10M
RDF005M thru RDF08M (Fast Recovery)
B40C80DM - B380C800DM

Features:

- ◆ Surge Overload Rating 50 Amperes Peak
- ◆ Ideal for Printed Circuit Board
- ◆ Reliable Low Cost Construction
- ◆ Tinned Copper Leads Solderable to MIL-STD-202 **Method 208**
- ◆ Glass Passivated Chip Junctions
- ◆ Plastic Package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ All bridge series are UL recognized under component index, file number E54214

Miniature Single-Phase Bridge Rectifiers 1.5 to 2 AMPERES

Types:

W005M thru W10M
2W005M thru 2W10M
B40C800 (M) thru B250C800 (M)
B40C1000 (M) thru B380C10000 (M)
B40C1500 **(M)** thru B380C1500 **(M)**
W005G thru W10G*
AW02G thru AW08G*
RW005G thru RW08G* (Fast Recovery)

Features:

- ◆ Surge Overload Rating 50 and 60 Amperes Peak
- ◆ Ideal for Printed Circuit Board
- ◆ Reliable Low Cost Construction
- ◆ Leads are Solderable to MIL-STD-202 Method 208
- ◆ Plastic Package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ All bridge series are UL recognized under component index, file number E54214

***These bridges have glass passivated chip junctions**

In-Line Single Phase Bridge Rectifiers 1.0 to 8.0 AMPERES

Types:

KBP005M thru KBP10M*
2KBP005M thru 2KBP10M*
KBU4A thru KBU4M
KBL005 thru KBL10
KBU6A thru KBU6M
KBU8A thru KBU8M
B40C3700/2200 thru B380C3700/2200
B40C5000/3300 thru B380C5000/3300
3N249 thru 3N252*
3N253 thru 3N259*

Features:

- ◆ Surge Overload Rating from 50 to 300 Amperes Peak
- ◆ Ideal for Printed Circuit Board
- ◆ Reliable Low Cost Construction utilizing molded Plastic
- ◆ Leads are Solderable to MIL-STD-202 Method 208
- ◆ Plastic Package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ All bridge series are UL recognized under component index file number E54214

*These series have Glass Passivated Chip Junctions

High Current Single Phase Bridge Rectifiers 3.0 to 35 AMPERES

Types:

KBPC1005 thru KBPC110 SUPERECTIFIER Construction
KBPC6005 thru KBPC610
KBPC8005 thru KBPC810 SUPERECTIFIER Construction
KBPC10-005 thru KBPC10-10
KBPC15-005 thru KBPC15-10
KBPC25-005 thru KBPC25-10
KBPC35-005 thru KBPC35-10

Features:

- ◆ High Capability of Surge Overload Rating
- ◆ Insulated Case for Maximum Heat Dissipation
- ◆ Low Forward Voltage Drop
- ◆ Copper Leads or Faston Terminals
- ◆ Simple Installation thru Screw hole for NBR6 Screw
- ◆ Leads or Terminals are Solderable to MIL-STD-202 Method 208
- ◆ Plastic Package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ All bridge series are UL recognized under component index, file number E54214

QUICK GUIDE TO BRIDGE RECTIFIERS

I_o (A)	1.0	1.5	1.5	1.0	2.0	2.0	2.0	4.0	4.0	6.0	8.0	I_o (A)
@T_A (°C)	40	25	50	75	25	50	55	50	65	40	100T_C	@T_A (°C)
SURGE (A)	50	50	50	30	60	60	60	200	200	250	300	SURGE (A)
V_R = 50 (V)	DF005M	W005M \G	KBP005M	3N246	2W005M	2KBP005M	3N253	KBL005	KBU4A	KBU6A	KBU8A	V_R = 50 (V)
V_R = 100 (V)	DF01M	W01M \G	KBP01M	3N247	2W01M	2KBP01M	3N254	KBL01	KBU4B	KBU6B	KBU8B	V_R = 100 (V)
V_R = 200 (V)	DF02M	W02M \G	KBP02M	3N248	2W02M	2KBP02M	3N255	KBL02	KBU4D	KBU6D	KBU8D	V_R = 200 (V)
V_R = 400 (V)	DF04M	W04M \G	KBP04M	3N249	2W04M	2KBP04M	3N256	KBL04	KBU4G	KBU6G	KBU8G	V_R = 400 (V)
V_R = 600 (V)	DF06M	W06M \G	KBP06M	3N250	2W06M	2KBP06M	3N257	KBL06	KBU4J	KBU6J	KBU8J	V_R = 600 (V)
V_R = 800 (V)	DF08M	W08M \G	KBP08M	3N251	2W08M	2KBP08M	3N258	KBL08	KBU4K	KBU6K	KBU8K	V_R = 800 (V)
V_R = 1000 (V)	DF10M	W10M \G	KBP10M	3N252	2W10M	2KBP10M	3N259	KBL10	KBU4M	KBU6M	KBU8M	V_R = 1000 (V)

QUICK GUIDE TO BRIDGE RECTIFIERS

I_o (A)	3.0	6.0	8.0	10	15	25	35	I_o (A)
@T_A (°C)	50	100	50	55	55	55	55	@T_A (°C)
SURGE (A)	50	200	125	200	300	300	400	SURGE (A)
V_R = 50 (V)	KBPC1005■	KBPC6005	KBPC8005■	KBPC10-005	KBPC15-005	KBPC25-005	KBPC35-005	V_R = 50 (V)
V_R = 100 (V)	KBPC101■	KBPC601	KBPC801■	KBPC10-01	KBPC15-01	KBPC25-01	KBPC35-01	V_R = 100 (V)
V_R = 200 (V)	KBPC102■	KBPC602	KBPC802■	KBPC10-02	KBPC15-02	KBPC25-02	KBPC35-02	V_R = 200 (V)
V_R = 400 (V)	KBPC104■	KBPC604	KBPC804■	KBPC10-04	KBPC15-04	KBPC25-04	KBPC35-04	V_R = 400 (V)
V_R = 600 (V)	KBPC106■	KBPC606	KBPC806■	KBPC10-06	KBPC15-06	KBPC25-06	KBPC35-06	V_R = 600 (V)
V_R = 800 (V)	KBPC108■	KBPC608	KBPC808■	KBPC10-08	KBPC15-08	KBPC25-08	KBPC35-08	V_R = 800 (V)
V_R = 1000 (V)	KBPC110■	KBPC610	KBPC810■	KBPC10-10	KBPC15-10	KBPC25-10	KBPC35-10	V_R = 1000 (V)

■ SUPERECTIFIER construction

QUICK GUIDE TO BRIDGE RECTIFIERS

I_o (A)	0.8	1.0	1.5	1.5	3.7	5.0	I_o (A)
@T_A (°C)	45	45	45	45	45	45	@T_A (°C)
SURGE (A)	45	45	45	90	100	200	SURGE (A)
V_{RMS} = 40 (V)	B40C800[1][2]	B40C1000[1]	B40C1500	B40C1500 C	B40C3700/2200	B40C5000/3300	V_{RMS} = 40 (V)
V_{RMS} = 80 (V)	B80C800[1][2]	B80C1000[1]	B80C1500	B80C1500 C	B80C3700/2200	B80C5000/3300	V_{RMS} = 80 (V)
V_{RMS} = 125 (V)	B125C800[1][2]	B125C1000[1]	B125C1500	B125C1500 C	B125C3700/2200	B125C5000/3300	V_{RMS} = 125 (V)
V_{RMS} = 250 (V)	B250C800[1][2]	B250C1000[1]	B250C1500	B250C1500 C	B250C3700/2200	B250C5000/3300	V_{RMS} = 250 (V)
V_{RMS} = 380 (V)	B380C800[1][2]	B380C1000[1]	B380C1500	B380C1500 C	B380C3700/2200	B380C5000/3300	V_{RMS} = 380 (V)

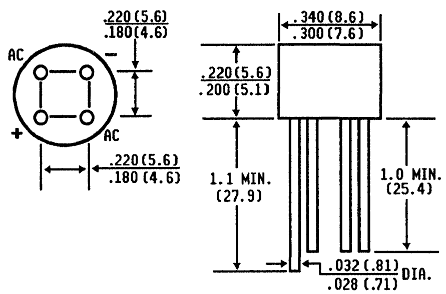
1) M Indicates Miniature Package
2) DM Indicates Dual-Inline Package (IC-Leads)

GENERAL INSTRUMENT

B40C / B80C / B125C / B250C / B380C
800M SERIES

MINIATURE SINGLE - PHASE SILICON BRIDGE RECTIFIER

Voltage - 65 to 600 Volts ***Current*** - 0.9 Amperes



Dimensions in inches and (millimeters)

FEATURES

- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ High case dielectric strength
- ◆ Typical I_R less than 0.1 μ A
- ◆ High overload surge current
- ◆ Ideal for printed circuit board
- ◆ High temperature soldering guaranteed 250°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique
Terminals: Plated Leads solderable per MIL-STD-202, Method 208
Mounting Position: Any
Weight: 0.05 ounce, 1.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 50 Hz or 60 Hz, resistive or inductive load.

	SYMBOLS	*B40*	*B80*	*B125*	*B250*	*B380*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	65	125	200	400	600	Volts
Maximum RMS Inpur Voltage R + C-Load	V_{RMS}	40	80	125	250	380	Volts
Maximum Average Forward OutputCurrent for free air operation at T_A = 45°C R + L-Load / C - Load	$I_{(AV)}$			0.9 0.8			Amps
Maximum DC Blocking Voltage	V_{DC}	65	125	200	400	600	Volts
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	65	125	200	400	600	Volts
Maximum Peak Working Voltage	V_{RWM}	90	180	300	600	900	Volts
Maximum Non-Repetitve Peak Voltage	V_{RSM}	100	200	350	600	1000	Volts
Maximum Repetive Peak Forward Surge Current	I_{FRM}			10.0			Amps
Peak Forward Surge Current Single Sine wave on rated load at T_J = 125°C	I_{FSM}			45.0			Amps
Rating for Fusing at T_J = 125°C (t<100ms)	I^2t			10.0			A^2S
Minimum Series Resistor C-Load V_{RMS} = + 10%	Rt	1.0	2.0	4.0	8.0	12.0	ohms
Maximum Load Capacitance +50% -10%	C_L	5000	2500	1000	500	200	μF
Maximum Instantaneous Forward Voltage Drop per element at 0.9A	V_F			1.0			Volts
Maximum Reverse Current at rated Repetitive Peak Voltage per element T_A = 25°C	I_R			10.0			μA
Typical Thermal Resistance (Note 1)	$R\Theta JA$			36.0			°C/W
Operating Temperature Range	T_J			-40 to +125			°C
Storage Temperature Range	T_{STG}			-40 to +150			°C

NOTES:
1. Thermal Resistance from Junction to Ambient mounted on P.C Board at .375" (9.5mm) Lead Lengths with 0.2" x 0.2" (5.5mm and 5.5mm)Copper Pads.

FIG .1 - DERATING CURVE FOR OUTPUT RECTIFIED CURRENT FOR B40C 800M...B125C 800M

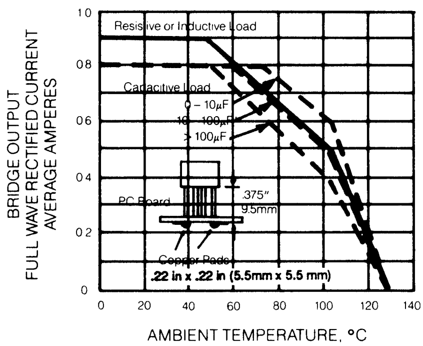


FIG. 2 - DERATING CURVES FOR OUTPUT RECTIFIED CURRENT B250C 800M...B380C 800M

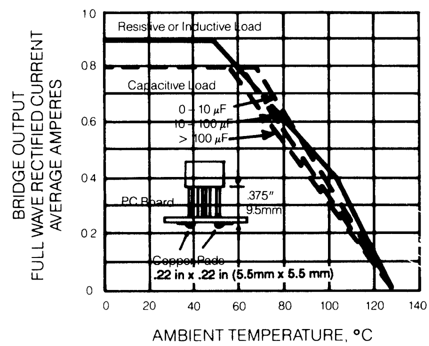


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

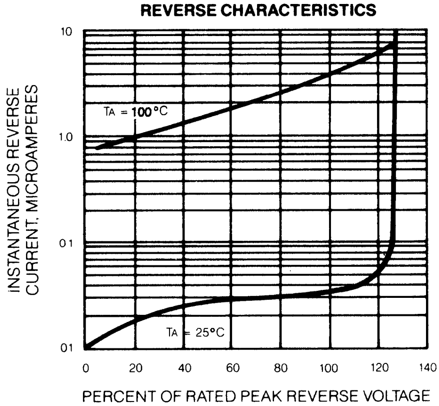


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

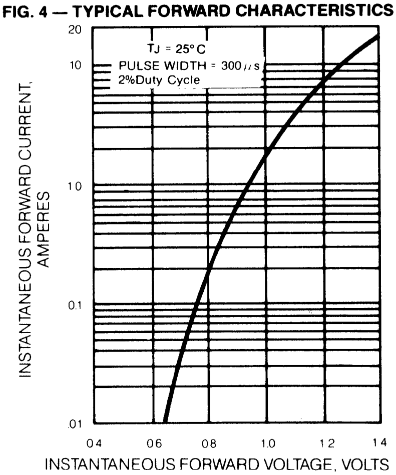


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD CURRENT

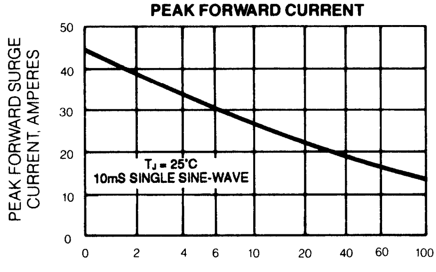
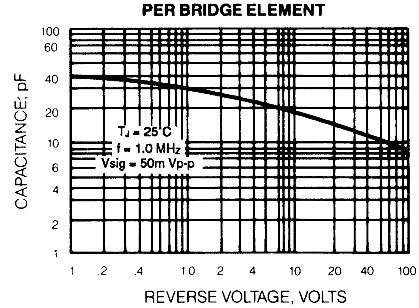


FIG. 6 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT

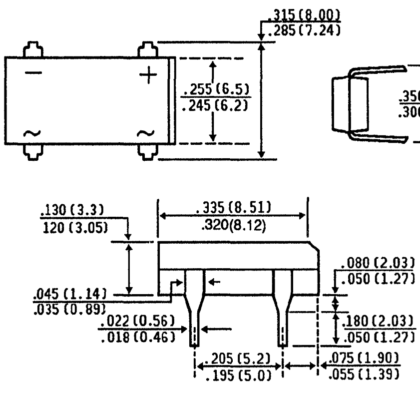


GENERAL INSTRUMENT

B40C / B80C / B125C / B250C / B380C
800 DM SERIES

MINIATURE GLASS PASSIVATED SINGLE - PHASE BRIDGE RECTIFIER

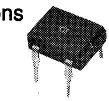
Voltage **-** 65 to 600 Volts ***Current*** **-** 0.9 Amperes



Dimensions in inches and (millimeters)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated chip junctions
- Surge overlolad rating of 45 Amperes peak
- Ideal for printed circuit board
- High temperature soldering guaranteed 265°C / 10 seconds at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique
Terminals: Plated Leads solderable per MIL-STD-202, Method 208
Mounting Position: Any
Weight: 0.04 ounce, 1.0 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 50 Hz or 60 Hz, resistive or inductive load.

	SYMBOLS	*B40*	*B80*	*B125*	*B250*	*B380*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	65	125	200	400	600	Volts
Maximum RMS Input Voltage R + C-Load	V_{RMS}	40	80	125	250	380	Volts
Maximum Average Forward Output Current for free air operation at T_A = 45°C R + L-Load C - Load	$I_{(AV)}$			0.9 0.8			Amps
Maximum DC Blocking Voltage	V_{DC}	65	125	200	400	600	Volts
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	90	180	300	600	900	Volts
Maximum Peak Working Voltage	V_{RWM}	90	180	300	600	900	Volts
Maximum Non-Repetitve Peak Voltage	V_{RSM}	100	200	350	650	1000	Volts
Maximum Repetive Peak Forward Surge Current	I_{FRM}			10.0			Amps
Peak Forward Surge Current Single Sine wave on rated load at T_J = 125°C	I_{FSM}			45.0			Amps
Rating for Fusing at T_J = 125°C (t<100ms)	I^2t			10.0			A^2S
Minimum Series Resistor C-Load V_{RMS} = + 10%	Rt	1.0	2.0	4.0	8.0	12.0	ohms
Maximum Load Capacitance +50% -10%	CL	5000	2500	1000	500	200	µF
Maximum Instantaneous Forward Voltage Drop per element at 0.9A	V_F			1.0			Volts
Maximum Reverse Current at rated Repetitive Peak Voltage per element T_A = 25°C	I_R			10.0			µA
Typical Thermal Resistance (Note 1)	$R\Theta JA$			40.0			°C/W
Operating Temperature Range	T_J			-40 to +125			°C
Storage Temperature Range	T_{STG}			-40 to +150			°C

NOTES:
1. Thermal Resistance from Junction to Ambient mounted on P.C Board 0.5" x 0.5" (13mm x 13mm) Copper pads.

FIG 1 - DERARTING CURVE FOR OUTPUT RECTIFIED CURRENT FOR B40C 1000M...B125C 1000M

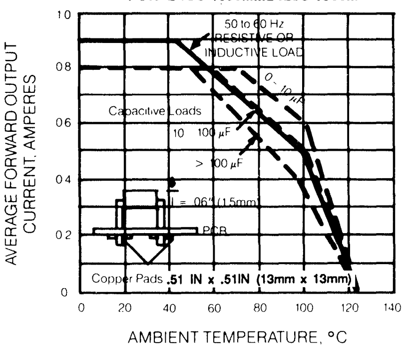


FIG.2 - DERATING CURVE FOR OUTPUT RECTIFIED CURRENT FOR B250C 1000M....B380C 1000M

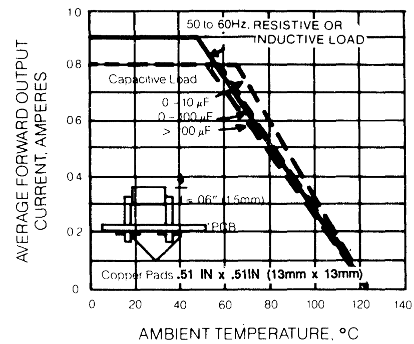


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

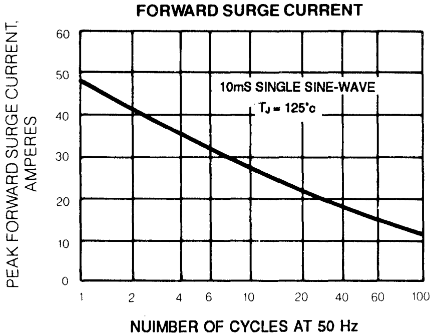


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER BRIDGE ELEMENT

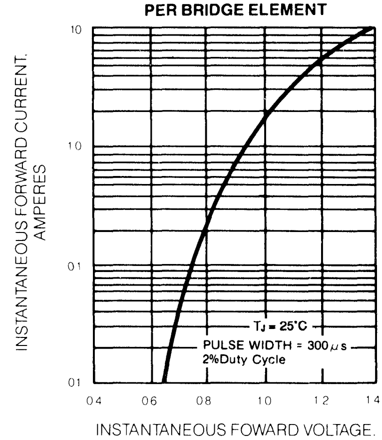


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT

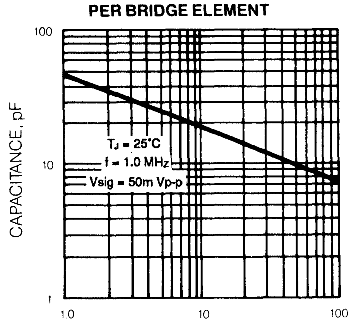
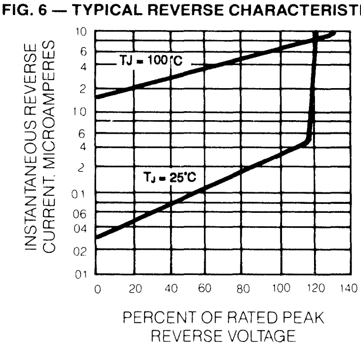


FIG. 6 — TYPICAL REVERSE CHARACTERISTICS

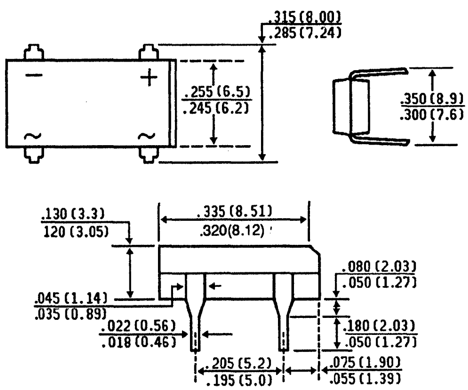


GENERAL INSTRUMENT

DF005M THRU DF10M

MINIATURE GLASS PASSIVATED SINGLE - PHASE SILICON BRIDGE RECTIFIER

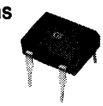
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.0 Ampere*



Dimensions in inches and (millimeters)

FEATURES

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- Glass passivated chip junctions Surge overload rating of 50 Amperes peak
- Ideal for printed circuit board
- High temperature soldering guaranteed: 265° C /10 seconds at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Lead solderable per MIL-STD-202, Method 208

Polarity: Polarity symbols marked on body

Weight:: 0.04 ounce, 1.0 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
60 Hz, resistive or inductive load.

	SYMBOLS	DF 005M	DF 01M	DF 02M	DF 04M	DF 06M	DF 08M	DF 10M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Output Rectified Current at T_A = 40°C	$I_{(AV)}$	1.0							Amps
Peak Forward Surge CurrentSingle sine-wave superimposed onrated load (JEDEC Method)	I_{FSM}	50.0							Amps
Rating for fusing (t<8.35ms)	I^2t	10.0							A^2s
Maximum Instantaneous Forward Voltage drop per element at 1.0A	V_F	1.1							Volts
Maximum Reverse Current T_A = 25°C at Rated DC Blocking Voltage per element T_A = 125°C	I_R	10.0 500							μA
Typical Junction Capacitance per element (Note 1)	C_J	25.0							pf
Typical Thermal Resistance (Note 2)	RθJA	40.0							°C/W
Operating and Storage Temperature Range,	T_J, T_{STG}	-55 to +150							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resestance from Junction to Ambient mounted on P.C. Board with 0,5" x 0.5" (13mm x13mm) Copper Pads.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

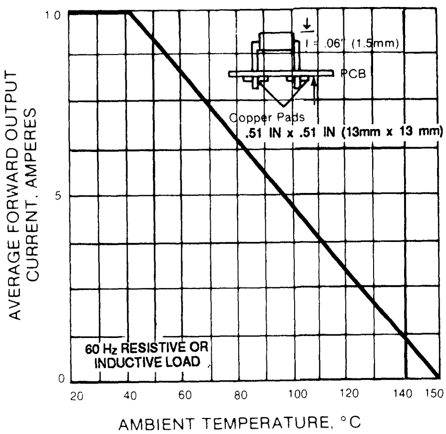


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

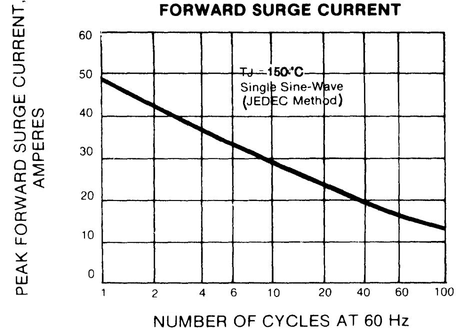


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS PER BRIDGE ELEMENT

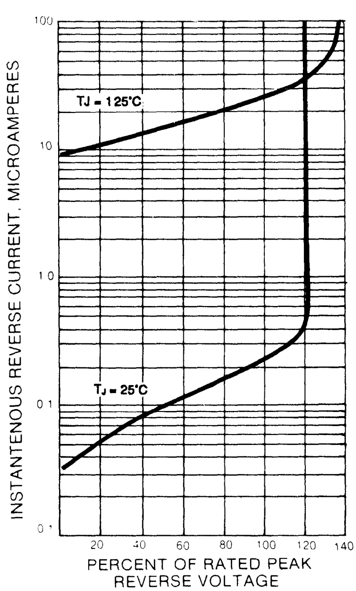


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER BRIDGE ELEMENT

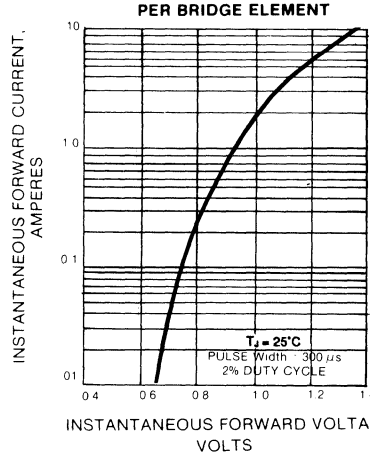
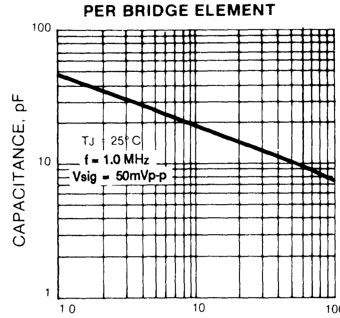


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT



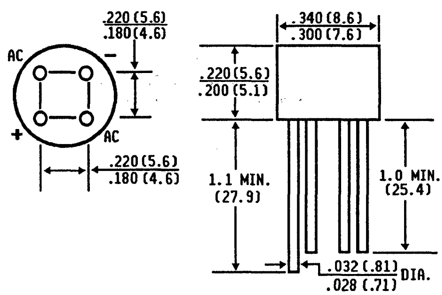
GENERAL INSTRUMENT

B40C / B80C / B125C / B250C / B380C
1000M

MINIATURE SINGLE - PHASE SILICON BRIDGE RECTIFIER

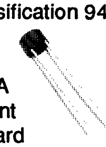
Voltage - 65 to 600 Volts ***Current*** - 1.0 Ampere

FEATURES



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High case dielectric strength
- Typical I_R less than 0.1 μ A
- High overload surge current
- Ideal for printed circuit board
- High temperature soldering guaranteed 250°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique
Terminals: Plated Leads solderable per MIL-STD-202, Method 208
Mounting Position: Any
Weight: 0.05 ounce, 1.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 50Hz or 60 Hz, resistive or inductive load.

	SYMBOLS	*B40*	*B80*	*B125*	*B250*	*B380*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	65	125	200	400	600	Volts
Maximum RMS Inpur Voltage R + C-Load	V_{RMS}	40	80	125	250	380	Volts
Maximum Average Forward Output Current for free air operation at T_A = 45°C R + L-Load / C - Load	$I_{(AV)}$			1.2 / 1.0			Amps
Maximum DC Blocking Voltage	V_{DC}	65	125	200	400	600	Volts
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	90	180	300	600	800	Volts
Maximum Peak Working Voltage	V_{RWM}	90	180	300	600	900	Volts
Maximum Non-Repetitve Peak Voltage	V_{RSM}	100	200	350	600	1000	Volts
Maximum Repetive Peak Forward Surge Current	I_{FRM}			10.0			Amps
Peak Forward Surge CurrentSingle Sine wave on rated load (JEDEC) Method) at T_J = 125°C	I_{FSM}			45.0			Amps
Rating for Fusing at T_J = 125°C (t<100ms)	I^2t			10.0			A^2S
Minimum Series Resistor C-Load V_{RMS} = -or+ 10%	RtW	1.0	2.0	4.0	8.0	12.0	ohms
Maximum Load Capacitance +50% -10%	C_L	5000	2500	1000	500	200	μF
Maximum Instantaneous Forward Voltage Drop per element at 1.0A	V_F			1.0			Volts
Maximum Reverse Current at rated Repetitive Peak Voltage per element T_A = 25°C	I_R			10.0			μA
Typical Thermal Resistance (Note 1)	RΘJA			36.0			°C/W
Operating Temperature Range	T_J			-40 to +125			°C
Storage Temperature Range	T_{STG}			-40 to +150			°C

NOTES:
1. Thermal Resistance from Junction to Ambient mounted on P.C Board at .375" (9.5mm) Lead Lengths with 0.2" x 0.2" (5.5mm x 5.5mm) Copper Pads..

FIG. 1 - DERATING CURVE OUTPUT REACTIFIED CURRENT B40C 1000M ... B125C 1000M

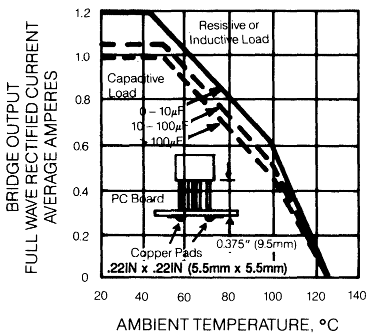


FIG. 2 - DERATING CURVES FOR OUTPUT RECTIFIED CURRENT B250C 1000M ... B380C 1000M

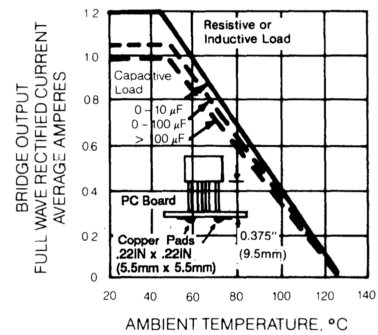


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

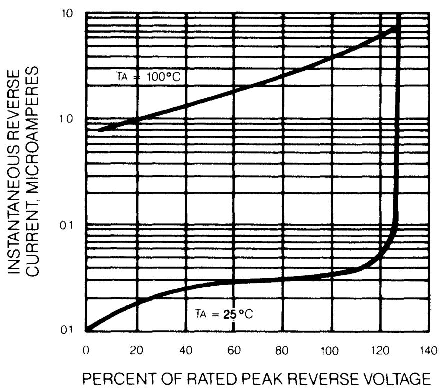


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

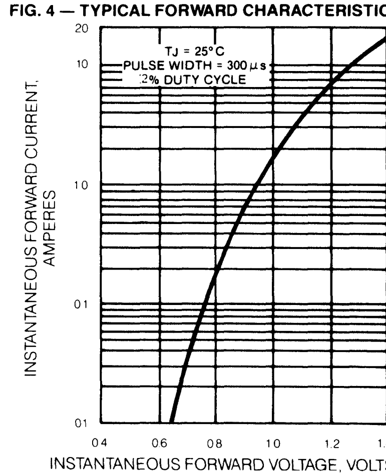


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD CURRENT

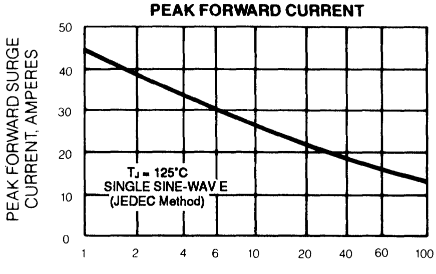
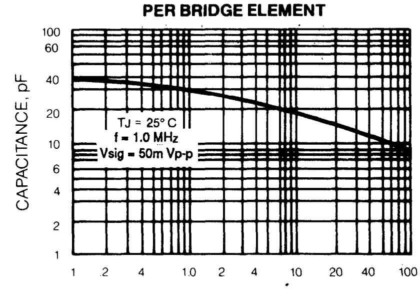


FIG. 6 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT



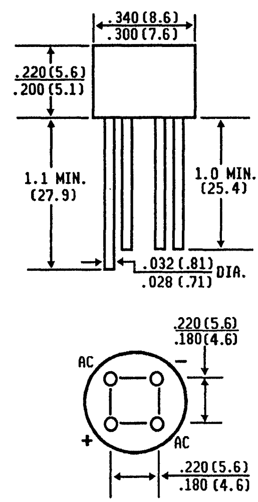
GENERAL INSTRUMENT

W005M THRU W10M

MINIATURE SINGLE - PHASE SILICON BRIDGE RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.5 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- High case dielectric strength
- Typical IR less than 0.1 μ A
- High overload surge capability
- Ideal for printed circuit board
- High temperature soldering guaranteed: 250° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension

MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals:Plated Leads solderable per MIL-STD-202, Method 208

Weight: 0.05 ounce, 1.3 grams

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load.

	SYMBOLS	*W 005M*	*W 01M*	*W 02M*	*W 04M*	*W 06M*	*W 08M*	*W 10M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at .375",(9.5mm) lead length at T_A = 25°C	$I_{(AV)}$	1.5							Amps
Peak Forward Surge Current Single sine-wave superimposed onrated load (JEDEC Method)	I_{FSM}	50.0							Amps
Rating for fusing (t<8.3ms)	I^2t	10.0							A^2s
Maximum Instantaneous Forward Voltage drop per element at 1.0A	V_F	1.0							Volts
Maximum DC Reverse Current T_A = 25°C	I_R	10.0							μA
at Rated DC Blocking Voltage T_A = 100°C		1.0							mA
Typical Junction Capacitance per element (Note 1)	C_J	24.0							pf
Typical Thermal Resistance (Note 2)	RΘJA	36.0							°C/W
Operating Temperature Range	T_J	-50 to + 125							°C
Storage Temperature Range,	T_{STG}	-50 to +150							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient at .375", (9.5mm) lead lengths mounted on P.C. Board with, .2" x .2" (5.5 mm x5.5 mm) Copper Pads.

FIG. 1 — DERATING CURVE
OUTPUT RECTIFIED CURRENT

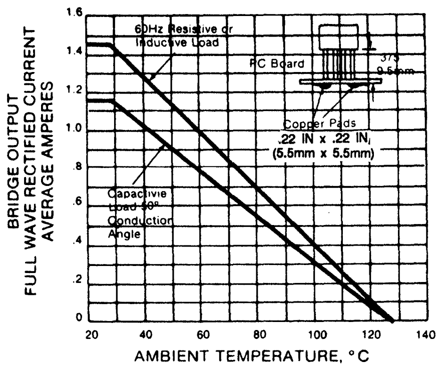


FIG. 2 — MAXIMUM NON-REPETITIVE
PEAK FORWARD SURGE CURRENT

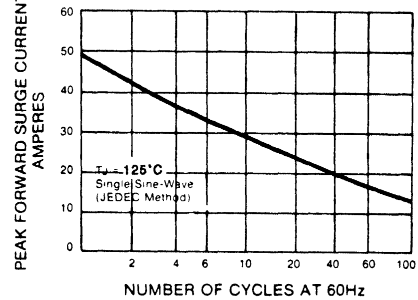


FIG.3 - TYPICAL FORAWARD
CHARACTERISTICS PER BRIDGE ELEMENT

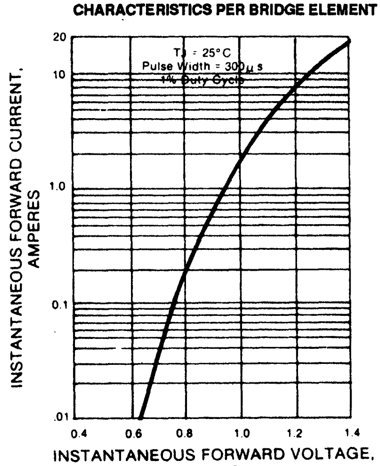


FIG. 4 — TYPICAL
REVERSE CHARACTERISTICS

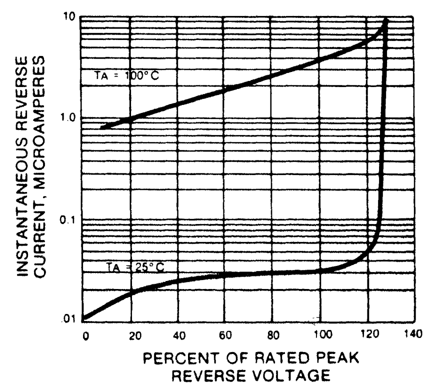
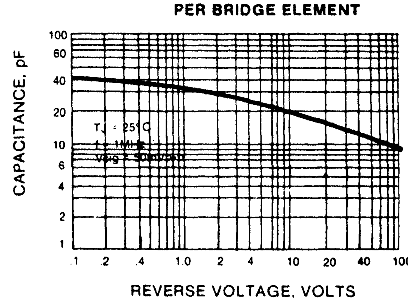


FIG. 5 — TYPICAL JUNCTION CAPACITANCE
PER BRIDGE ELEMENT

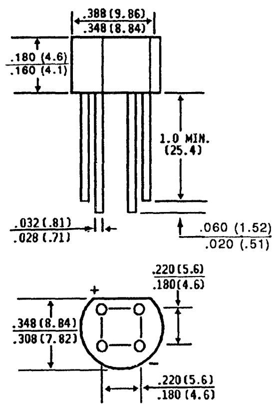


GENERAL
INSTRUMENT

W005G THRU W10G

MINIATURE GLASS PASSIVATED SINGLE-PHASE SILICON BRIDGE RECTIFIER

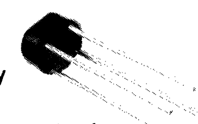
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.5 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- Glass passivated chip junctions
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- High case dielectric strength
- Typical I_R less than 0.1 μ A
- High overload surge capability
- Ideal for printed circuit board
- High temperature soldering guaranteed: 265° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Molded plastic

Terminals: Leads solderable per MIL-STD-202, Method 208

Weight: 0.04 ounce, 1.1 grams

Mounting Position: Any

Weight: 0.04 ounce, 1.1 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load.

	SYMBOLS	*W 005G*	*W 01G*	*W 02G*	*W 04G*	*W 06G*	*W 08G*	*W 10G*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current at .375",(9.5mm) lead length at T_A = 25°C	$I_{(AV)}$	1.5							Amps
Peak Forward Surge Current Single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0							Amps
Rating for fusing (t<8.3ms)	I^2t	10.0							A^2s
Maximum Instantaneous Forward Voltage Drop per element at 1.0 Amperes	V_F	1.0							Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage per Bridge Element T_A = 25°C / T_A = 125°C	I_R	5.0 / 500							μA
Typical Junction Capacitance per element (Note 1)	C_J	14.0							pf
Typical Thermal Resistance (Note 2)	$R_{\theta JA}$	36.0							°C/W
Operating Temperature Range	T_A	-55 to +150				-55 to +125			°C
Storage Temperature Range	T_{STG}	-55 to +150							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient at .375", 9.5mm lead length P.C. Board mounting.

FIG. 1 - DERATING CURVE OUTPUT RECTIFIED CURRENT

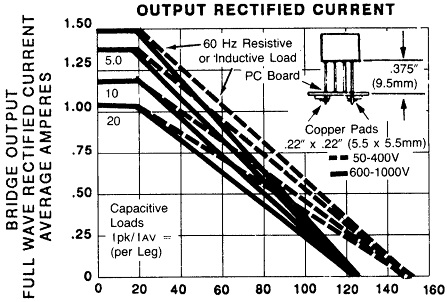


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

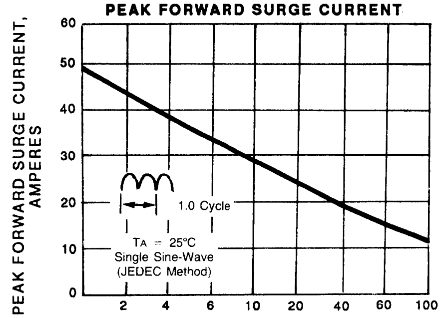


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

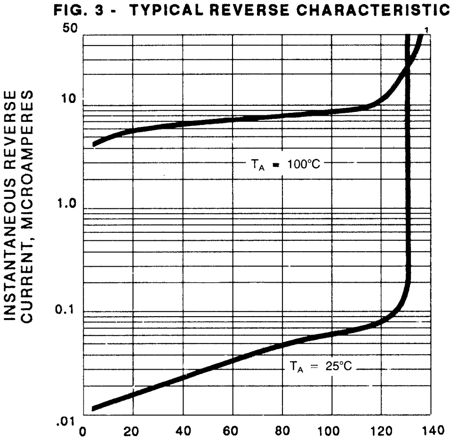


FIG. 4 - TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

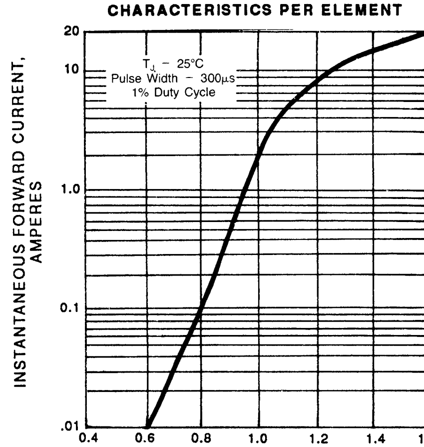


FIG. 5 - TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT

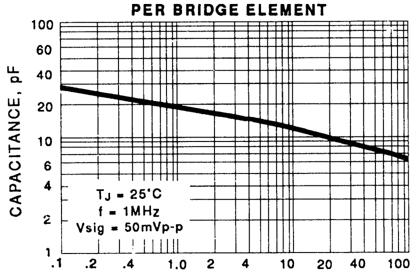
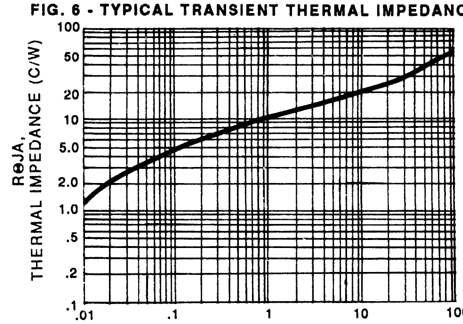


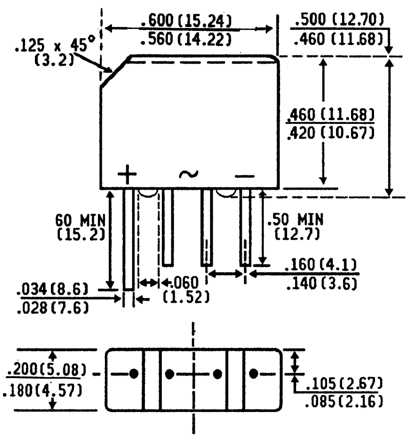
FIG. 6 - TYPICAL TRANSIENT THERMAL IMPEDANCE



KBP005M THRU KBP10M
3N246 THRU 3N252

MINIATURE GLASS PASSIVATED
SINGLE - PHASE SILICON BRIDGE

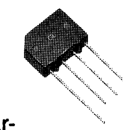
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.5 Amperes*



Dimensions in inches
and
(millimeters)

FEATURES

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- Glass passivated chip junctions
- Surge overload rating - 30 Amperes peak
- Ideal for printed circuit board
- High temperature soldering guaranteed : 265° C /10 seconds at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Lead solderable per MIL-STD-202, Method 208

Polarity: Polarity symbols marked on case

Mounting postition: Any

Weight : 0.06 ounce, 1.70 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load.

	SYMBOLS	KBP005M 3N246	KBP01M 3N247	KBP02M 3N248	KBP04M 3N249	KBP06M 3N250	KBP08M 3N251	KBP10M 3N252	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
* Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Output Rectified Current at T_A = 40°C	$I_{(AV)}$	1.5							Amps
* Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
Rating for fusing (t<8.35ms)	I^2t	10.0							A^2s
* Maximum Instantaneous Forward Voltage drop per Bridge Element at 1.0A / 1.57A	V_F	1.0 / 1.3							Volts
* Maximum DC Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 125°C	I_R	10.0 / 500							μA
Typical Junction Capacitance per element (Note 1)	C_J	15.0							pf
Typical Thermal Resistance (Note 2)	$R_{\theta JA}$	28.0							°C/W
*Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150							°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient mounted on P.C. Board with, .47" x .47" (12mm x12mm) Copper Pads.

* JEDEC Reggistered Values

FIG. 2 — DERATING CURVE OUTPUT RECTIFIED CURRENT

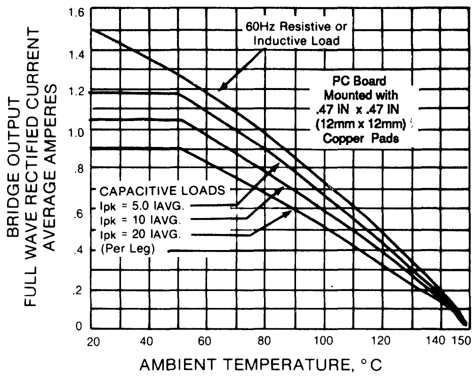


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

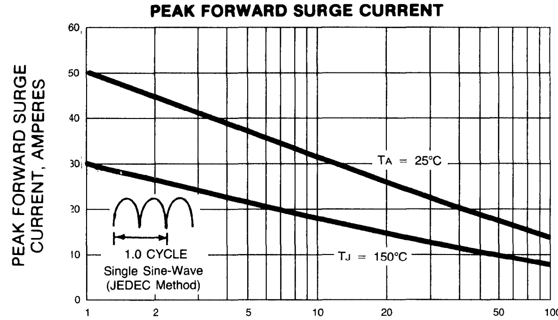


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

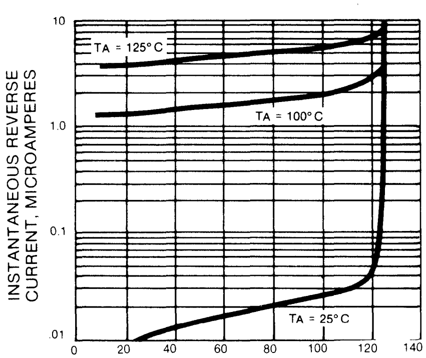


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

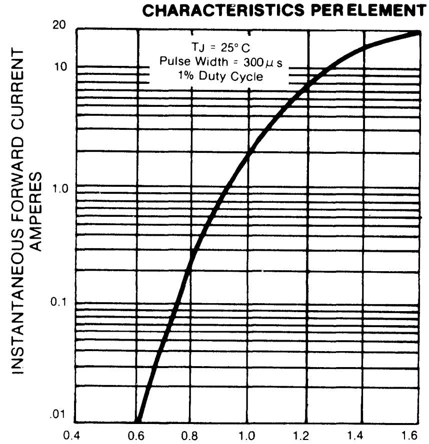
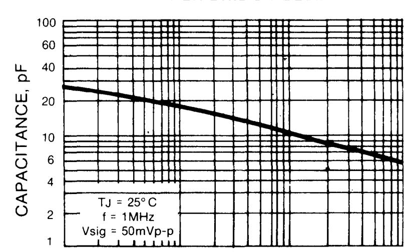


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT



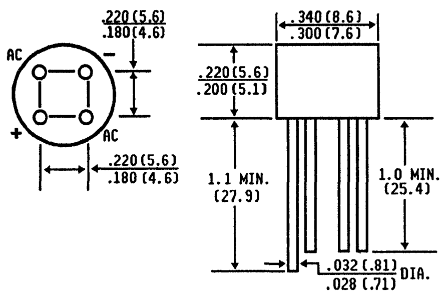
GENERAL INSTRUMENT

AW02M THRU AW08M

MINIATURE CONTROLLED AVALANCHE SINGLE PHASE SILICON BRIDGE RECTIFIER

***VOLTAGE** - 200 to 800 Volts* ***CURRENT** - 1.5 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- This series is UL recognized under component index, file number E54214
- Plastiic material used carries Underwriters Laboratory flammability recognition 94V-O
- High case dielectric strength
- Typical I_R less than 0.1 µA
- High overload surge capability
- Ideal for printed circuit board
- Controlled Avalanche Series
- 200 Watts Avalanche Power Dissipation for 100 µS pulse width
- High temperature soldering guarnateed: 250°C/10 seconds/.375", (9.5mm) lead length at/5 lbs., (2.3kg) tension

MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique
Terminals: Plated Leads solderable per MIL-STD-202, Method 208
Mounting Position: Any
Weight: 0.05 ounce,1.3 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISICS

Ratings at 25°C ambient temperature unless otherwise specified. 60Hz,resistive or inductive load.. For capacitive load, derate current by 20%

	SYMBOLS	*AW02M*	*AWO4M*	*AW06M*	*AW08M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
Minimum Avalanche Breakdown Voltage at 100µA	V_{BR}	250	450	650	850	Volts
Maximum Avalanche Breakdown Voltage at 100 µA	V_{BR}	700	900	1100	1300	Volts
Maximum Average Forward Output Current .375" (9.5mm) Lead Length at T_A = 55°C	$I_{(AV)}$	1.5				Amps
Peak Forward Surge Current,Single half sine -wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0				Amps
Rating for fusing (t<.00835)	I^2t	10.0				A^2s
Maximum Instantaneous Forward Drop per element at 1.0A	V_F	1.0				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 100°C	I_R	10.0 1.0				µA mA
Typical Junction Capacitance per element (Note 1)	C_J	24.0				pf
Typical Thermal Resistance (Note 2)	RθJA	36.0				°C/W
Operating Temperature Range	T_J	-50 to +125				°C
Storage Temperature Range	T_{STG}	-50 to +150				°C

NOTES: 1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to ambient at .375", (9.5mm) lead lengths mounted on P.C. Board with .2" x .2" (5.5mm x 5.5mm) Copper Pads.

FIG. 1 — DERATING CURVE OUTPUT RECTIFIED CURRENT

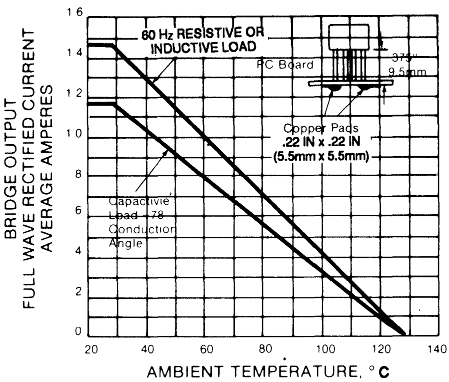


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

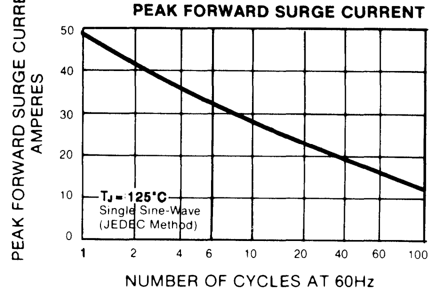


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

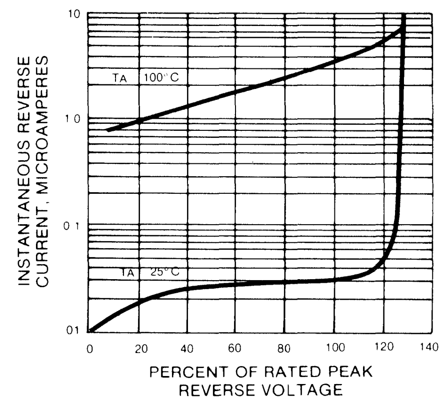


FIG. 3 — TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

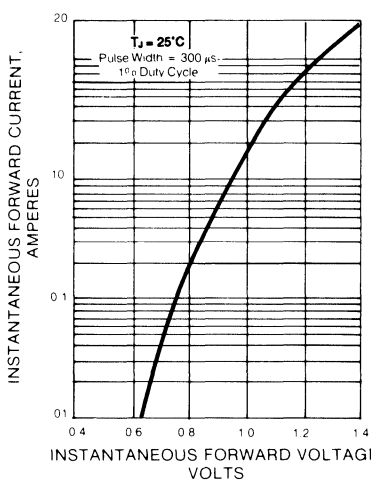
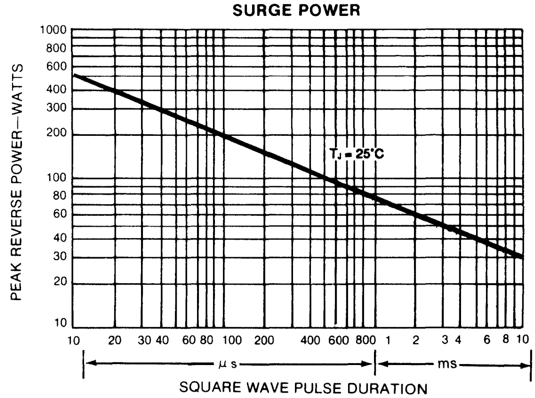


FIG. 5 — MAXIMUM NON-REPETITIVE AVALANCHE SURGE POWER



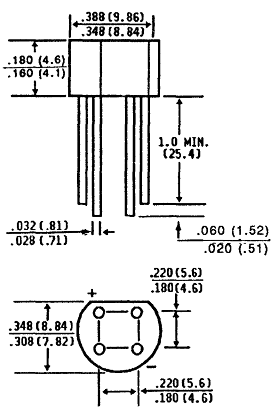
GENERAL INSTRUMENT

AW02G THRU AW08G SERIES

MINIATURE GLASS PASSIVATED CONTROLLED AVALANCHE SINGLE - PHASE SILICON BRIDGE RECTIFIER

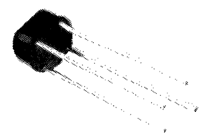
***VOLTAGE** - 200 to 800 Volts* ***CURRENT** - 1.5 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- Glass passivated chip junctions
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- High case dielectric strength
- 200 Watts Avalanche Power Dissipation for 100 µ's
- Typical I_R less than 0.1 µ A
- High overload surge capability
- Ideal for printed circuit board
- High temperature soldering guaranteed: 265° C/10 seconds /.375", (9.5mm) lead length/5lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Molded plastic

Terminals: Leads solderable per MIL-STD-202, Method 208

Mounting Position: Any

Weight: 0.04 ounce, 1.1 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load.

	SYMBOLS	*AW 02G*	*AW 04G*	*AW 06G*	*AW 08G*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	200	400	600	800	Volts
Minimum Avalanche Breakdown Voltage at 100 µA	V_{BR}	250	450	650	850	Volts
Maximum Avalanche Breakdown Voltage at 100 µA	V_{BR}	700	900	1100	1300	Volts
Maximum Average Forward Rectified Current at .375",(9.5mm) lead length at T_A = 25°C	$I_{(AV)}$	1.5				Amps
Peak Forward Surge Current Single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0				Amps
Rating for fusing (t<8.3ms)	I^2t	10.0				A^2s
Maximum Instantaneous Forward Voltage Drop per element at 1.0 Amperes	V_F	1.0				Volts
Maximum DC Reverse Current at Rated T_A = 25°C DC Blocking Voltage per Bridge Element T_A= 125°C	I_R	5.0 500				µA
Typical Junction Capacitance per element (Note 1)	C_J	14.0				pf
Typical Thermal Resistance (Note 2)	$R_{\theta JA}$	36.0				°C/W
Operating Temperature Range	T_A	-55 to +150		-55 to +125		°C
Storage Temperature Range	T_{STG}	-55 to +150				°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient at .375", 9.5mm lead length P.C. Board mounting.

FIG. 1 - DERATING CURVE OUTPUT RECTIFIED CURRENT

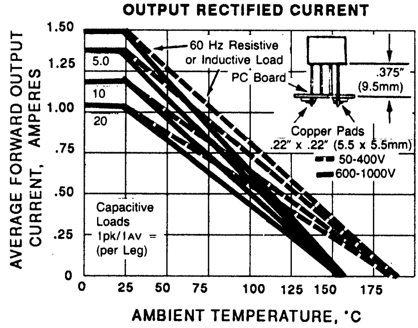


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

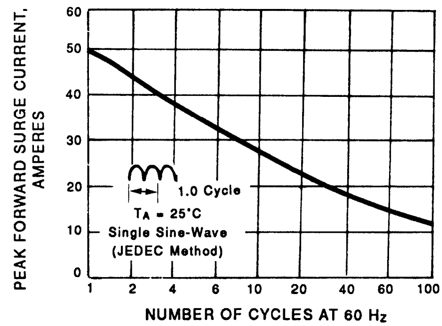


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

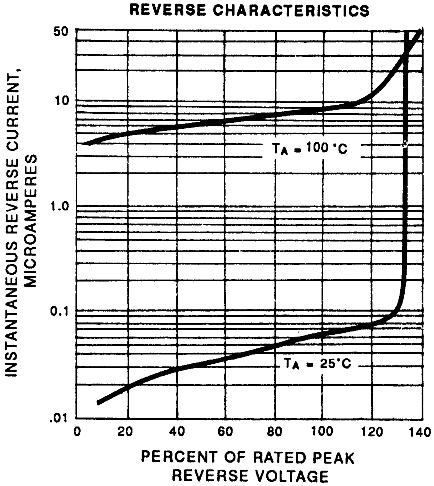


FIG. 4 - TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

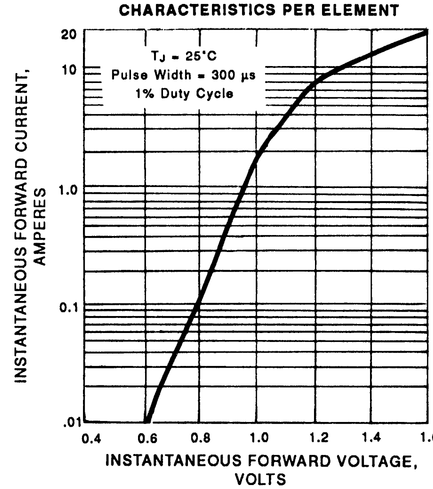


FIG. 5 - TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT

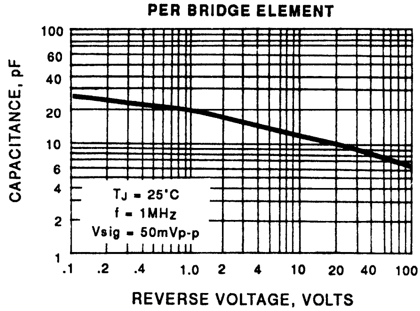
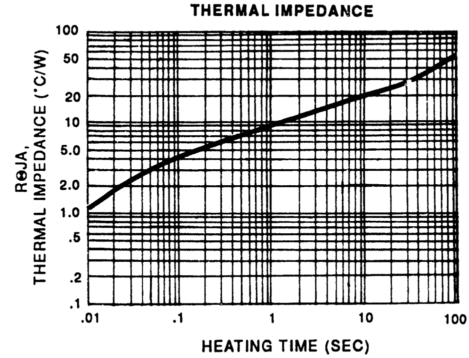


FIG. 6 - TYPICAL TRANSIENT THERMAL IMPEDANCE

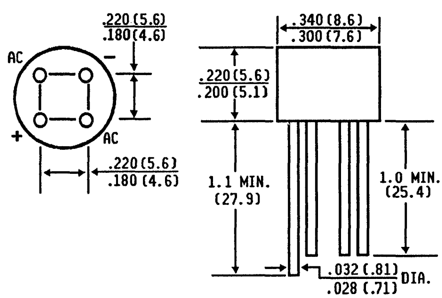


GENERAL INSTRUMENT

B40C / B80C / B125C / B250C / B380C
1500M SERIES

MINIATURE SINGLE - PHASE SILICON BRIDGE RECTIFIER

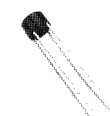
Voltage *- 65 to 600 Volts* ***Current*** *- 1.5 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High case dielectric strength
- Typical I_R less than 0.1 μ A
- High overload surge current
- Ideal for printed circuit board
- High temperature soldering guaranteed 250°C/10 seconds/.375", (9.5mm) lead length at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique
Terminals: Plated Leads solderable per MIL-STD-202, Method 208
Mounting Position: Any
Weight: 0.05 ounce, 1.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 50 Hz or 60 Hz, resistive or inductive load.

	SYMBOLS	*B40*	*B80*	*B125*	*B250*	*B380*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	65	125	200	400	600	Volts
Maximum RMS Input Voltage R + C-Load	V_{RMS}	40	80	125	250	380	Volts
Maximum Average Forward Output Current for free air operation at T_A = 45°C R + L-Load C - Load	$I_{(AV)}$			1.6 1.5			Amps
Maximum DC Blocking Voltage	V_{DC}	65	125	200	400	600	Volts
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	90	180	300	600	800	Volts
Maximum Peak Working Voltage	V_{RWM}	90	180	300	600	800	Volts
Maximum Non-Repetitve Peak Voltage	V_{RSM}	100	200	350	650	1000	Volts
Maximum Repetive Peak Forward Surge Current	I_{FRM}			10.0			Amps
Peak Forward Surge CurrentSingle Sine wave on rated load at T_J = 125°C	I_{FSM}			50.0			Amps
Rating for Fusing at T_J = 125°C (t<100ms)	I^2t			12.5			A^2S
Min.Series Resistor C-Load V_{RMS} = + or -10%	Rt	1.0	2.0	4.0	8.0	12.0	ohms
Maximum Load Capacitance +50% -10%	C_L	5000	2500	1000	500	200	μF
Maximum Instantaneous Forward Voltage Drop per element at 1.5A	V_F			1.0			Volts
Maximum Reverse Current at rated Repetitive Peak Voltage per element T_A = 25°C	I_R			10.0			μA
Typical Thermal Resistance (Note 1)	$R_{\Theta JA}$			36.0			°C/W
Operating Temperature Range	T_J			-40 to +125			°C
Storage Temperature Range	T_{STG}			-40 to +150			°C

NOTES:
1. Thermal Resistance from Junction to Ambient mounted on P.C Board at .375" (9.5mm) Lead Lengths with 0.2" x0.2" (5.5mm x 5.5mm) Copper Pads.

FIG. 1 — DERATING CURVE
OUTPUT RECTIFIED CURRENT
FOR B40C 800M...B125C 800M

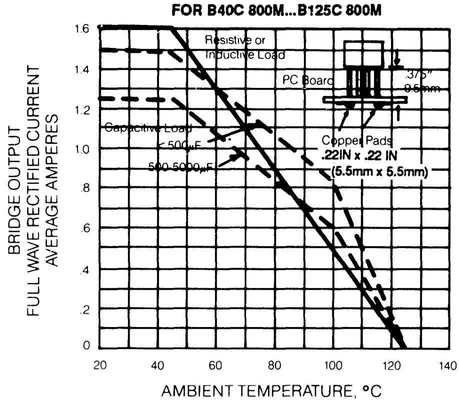


FIG. 2 - DERATING CURVE
OUTPUT RECTIFIED CURRENT
B250 1500M... B380C 1500M

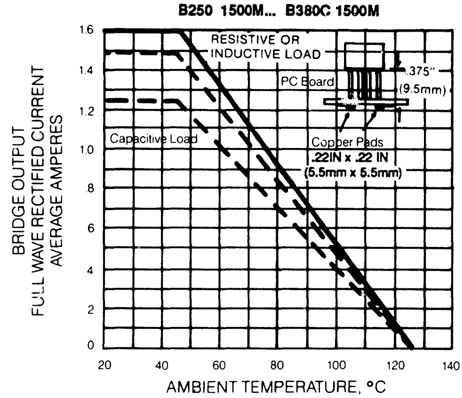


FIG. 3 — TYPICAL
REVERSE CHARACTERISTICS

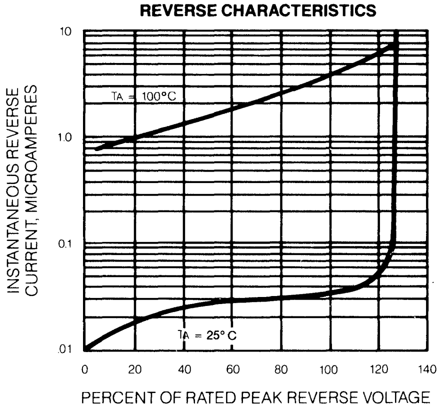


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS

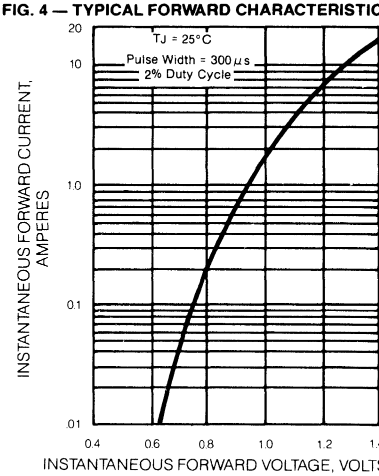


FIG. 5 — MAXIMUM NON-REPETITIVE
PEAK FORWARD CURRENT

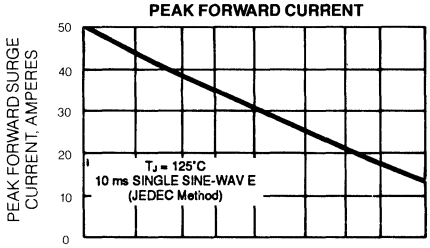
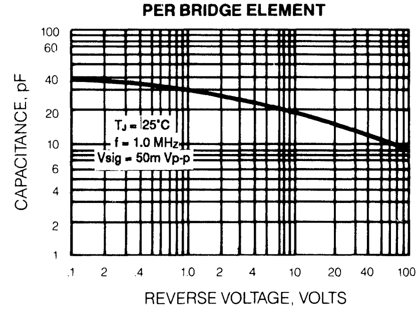


FIG. 6 — TYPICAL JUNCTION CAPACITANCE
PER BRIDGE ELEMENT



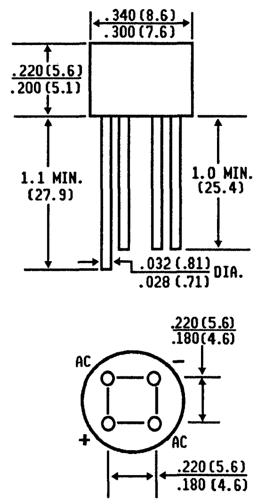
GENERAL INSTRUMENT

2W005M THRU 2W10M

MINIATURE SINGLE - PHASE SILICON BRIDGE RECTIFIER

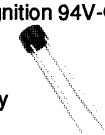
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 2.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- High case dielectric strength
- Typical IR less than 0.1 μ A
- High overload surge capability
- Ideal for printed circuit board
- High temperature soldering guaranteed 265° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique resulting in an inexpensive product

Terminals: Plated Leads Solderable per MIL-STD-202, Method 208

Mounting Position: Any

Handling precautions: None

Weight: 0.05 ounce, 1.3 grams

Polarity: Polarity symbols marked on case

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%

	SYMBOLS	*2W005M*	*2W01M*	*2W02M*	*2W04M*	*2W06M*	*2W08M*	*2W10M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current .375",(9.5mm) lead length at T_A = 25°C	$I_{(AV)}$				2.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				60.0				Amps
Rating for fusing (t<8.3ms)	I^2t				15.0				A^2s
Maximum Instantaneous Forward Voltage drop per element at 2.0A	V_F				1.1				Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage per element T_A = 100°C	I_R				10.0 1.0				μA mA
Typical Junction Capacitance per element (Note 1)	C_J				30.0				pf
Typical Thermal Resistance (Note 2)	$R\Theta JA$				36.0				°C/W
Operating Temperature Range	T_J				-50 to + 125				°C
Storage Temperature Range	T_{STG}				-50 to +150				°C

NOTES:

1. Measured at 1.0 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Thermal Resistance from Junction to Ambiient at .375", 9.5mm lead length mounted on P.C. Board with, .2" x .2" (5.5 mm x5.5 mm) Copper Pads.

FIG. 1 - DERATING CURVE FOR OUTPUT RECTIFIED CURRENT FOR B40C 800M...B125C 800M

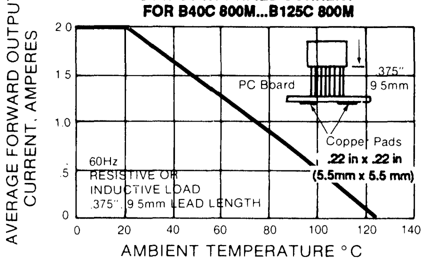


FIG. 2 - DERATING CURVES FOR OUTPUT RECTIFIED CURRENT B250C 800M...B380C 800M

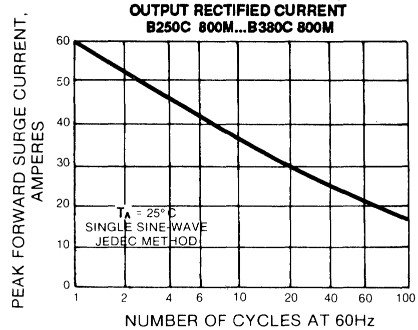


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

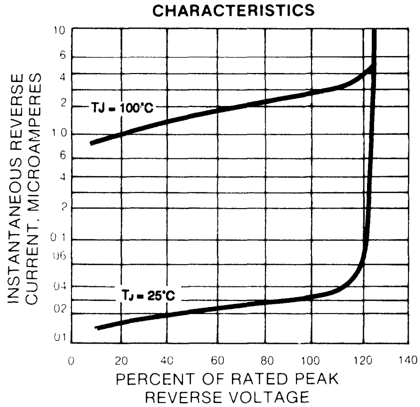


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

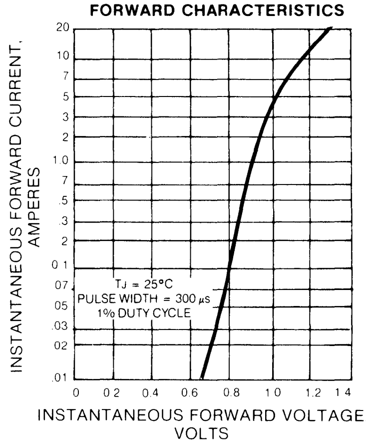
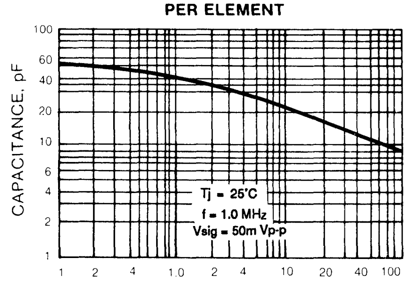


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT

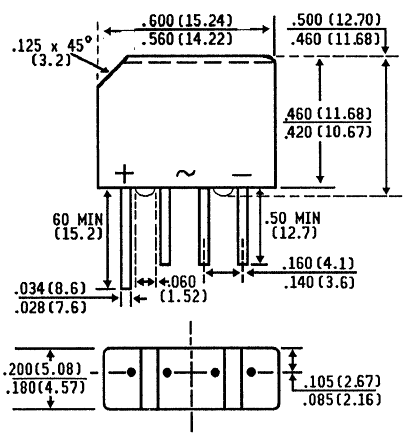


GENERAL INSTRUMENT

2KBP005M THRU 2KBP10M
3N253 THRU 3N259

MINIATURE GLASS PASSIVATED SINGLE - PHASE SILICON BRIDGE RECTIFIER

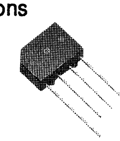
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 2.0 Amperes*



Dimensions in inches
and
(millimeters)

FEATURES

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- Glass passivated chip junctions
- Typical I_R less than 0.1 μ A
- Built -in printed circuit board stand-offs
- High case dielectric strength
- Ideal for printed circuit board
- High temperature soldering guaranteed: 265° C /10 seconds at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Lead solderable per MIL-STD-202, Method 208

Mounting postition: Any

Weight : 0.06 ounce, 1.70 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz Resistive or inductive load.

	SYMBOLS	2KBP 005M 3N253	2KBP 01M 3N254	2KBP 02M 3N255	2KBP 04M 3N256	2KBP 06M 3N257	2KBP 08M 3N258	2KBP 10M 3N259	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
* Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
* Maximum Average Forward Output Rectified Current at T_A = 55°C	$I_{(AV)}$	2.0							Amps
* Peak Forward Surge CurrentSingle sine-wave superimposed onrated load (JEDEC Method)	I_{FSM}	60.0							Amps
Rating for fusing (t<8.35ms)	I^2t	15.0							A^2s
* Maximum Instantaneous Forward Voltage drop per element at 3.14A	V_F	1.1							Volts
* Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage per element T_A = 125°C	I_R	10.0 500							μA
Typical Junction Capacitance per element (Note 1)	C_J	25.0							pf
Typical Thermal Resistance (Note 2)	$R_{\Theta JA}$	30.0							°C/W
*Operating and Storage Temperature Range,	T_J, T_{STG}	-55 to +165							°C

NOTES:

1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient mounted on P.C. Board with, .47" x .47" (12mm x12mm) Copper Pads.

* JEDEC Reggistered Values

FIG.1—DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

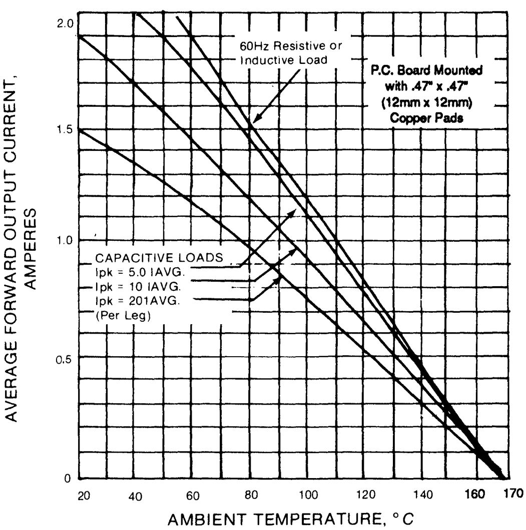


FIG.2—MAXIMUM NON—REPETITIVE PEAK FORWARD SURGE CURRENT

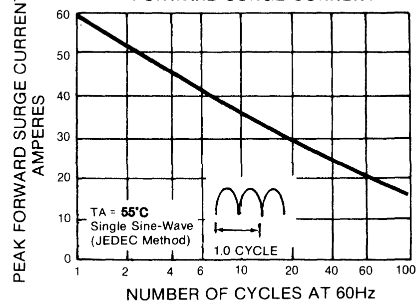


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

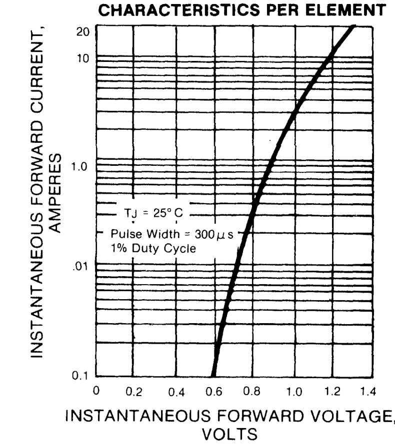


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

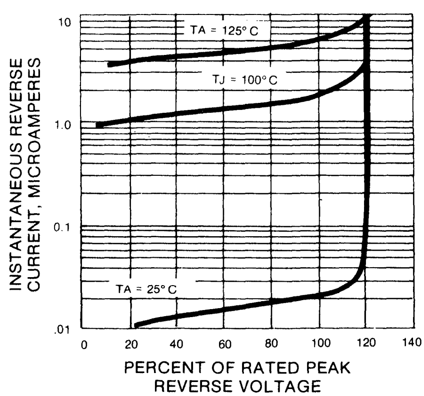
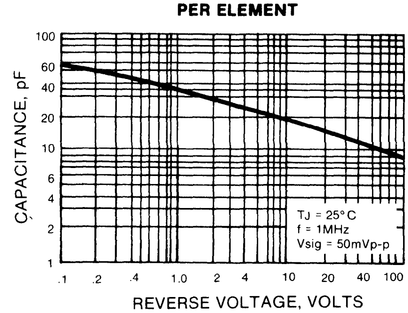


FIG.5—TYPICAL JUNCTION CAPACITANCE PER ELEMENT

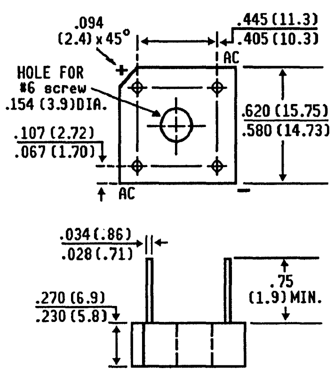


KBPC1005 THRU KBPC110

GLASS PASSIVATED SINGLE- PHASE SILICON BRIDGE RECTIFIER

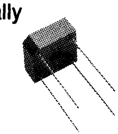
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 3.0 Amperes*

FEATURES



Polarity shown on side of case:
positive lead by beveled corner

Dimensions in inches
and
(millimeters)



- This series is UL recognized under component index, file number E54214
- High temperature metalluragically bonded internal rectifiers
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- Glass passivated cavity - free rectifier junctions
- Typical I_R less than 0.1 μ A
- High temperature soldering guaranteed: 265° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension

MECHANICAL DATA

Case: Void-free plastic package

Terminals: Plated leads solderable per MIL-STD-202, Method 208

Mounting: Thru hole for #6 screw

Mounting Position: Any

Weight: 0.2 ounces, 5.5 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
60 Hz, resistive or inductive load.
For capaacitive load, derate current by 20%.

	SYMBOLS	KBPC 1005	KBPC 101	KBPC 102	KBPC 104	KBPC 106	KBPC 108	KBPC 110	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Output Current at T_C=50°C(Note 1) / T_A = 25°C(Note 2)	$I_{(AV)}$				3.0 2.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				50.0				Amps
Maximum Instantaneous Forward Voltage drop per element at 1.5A	V_F				1.1				Volts
Maximum DC Reverse Leakage T_A = 25°C / at Rated DC Blocking Voltage per element T_A = 100°C	I_R				10.0 50.0				μA μA
Typical Junction Capacitance per element (Note 3)	C_J				20.0				pf
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$				10.0				°C/W
Operating Temperature Range	T_J				-50 to + 150				°C
Storage Temperature Range	T_{STG}				-50 to +150				°C

NOTES:
1. Bridge mounted on a 4" x 4" x .11 THK (10.5cm x 10.5cm x 0.3cm.) AL. PLate
2. Bridge molunted on P.C. Board .375", (9.5mm) lead lengths with .47" sq. (12 mm sq.) Copper Pads
3. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

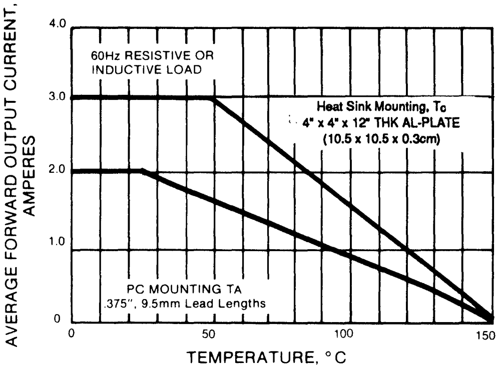


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

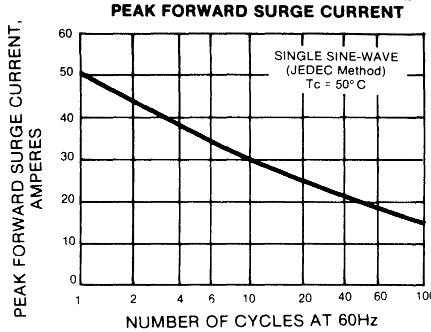


FIG. 3 — TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

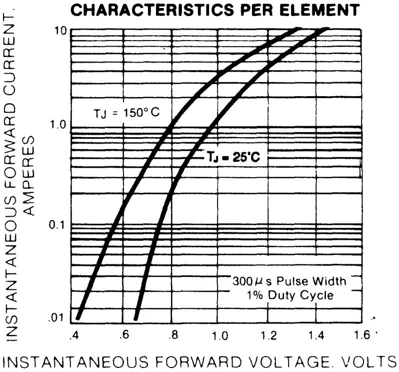


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

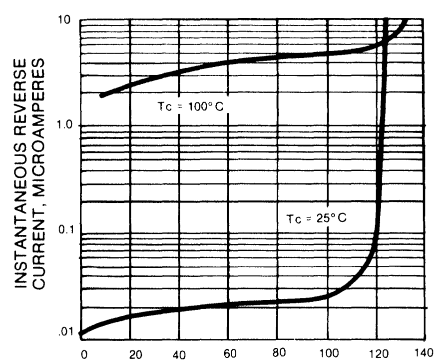
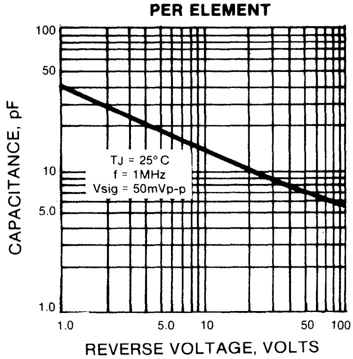


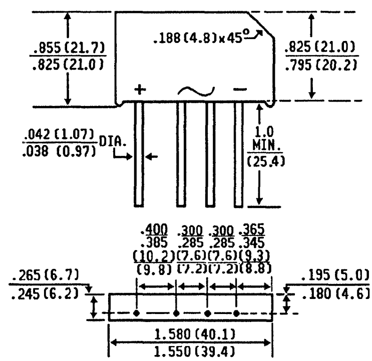
FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT



GENERAL INSTRUMENT

B40C / B80C / B125C / B250C / B380C
3700 / 2200 SERIES

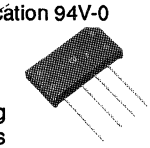
SINGLE - PHASE SILICON BRIDGE RECTIFIER
Voltage *- 65 to 600 Volts* ***Current*** *- 3.7 Amperes*



Dimensions in inches and (millimeters)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High surge current capability
- Typical I_R less than 0.1 μ A
- Ideal for P.C. board mounting
- Built -in P.C. Board Stand-offs
- High temperature soldering guaranteed: 250°C for 5 seconds



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique
Terminals: Plated Leads solderable per MIL-STD-202, Method 208
Mounting Position: Any
Weight: 0.92 ounce, 25.3 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 50 Hz or 60 Hz, resistive or inductive load.

	SYMBOLS	B40	B80	B125	B250	B380	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	65	125	200	400	600	Volts
Maximum RMS Input Voltage R + C-Load	V_{RMS}	40	80	125	250	380	Volts
Maximum Average Forward Output Current for natural cooling operation at T_A = 45°C R + L-Load C - Load on Chassis = 31 $_{IN}^2$, 200 $_{cm}^2$, T_A=45°C C - Load R + L-Load	$I_{(AV)}$			2.7 2.2 3.7 4.8			Amps
Maximum DC Blocking Voltage (Note 1)	V_{DC}	65	125	200	400	600	Volts
Maximum Repetitive Peak Reverse Voltage (Note 1)	V_{RRM}	100	90	300	600	800	Volts
Maximum Repetive Peak Forward Surge Current	I_{FRM}			15.0			Amps
Peak Forward Surge Current Single Sine wave on rated load at T_J = 25°C T_A = 150°C	I_{FSM}			100 80.0			Amps
Rating for Fusing at (t<10ms) T_J = 25°C T_J = 150°C	I^2t			50.0 32.0			A^2S
Minimum Series Resistance at V_{RMS}	Rt	0.6	1.2	1.4	2.8	4.2	ohms
Maximum Reservoir Capacittor	C_L	5000	2500	1000	600	300	μF
Maximum Instantaneous Forward Voltage Drop per element at 3.OA	V_F			1.0			Volts
Maximum Reverse Current at rated Repetitive Peak Voltage T_A = 25°C T_J = 150°C	I_R			10.0 6.0			μA mA
Typical Thermal Resistance (Note 2)	RθJA			3.0			°C/W
Operating and Storage Temperature Range	T_J, T_{STG}			-50 to +150			°C

NOTES:
1. Valid for each bridge element
2. Thermal Resistance from Junction to Ambient with bridge mounted on a 3"sq. x .11" THK (7.5 cm.sq. x 0.3 cm) AL.Plate

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

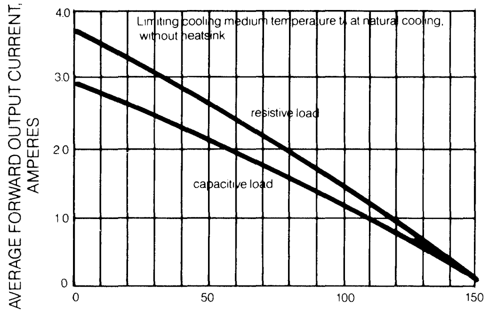


FIG. 2 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

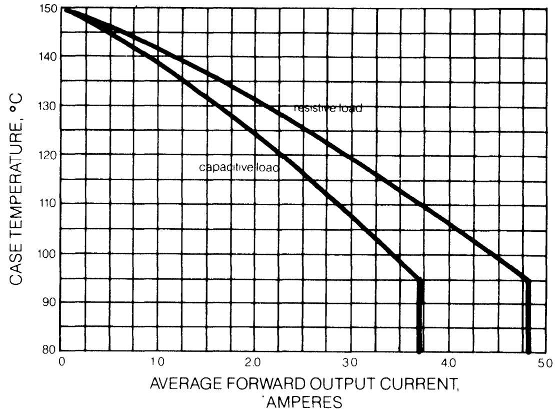


FIG. 3 — TYPICAL FORWARD CHARACTERISTIC PER BRIDGE ELEMENT

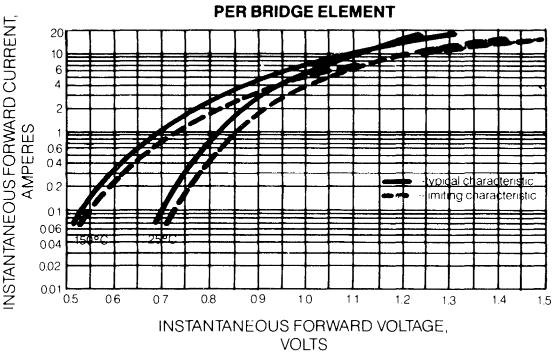


FIG. 4 — MAXIMUM NON-REPETITIVE SURGE CURRENT

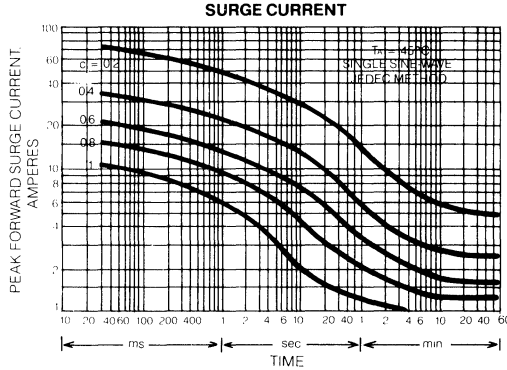


FIG. 5 — MAXIMUM TOTAL BRIDGE POWER DISSIPATION

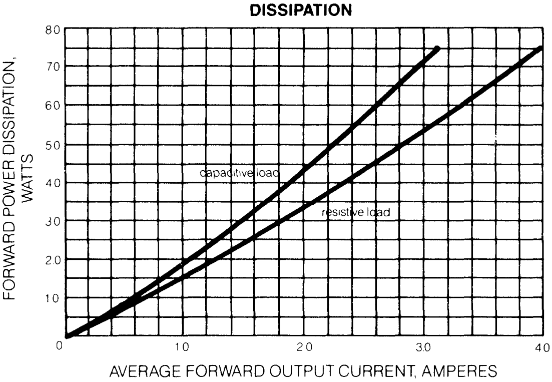
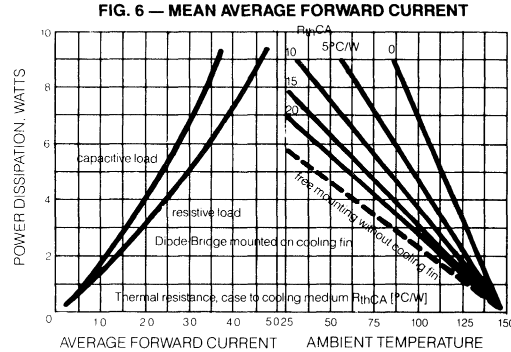


FIG. 6 — MEAN AVERAGE FORWARD CURRENT



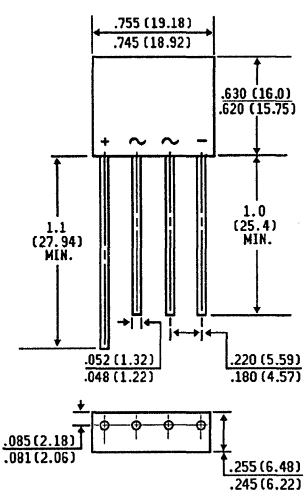
GENERAL INSTRUMENT

KBL005 THRU KBL10

SINGLE - PHASE SILICON BRIDGE RECTIFIERS

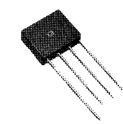
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 4.0 Amperes*

FEATURES



Dimensions in inches
and
(millimeters)

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Ideal for printed circuit board
- Reliable low cost construction utilizing molded plastic technique
- Surge overload rating of 200 Amperes peak
- High temperature soldering guaranteed: 250° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Lead solderable per MIL-STD-202, Method 208

Mounting Position: Any

Weight: 0.2 ounce, 5.6 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load, 60 Hz,.
For capacitive load, derate current by 20%.

	SYMBOLS	KBL 005	KBL 01	KBL 02	KBL 04	KBL 06	KBL 08	KBL 10	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Output Current at $T_A = 50°C$	$I_{(AV)}$				4.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				200				Amps
Maximum Instantaneous Forward Voltage drop per element at 4.0A	V_F				1.1				Volts
Maximum DC Current at Rated DC Blocking Voltage $T_A = 25°C$	I_R				10.0				µA
Maximum DC Current at Rated DC Blocking Voltage $T_C = 150°C$	I_R				1.0				mA
Typical Thermal Resistance (Note 1)	$R_{\theta JA}$				10.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-50 to +150				°C

NOTES:
1.Thermal Resistance from Junction to Ambient with units mounted on a 3" x .11" THK (7.5cm. x 0.3cm.)Cu. Plate."

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

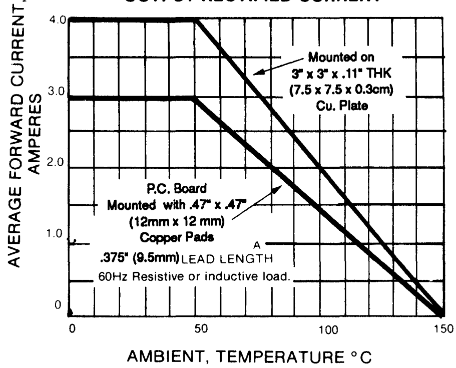


FIG. 2 — TYPCIAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

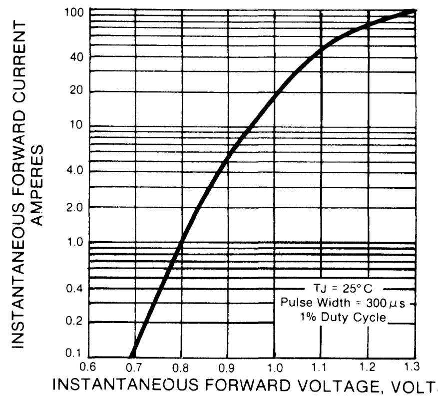


FIG. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

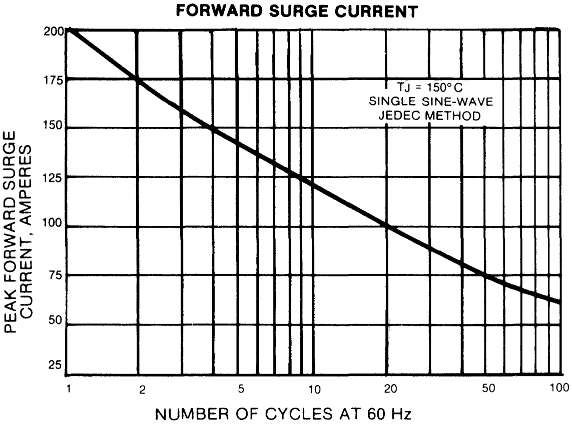


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

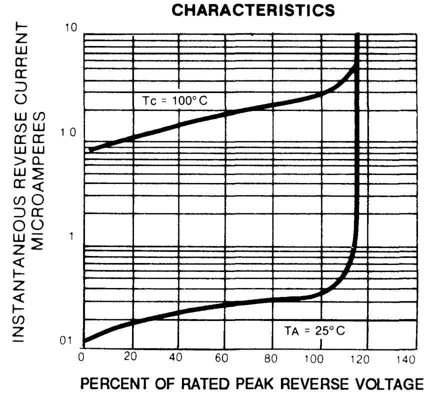
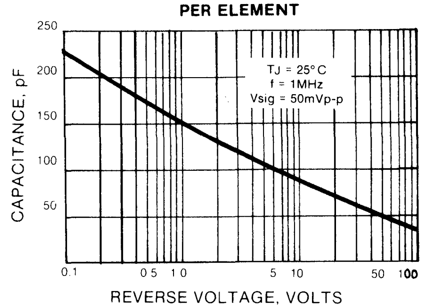


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT



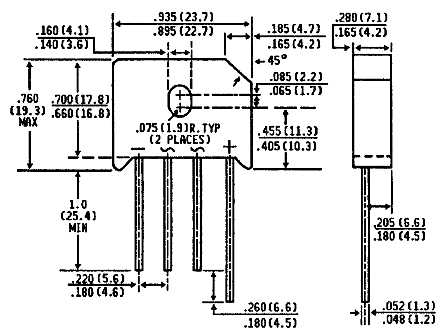
GENERAL INSTRUMENT

KBU4A THRU KBU4M

SILICON SINGLE - PHASE SILICON BRIDGE RECTIFIERS

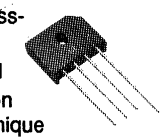
***VOLTAGE** - 50 to 1000 Volts* *CURRENT - 4.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Ideal for printed circuit board
- Reliable low cost construction utilizing molded plastic technique
- Surge overload rating of 200 Amperes peak
- High temperature soldering guaranteed: 250° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Lead solderable per MIL-STD-202, Method 208

Mounting Position: Any

Mounting Torque: 5 in. lb. max.

Weight: 0.3 ounce, 8.0 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Resistive or inductive load, 60 Hz,.
For capacitive load, derate current by 20%

	SYMBOLS	KBU 4A	KBU 4B	KBU 4D	KBU 4G	KBU 4J	KBU 4K	KBU 4M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Output Current at T_C= 100°C / T_A = 50°C	$I_{(AV)}$				4.0 4.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				200				Amps
Maximum Instantaneous Forward Voltage drop per element at 4.0A	V_F				1.0				Volts
Maximum DC Reverse Leakage at Rated DC Blocking Voltage per element T_A = 25°C / T_C = 100°C	I_R				10.0 1.0				µA mA
Typical Themal Resistance (Note 1)	$R_{\theta JC}$				3.3				°C/W
Operating and Storage Temperature Range	T_J.T_{STG}				-50 to +150				°C

NOTES:
1. Thermal Resistance from Junction to Case with units mounted on a 2.0" x 1.6 "x 0.3" THK (5cm. x 4cm. x0.8cm.) Al. Plate.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

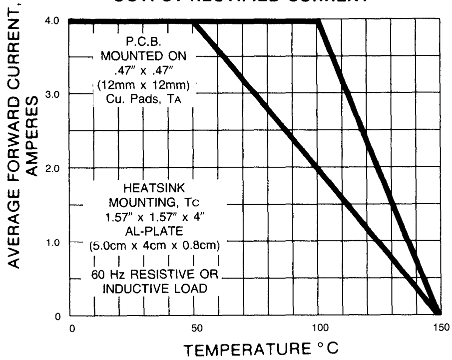


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

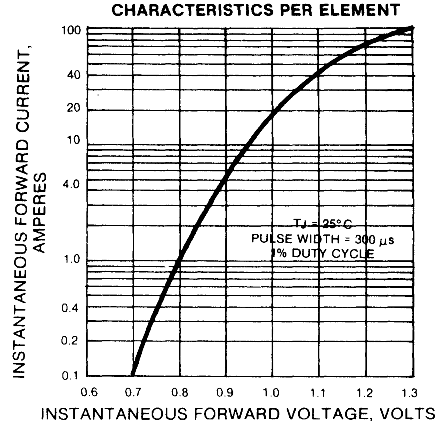


FIG. 3 — MAXIMUN NON-REPETITIVE PEAK FORWARD SURGE CURRENT

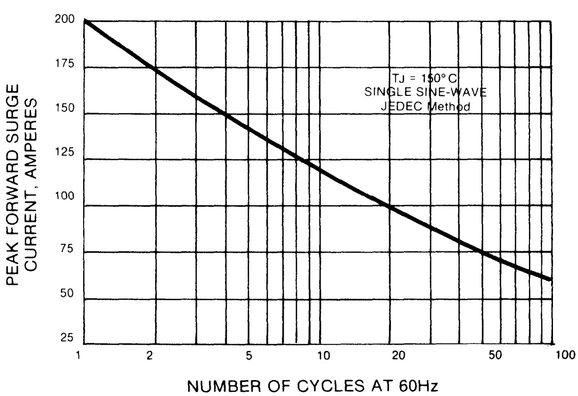


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

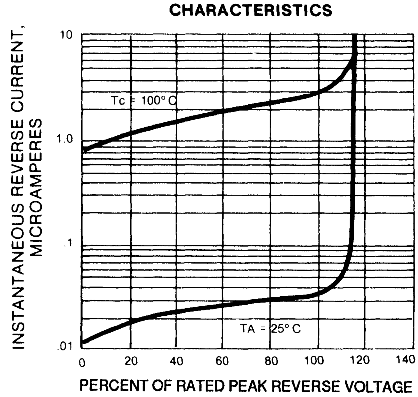
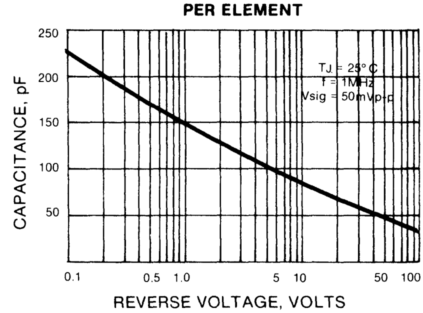


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT

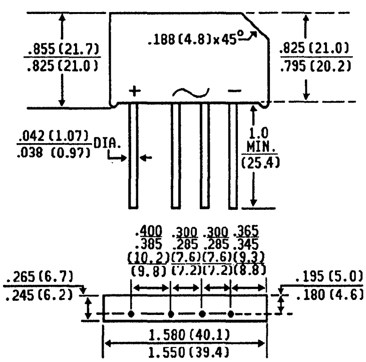


GENERAL INSTRUMENT

B40C / B80C / B125C / B250C / B380C 5000 / 3300

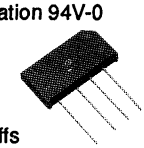
SINGLE - PHASE SILICON BRIDGE RECTIFIERS

Voltage *- 65 to 600 Volts* ***Current*** *- 5.0 Amperes*



Dimensions in inches and (millimeters)

FEATURES



- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High surge current capability
- Typical I_R less than 0.1 μ A
- Ideal for printed circuit board
- Built -in printed board stand-offs
- High temperature soldering guaranteed: 250°C for 5 seconds

MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique
Terminals: Plated Leads solderable per MIL-STD-202, Method 208
Mounting Position: Any
Weight: 0.92 ounce, 25.3 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 50 Hz or 60 Hz, resistive or inductive load.

	SYMBOLS	*B40*	*B80*	*B125*	*B250*	*B380*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	65	125	200	400	600	Volts
Maximum RMS Input Voltage R + C-Load	V_{RMS}	40	80	125	250	380	Volts
Maximum Average Forward Output Current for natural cooling operation at T_A = 45°C R + L-Load C - Load on Chassis = 31 IN^2,200cm^2,T_A=45°C C - Load R + L-Load	$I_{(AV)}$			4.0 3.3 5.0 6.0			Amps
Maximum DC Blocking Voltage (Note 1)	V_{DC}	65	125	200	400	600	Volts
Maximum Repetitive Peak Reverse Voltage (Note 1)	V_{RRM}	100	190	300	600	900	Volts
Maximum Repetive Peak Forward Surge Current	I_{FRM}			30.0			Amps
Peak Forward Surge CurrentSingle Sine wave on rated load (JEDEC) Method) at T_J = 25°C T_J = 150°C	I_{FSM}			100 80			Amps
Rating for Fusing at (t<10ms) T_J = 25°C T_J = 150°C	I^2T			312 200			A^2S
Minimum Series Resistance at V_{RMS}	Rt	0.15	0.3	0.6	1.2	1.8	ohms
Maximum Reservoir Capacitor	C_L	1000	5000	5000	2500	1000	µF
Maximum Instantaneous Forward Voltage Drop per element at 5.0A	V_F			1.1			Volts
Maximum Reverse Current at rated Repetitive Peak Reverse Voltage T_A = 25°C T_J = 150°C	I_R			10.0 6.0			µA mA
Typical Thermal Resistance (Note 2)	$R_{\theta JA}$			3.0			°C/W
Operating and Storage Temperature Range	T_J,T_{STG}			-50 to +150			°C

NOTES:
1. Valid for each bridge element
2. Thermal Resistance from Junction to Ambient with unit mounted on 3"sq. x .11" THK (7.5 cm.sq. x 0.3 cm.) Al Plate

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

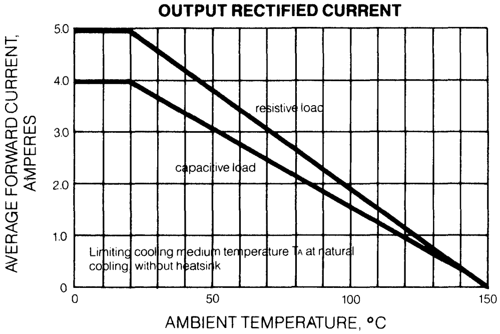


FIG. 2 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

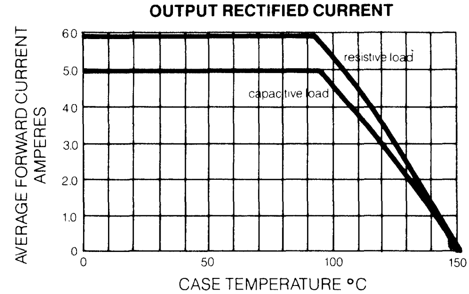


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTIC PER BRIDGE ELEMENT

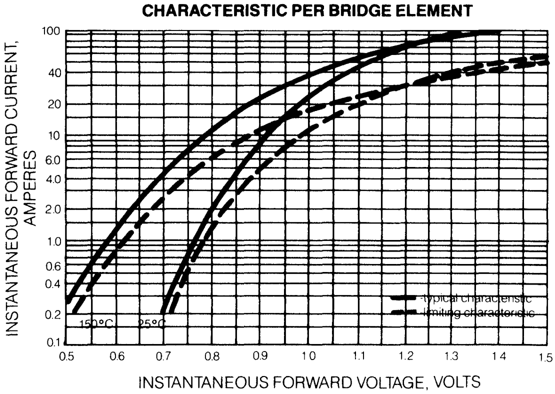


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

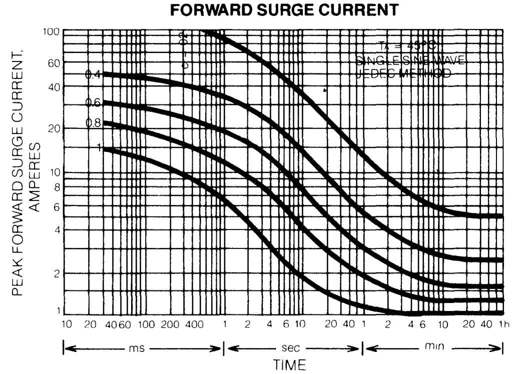


FIG. 5 — MAXIMUM TOTAL BRIDGE POWER DISSIPATION

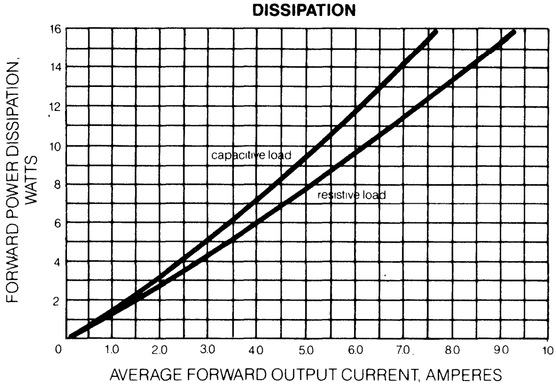
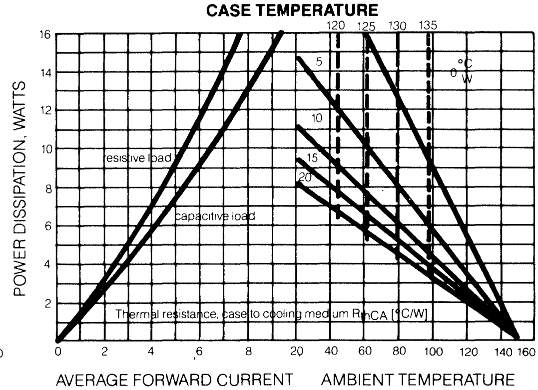


FIG. 6 — MEAN AVERAGE FORWARD CURRENT CASE TEMPERATURE

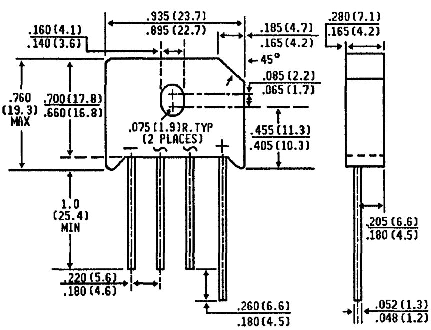


KBU6A THRU KBU6M

SINGLE - PHASE SILICON BRIDGE RECTIFIERS

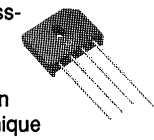
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 6.0 Amperes*

FEATURES



Dimensions in inches
and
(millimeters)

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Ideal for printed circuit board
- Reliable low cost construction utilizing molded plastic technique
- Surge overload rating of 250 Amperes peak
- High temperature soldering guaranteed: 250° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Lead solderable per MIL-STD-202, Method 208

Mounting Position: Any

Mounting Torgue: 5 in. lb. max.

Weight: 0.3 ounce, 8.0 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz Resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	*KBU 6A*	*KBU 6B*	*KBU 6D*	*KBU 6G*	*KBU 6J*	*KBU 6K*	*KBU 6M*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Output Current at T_C= 100°C / T_A = 40°C	$I_{(AV)}$				6.0 6.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				250				Amps
Maximum Instantaneous Forward Voltage drop per element at 6.0A	V_F				1.0				Volts
Maximum DC Reverse Leakage at Rated DC Blocking Voltage T_A = 25°C / T_C = 100°C	I_R				10.0 200				µA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$				4.7				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-50 to +150				°C

NOTES:
1. Thermal Resistance from Junction to Case with units mounted on a 2.6" x 1.4 x .06" THK (6.5cm. x 3.5cm. x.15cm.) Al. Plate.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

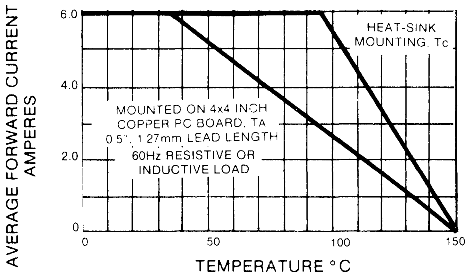


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

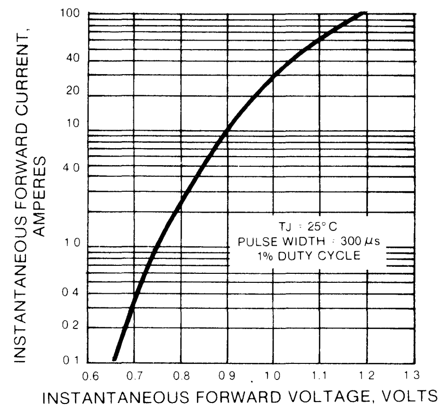


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

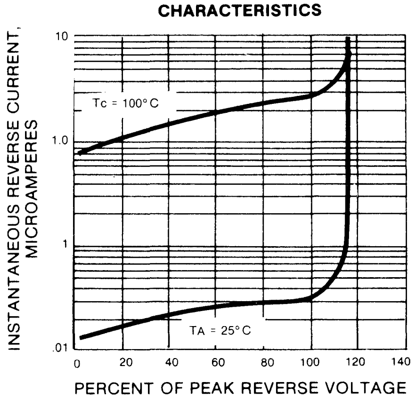


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

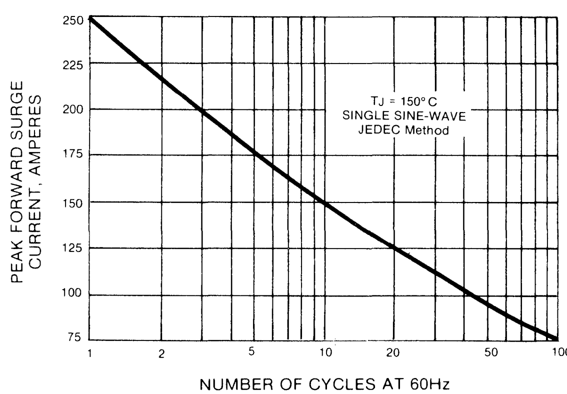
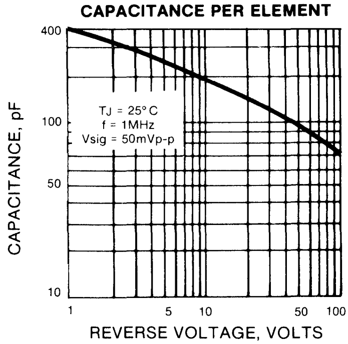


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT

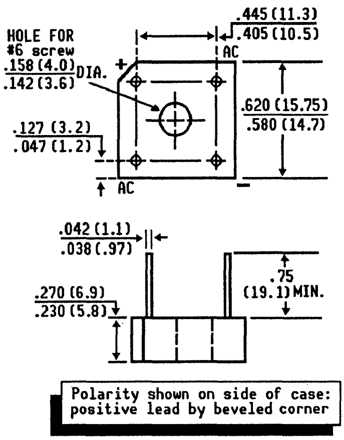


GENERAL INSTRUMENT

KBPC6005 THRU KBPC610

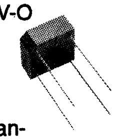
SINGLE - PHASE SILICON BRIDGE RECTIFIER

VOLTAGE - 50 to 1000 Volts CURRENT - 6.0 Amperes



Dimensions in inches and (millimeters)

FEATURES



- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory Flammability recognition 94V-O
- High surge capability
- Ideal for printed circuit board
- Typical I_R less than .1 μ A
- High temperature soldering guaranteed 250° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension

MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Lead solderable per MIL-STD-202, Method 208

Mounting Position: Any

Weight: 0.2 ounce, 5.5 gram

Mounting Torque: 5 in. lb. max.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Resistive or inductive load, 60 Hz,.
For capacitive load, derate current by 20%

	SYMBOLS	KBPC 6005	KBPC 601	KBPC 602	KBPC 604	KBPC 606	KBPC 608	KBPC 610	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Output Current at T_C= 100°C(Note 1) / T_A = 25°C(Note 2)	$I_{(AV)}$				6.0 3.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method) at T_J=150°C	I_{FSM}				150				Amps
Maximum Instantaneous Forward Voltage drop per element at 3.0A	V_F				1.2				Volts
Maximum Reverse Leakage at Rated DC Blocking Voltage T_A = 25°C / T_A = 100°C	I_R				10.0 1.0				μA mA
Maximum A.C Operating Junction Temperature	T_J				+150				°C
Typical Thermal Resistance (Note 1)	RθJC				8.0				°C/W
DC Operating Temperature Range	T_C				-50 to +125				°C
Storage Temperature Range	T_{STG}				-50 to +150				°C

NOTES:
1. Unit mounted on 6" x 5.5" x .11" THK (15 cm. x 14 cm.x 0.3 cm.) Al. Plate
2. Unit mounted on P.C. Board at .375", (9.5mm) lead lengths.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

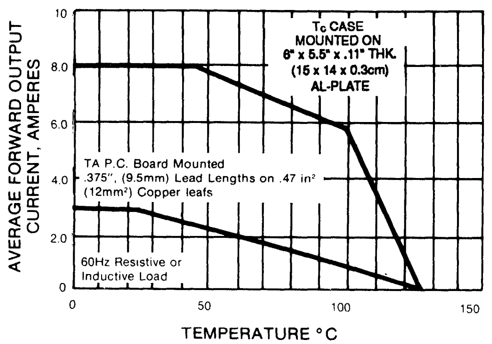


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

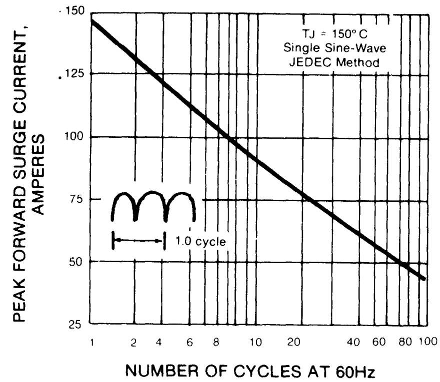


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

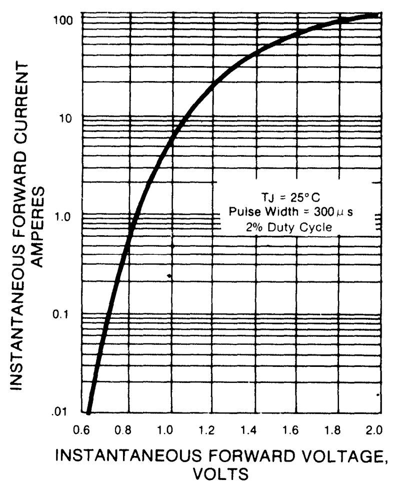
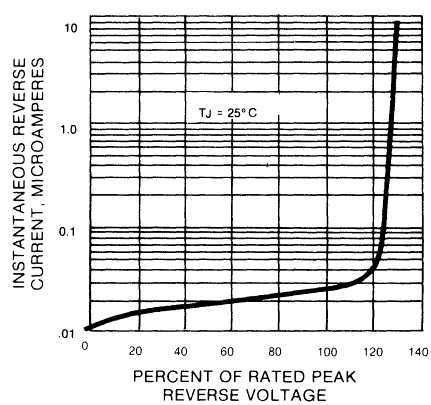


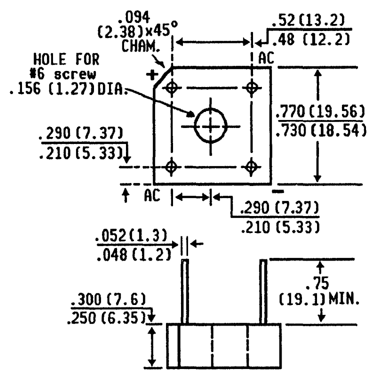
FIG. 4 — TYPICAL REVERSE CHARACTERISTICS PER ELEMENT



KBPC8005 THRU KBPC810

GLASS PASSIVATED SINGLE - PHASE SILICON BRIDGE RECTIFIER

***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 8.0 Amperes*

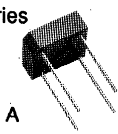


Polarity shown on side of case: positive lead by beveled corner

Dimensions in inches
and
(millimeters)

FEATURES

- This series is UL recognized under component index, file number E54214
- High temperature metallurgically bonded
- Glass passivated cavity-free rectifier junctions
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O



- Typical I_R less than 0.1 μA
- High temperature soldering guaranteed: 265° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension

MECHANICAL DATA

Case: Void-free plastic package

Terminals: Leads, solderable per MIL-STD-202, Method 208

Mounting : Thru hole for #6 screw

Mounting Position: Any

Weight: 0.24 ounce, 6.9 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Resistive or inductive load, 60 Hz,.
For capacitive load, derate current by 20%.

	SYMBOLS	*KBPC 8005*	*KBPC 801*	*KBPC 802*	*KBPC 804*	*KBPC 806*	*KBPC 808*	*KBPC 810*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Output Current at T_C= 50°C (Note 1) / T_A = 40°C (Note 2)	$I_{(AV)}$				8.0 3.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				125				Amps
Maximum Instantaneous Forward Voltage drop per element at 3.0A	V_F				1.2				Volts
Maximum DC Reverse Leakage at Rated DC Blocking Voltage T_A = 25°C / T_C = 125°C	I_R				10.0 100				μA
Typical Junction Capacitance per element (Note 3)	C_J				30.0				pf
Typical Thermal Resistance (Note 4)	$R_{\theta JC}$				6.0				°C/W
Operating and Storage Temperature Range	T_J.T_{STG}				-50 to +150				°C

NOTES:
1. Unit mounted on 8.7" sq. x 24"THK (22cm. sqv 0.6 cm) Al Plate.
2. Unit mounted P.C. board at .375", 9.5mm lead lengths.
3. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
4. Thermal Resistance from Junction to Case with units mounted on a 8.6" x 8.6" x .24" THK (22 x 22 x 0.6 cm).

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

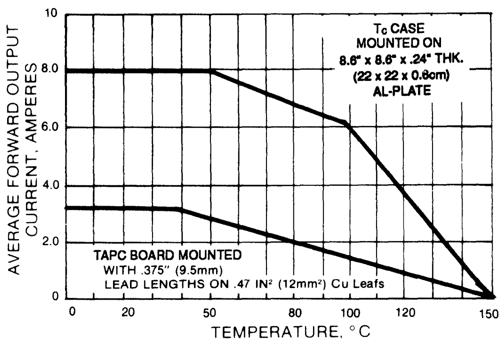


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

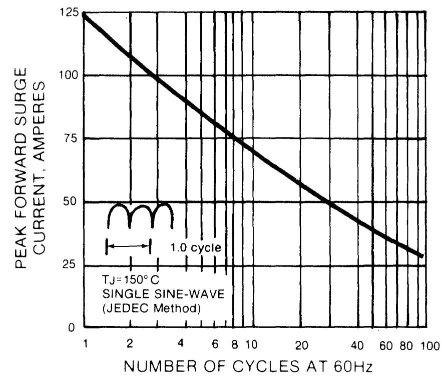


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

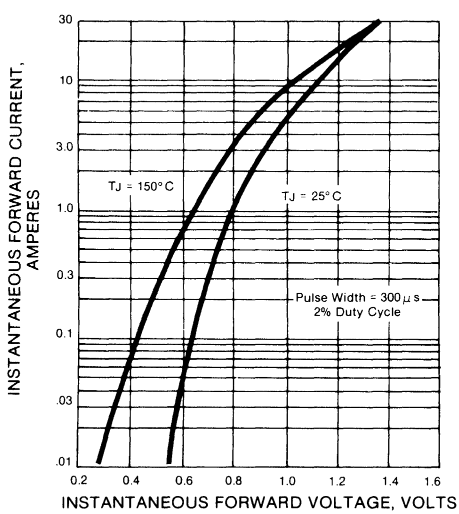


FIG. 4 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT

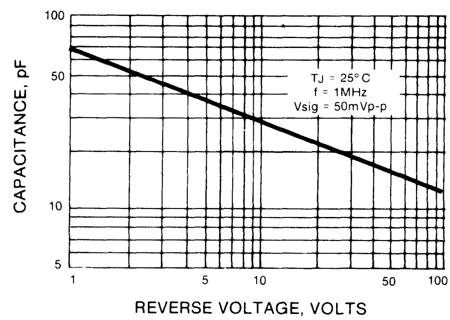
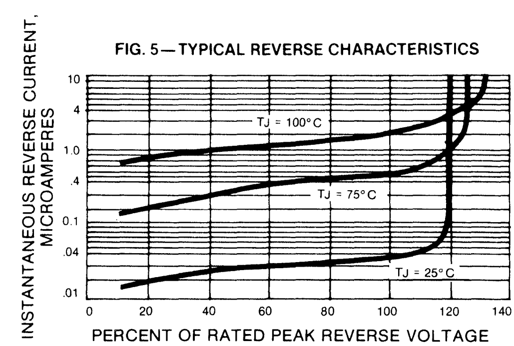


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

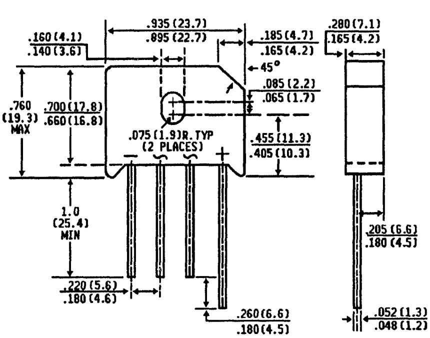


GENERAL INSTRUMENT

KBU8A THRU KBU8M

SINGLE - PHASE SILICON BRIDGE RECTIFIERS

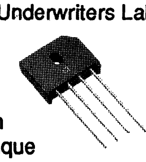
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 8.0 Amperes*



Dimensions in inches
and
(millimeters)

FEATURES

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-O
- Ideal for printed circuit board
- Reliable low cost construction utilizing molded plastic technique
- Surge overload rating of 300 Amperes peak
- High temperature soldering guaranteed: 250° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique

Terminals: Plated Leads solderable per MIL-STD-202, Method 208

Mounting Position: Any

Mounting Torque: 5 in. lb. max.

Weight: 0.3 ounce, 8.0 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified
Resistive or inductive load, 60 Hz,.
For capacitive load, derate current by 20%

	SYMBOLS	KBU 8A	KBU 8B	KBU 8D	KBU 8G	KBU 8J	KBU 8K	KBU 8M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Output Current at T_C= 100°C / T_A = 45°C	$I_{(AV)}$				8.0 / 6.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}				300				Amps
Maximum Instantaneous Forward Voltage drop per element at 8.0A	V_F				1.0				Volts
Maximum DC Reverse Leakage T_A = 25°C / at Rated DC Blocking Voltage per element T_C = 100°C	I_R				10.0 / 300				µA
Typical Thermal Resistance (Note 1)	$R_{\theta JC}$				5.0				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}				-50 to +150				°C

NOTES:
1. Thermal Resistance from Junction to Case with units mounted on a 3" x .11" THK (7.5cm. sq. x 0. 3 cm.) Al. Plate"

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

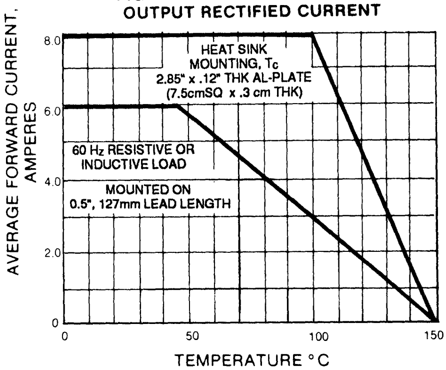


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER ELEMENT

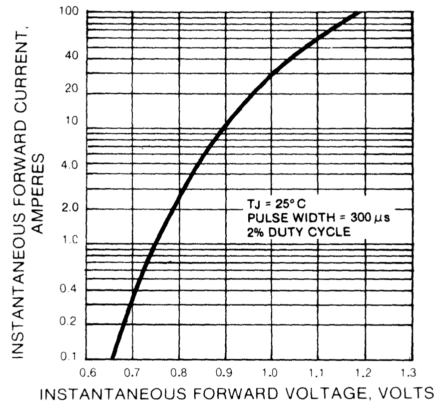


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

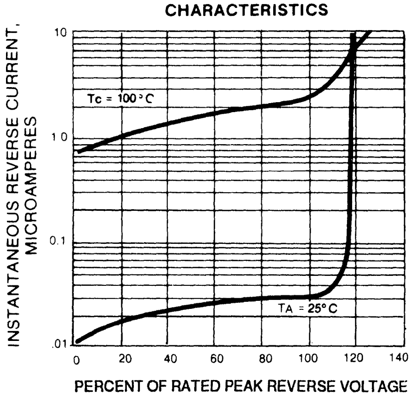


FIG. 4 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

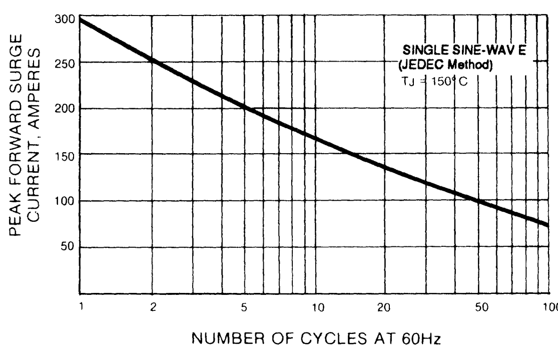
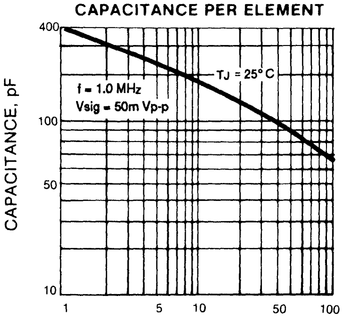


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER ELEMENT



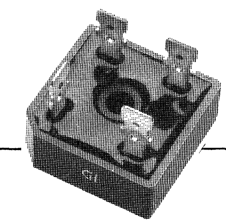
GENERAL INSTRUMENT

KBPC10, 15,25,35 SERIES

HIGH CURRENT SINGLE - PHASE SILICON BRIDGE RECTIFIERS

FEATURES

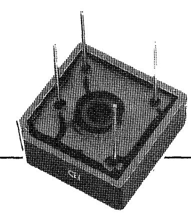
KBPC STANDARD



- This series is UL recognized under component index, file number E54214
- The plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- Integrally molded heatsink provide very low thermal resistance for maximum heat dissipation
- Universal 4-way terminals; snap-on, wrap -around, solder or P.C. board mounting
- Surge overload ratings to 400 Amperes
- Terminals solderable per MIL-STD-202, Method 208
- Typical I_R less than 0.1 μ A
- High temperature soldering guaranteed: 250° C /10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3 kg) tension

MECHANICAL DATA

KBPC-W WIRE LEADS



Case: Molded plastic with heatsink integrally mounted in the bridge encapsulation
Terminals: Either plated .25" (6.35mm). Faston or plated copper leads .040" (1.02mm) diameter. Suffix letter "W" added to indicate leads
Weight: .706 ounce, 20 gram
Mounting Position: Bolt down on heat-sink with silicone thermal compound between bridge and mounting surface for maximum heat transfer efficiency
Mounting Torque: 20 in. lb. max.
Polarity: Polarity symbols molded on body

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified . 60 Hz, resistive or inductive load. For capaacitive load, derate current by 20%.

			-005	-01	-02	-04	-06	-08	-10	
Maximum Recurrent Peak Reverse Voltage		V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage		V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage		V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Output Current at at T_C = 55°C	KBPC10					10.0				
	KBPC15					15.0				
	KBPC25					25.0				
	KBPC35	$I_{(AV)}$				35.0				Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	KBPC10					200				
	KBPC15					300				
	KBPC25					300				
	KBPC35	I_{FSM}				400				Amps
Rating (non-repetitive, for t greater than 1 ms and less than 8.3 ms) for Fusing	KBPC10					160				
	KBPC15					375				
	KBPC25					375				
	KBPC35	I^2t				660				A^2s
Maximum Instantaneous Forward Voltage drop per element at specified current	KBPC10 5.0A KBPC15 7.5A KBPC25 12.5A KBPC35 17.5A	V_F				1.2				Volts
Isolation Voltage from case to leads						2500				V_{ac}
Maximum Reverse DC Current at Rated DC Blocking Voltage per element		I_R				10.0				μA
Typical Thermal Resistance (Note 1)		$R_{\theta JC}$				2.0				°C/W
Operating and Storage Temperature Range,		T_J, T_{STG}				-50 to +150				°C

NOTES: 1. Thermal Resistance from Junction to Case.

FIG. 1

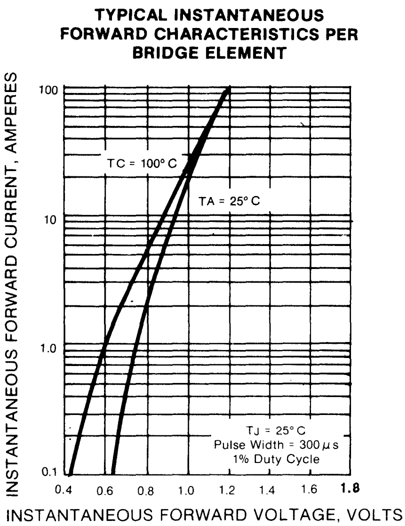


FIG. 2

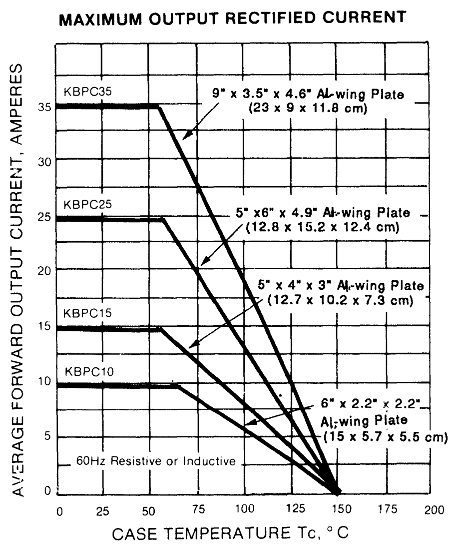


FIG. 3

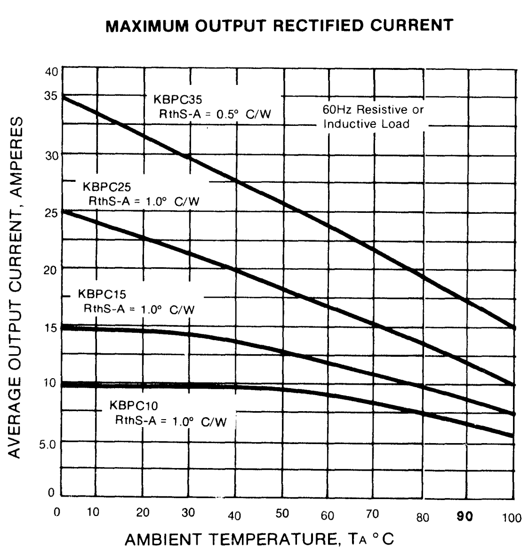


FIG. 4

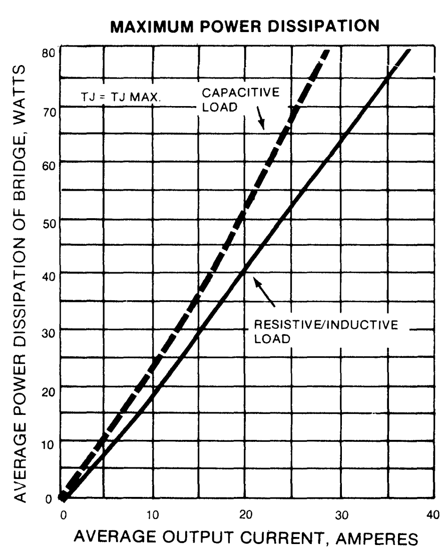


FIG. 5

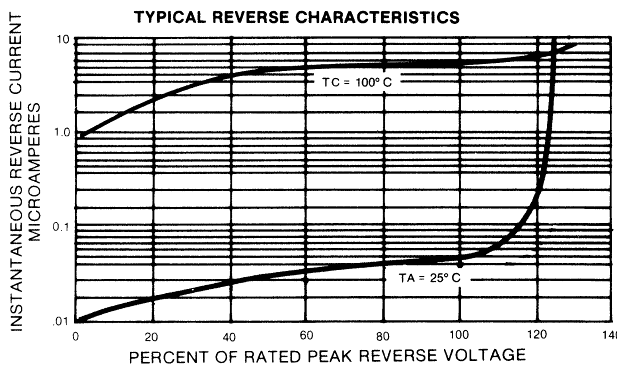


FIG. 6

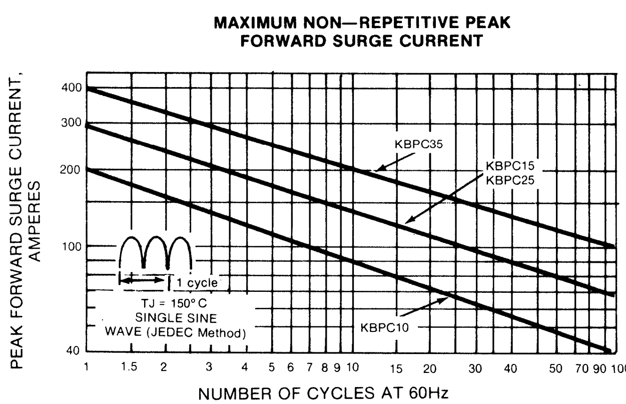


FIG. 7

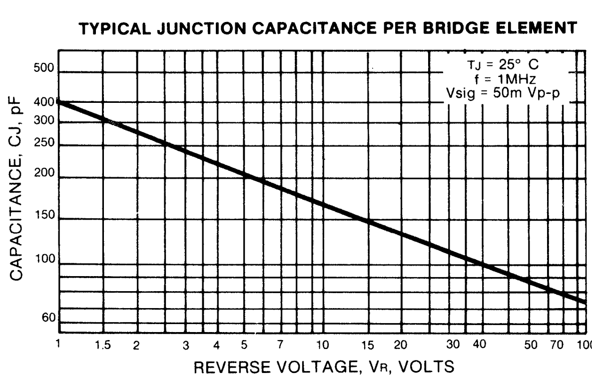


FIG. 8
KBPC

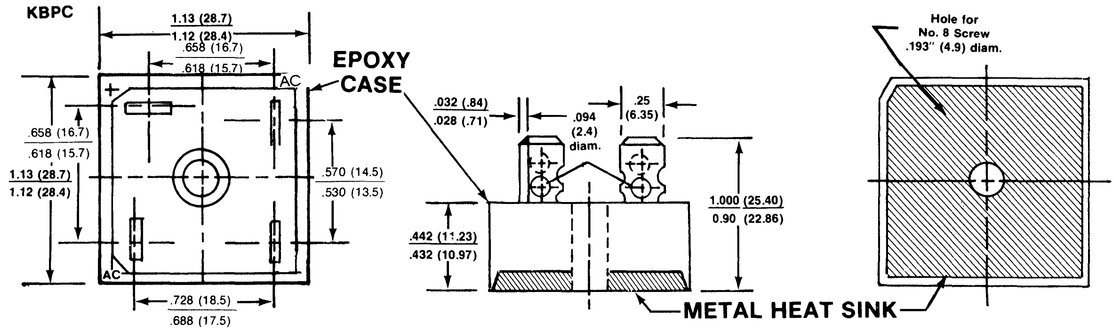
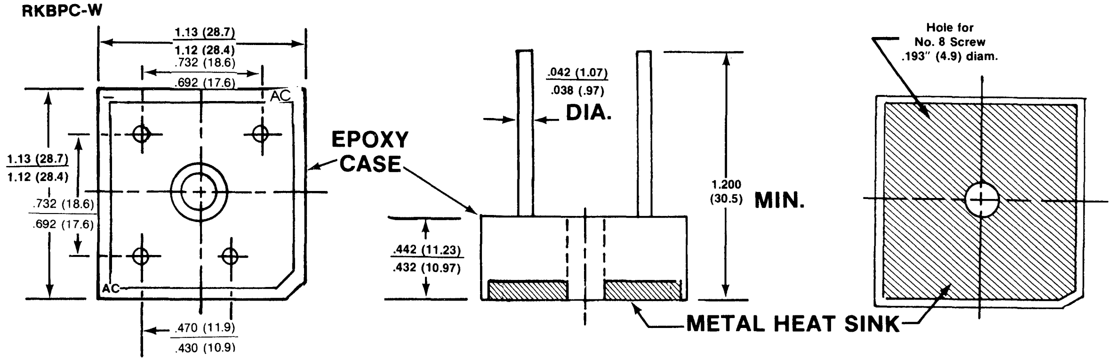


FIG. 9
RKBPC-W



NOTES:
1. Corrosion resistant terminals designed for .250 female quick connector, wrap around or solder.
2. A thin film of silicone thermal compound is recommended between the bridge case and mounting surface for improved thermal conduction.
3. Higher dielectric strengths available. Consult factory.
4. These bridges are also available in fast recovery and in positive and negative center tap and in doubler configurations. Consult Factory.

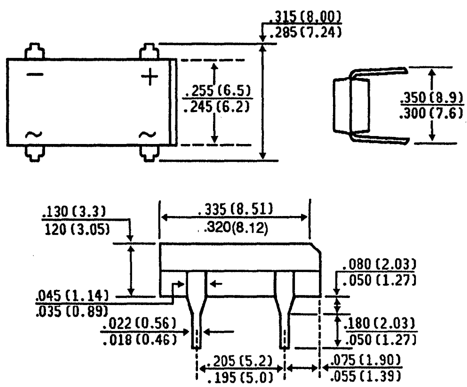
Dimensions in inches and (millimeters).

RDF005M THRU RDF08M

MINIATURE FAST RECOVERY GLASS PASSIVATED SILICON BRIDGE

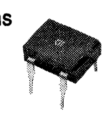
***VOLTAGE** - 50 to 800 Volts* ***CURRENT** - 1.0 Ampere*

FEATURES



Dimensions in inches and (millimeters)

- This series is UL recognized under component index, file number E54214
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- Glass passivated chip junctions
- Surge overload rating - 50 amperes peak
- Ideal for printed circuit board
- High temperature soldering guaranteed: 265° C /10 seconds at 5 lbs., (2.3kg) tension
- Fast switching for high efficiency



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique results in inexpensive product

Terminals: Lead solderable per MIL-ST-202, Method 208

Polarity: Polarity symbols marked on body

Weight: 0.04 ounce, 1.0 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	RDF 005M	RDF 01M	RDF 02M	RDF 04M	RDF 06M	RDF 08M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	Volts
Maximum Average Forward Output Rectified Current at T_A = 40°C	$I_{(AV)}$	1.0						Amps
Peak Forward Surge CurrentSingle sine-wave superimposed onrated load (JEDEC Method)	I_{FSM}	50						Amps
Rating for fusing (t<8.35ms)	I^2t	10.0						A^2s
Maximum Instantaneous Forward Voltage drop per Bridge Element at 1.0A	V_F	1.3						Volts
Maximum Reverse Current at Rated DC Blocking Voltage T_A = 25°C / T_A = 125°C	I_R	10.0 / 1.0						µA / mA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	200			350			Ns
Typical Thermal Resistance (Note 2)	RθJA	40.0						°C/W
Operating and Storage Temperature Range,	T_J,T_{STG}	-55 to +150						°C

NOTES:
1. Reverse Recovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr = .25A.
2. Thermal Resestance from Junction to Ambiient mounted on P.C. Board with, .51"sq. (13mm sq.) Copper Pads.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

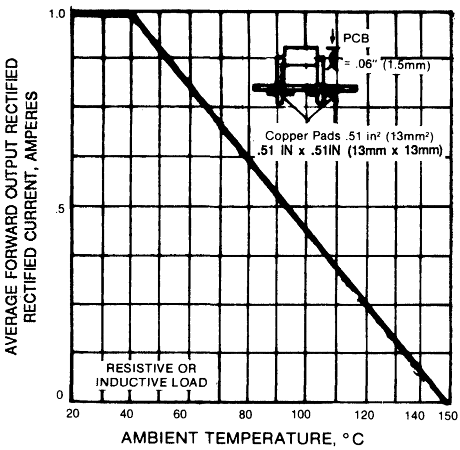


FIG. 2 — TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

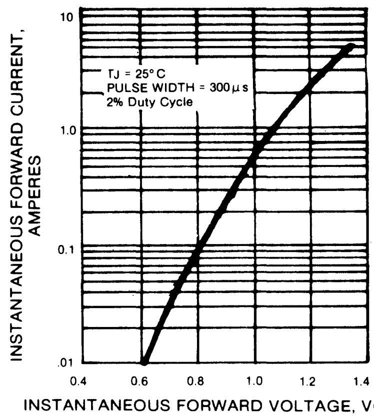


FIG. 3 — MAXIMUM FORWARD SURGE CURRENT

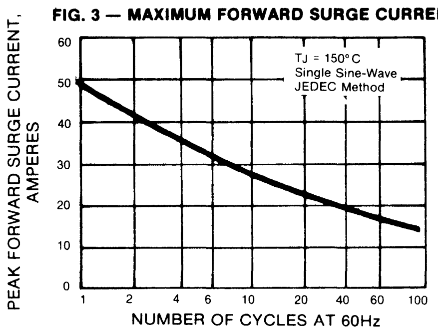


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

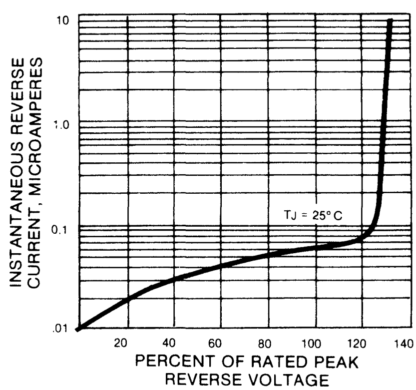


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT

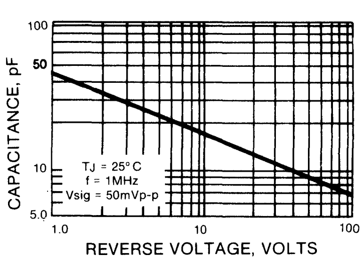
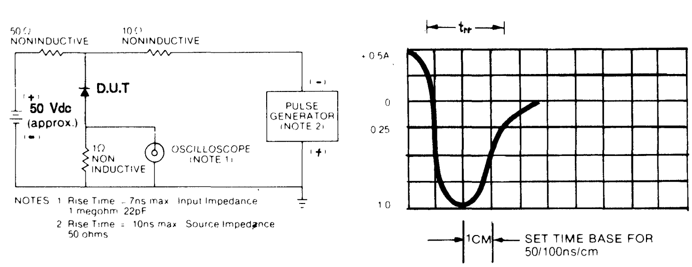


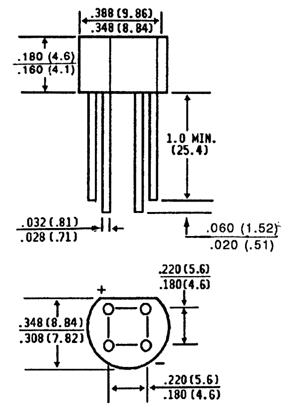
FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



RW005G THRU RW08G

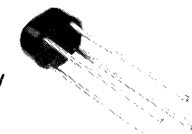
MINIATURE FAST RECOVERY GLASS PASSIVATED SINGLE - PHASE SILICON BRIDGE RECTIFIER

***VOLTAGE** - 50 to 800 Volts* ***CURRENT** - 1.5 Amperes*



Dimensions in inches and (millimeters)

FEATURES



- Glass passivated chip junctions
- Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- High case dielectric strength
- Typical I_R less than 0.1 μ A
- Fast switching for high efficiency
- High overload surge capability
- Ideal for printed circuit board
- High temperature soldering guaranteed: 265° C/10 seconds /.375", (9.5mm) lead length/5lbs., (2.3 kg) tension

MECHANICAL DATA

Case: Molded plastic

Terminals: Leads solderable per MIL-STD-202, Method 208

Mounting Position: Any

Weight: 0.04 ounce, 1.1 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load.

	SYMBOLS	RW 005G	RW 01G	RW 02G	RW 04G	RW 06G	RW 08G	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	Volts
Maximum Average Forward Rectified Current at .375",(9.5mm) lead length at T_A = 25°C	$I_{(AV)}$	1.5						Amps
Peak Forward Surge Current Single sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	50.0						Amps
Rating for fusing (t<8.3ms)	I^2t	10.0						A^2s
Maximum Instantaneous Forward Voltage Drop per element at 1.0 Amperes	V_F	1.3						Volts
Maximum DC Reverse Current at Rated T_A = 25°C DC Blocking Voltage per Bridge Element T_A = 125°C	I_R	5.0 500						μA
Typical Junction Capacitance per element (Note 1)	C_J	25.0						pf
Maximum Reverse Recovery Time per element (Note 3) T_J = 25°C	T_{RR}	200				350		ns
Typical Thermal Resistance (Note 2)	RθJA	36.0						°C/W
Maximum DC Operating Temperature Range	T_A	-55 to +150				-55 to +125		°C
Storage Temperature Range	T_{STG}	-55 to +150				-55 to +125		°C

NOTES:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.
2. Thermal Resistance from Junction to Ambient at .375", 9.5mm lead length P.C. Board mounting.
3. Reverse Reecovery Test Conditions: I_F = 0.5A, I_R = 1.0A, Irr= 0.25A.

FIG. 1 - DERATING CURVE OUTPUT RECTIFIED CURRENT

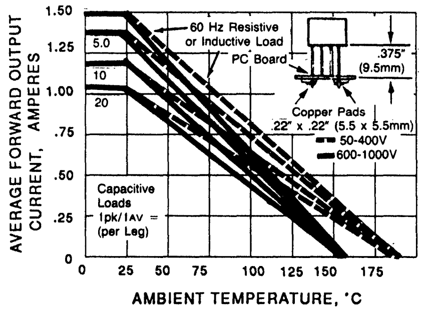


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

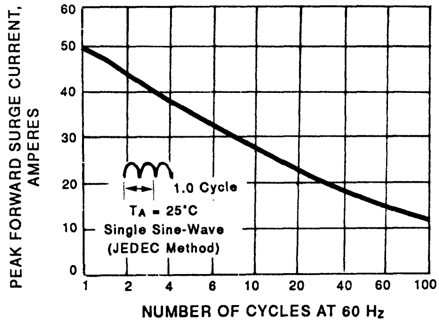


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

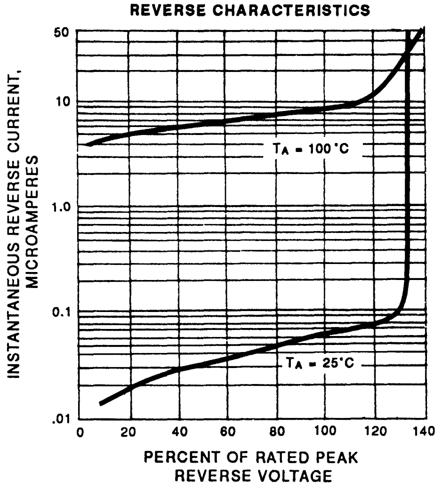


FIG. 4 - TYPICAL FORWARD CHARACTERISTICS PER ELEMENT

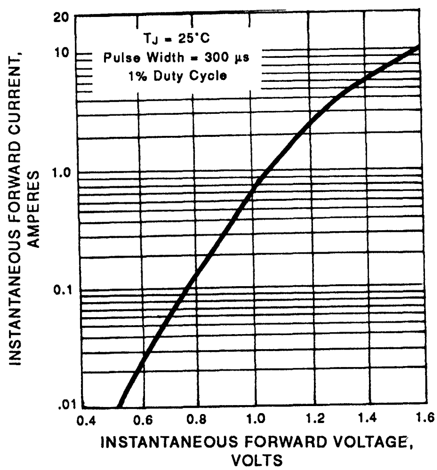


FIG. 5 - TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT

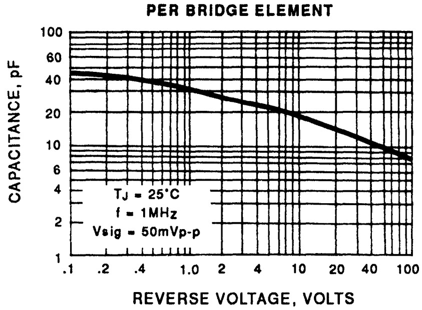
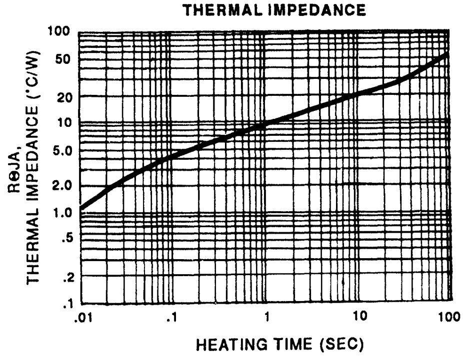


FIG. 6 - TYPICAL TRANSIENT THERMAL IMPEDANCE

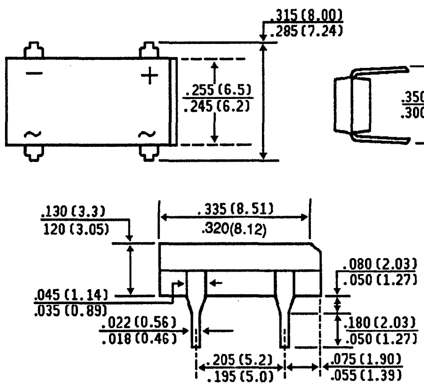


EDF1AM THRU EDF1DM

MINIATURE GLASS PASSIVATED FAST EFFICIENT SILICON BRIDGE

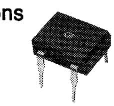
***VOLTAGE** - 50 to 200 Volts* ***CURRENT** - 1.0 Ampere*

FEATURES



Dimensions in inches and (millimeters)

- ◆ This series is UL recognized under component index, file number E54214
- ◆ Plastic material used carries Underwriters Laboratory flammability recognition 94V-O
- ◆ Glass passivated chip junctions
- ◆ Surge overload rating - 50 amperes peak
- ◆ Ideal for printed circuit board
- ◆ High temperature soldering guaranteed: 265° C /10 seconds at 5 lbs., (2.3kg) tension
- ◆ Superfast recovery ttimes for high efficiency



MECHANICAL DATA

Case: Reliable low cost construction utilizing molded plastic technique results in inexpensive product

Terminals: Lead solderable per MIL-ST-202, Method 208

Polarity: Polarity symbols marked on body

Weight: 0.04 ounce, 1.0 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	SYMBOLS	*EDF1AM*	*EDF1BM*	*EDF1CM*	*EDF1DM*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Maximum RMS Voltage	V_{RMS}	35	70	150	200	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	Volts
Maximum Average Forward Output Rectified Current at T_A = 40°C	$I_{(AV)}$	1.0				Amps
Peak Forward Surge CurrentSingle half sine-wave superimposed onrated load (JEDEC Method)	I_{FSM}	50				Amps
Rating for fusing (t<8.35ms)	I^2t	10.0				A^2s
Maximum Instantaneous Forward Voltage drop per Bridge Element at 1.0A	V_F	1.05				Volts
Maximum Reverse Current at Rated DC Blocking Voltage T_A = 25°C	I_R	5.0				µA
Maximum Reverse Current at Rated DC Blocking Voltage T_A = 125°C	I_R	1.0				mA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	50.0				ns
Typical Thermal Resistance (Note 2)	RθJA	40.0				°C/W
Operating and Storage Temperature Range,	T_J, T_{STG}	-55 to +150				°C

NOTES:
1. Reverse Recovery Test Conditions: I_F = 0.5A, I_R == 1.0A, Irr = .25A.
2. Thermal Resestance from Junction to Ambiient mounted on P.C. Board with, .51"sq. (13mm sq.) Copper Pads.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

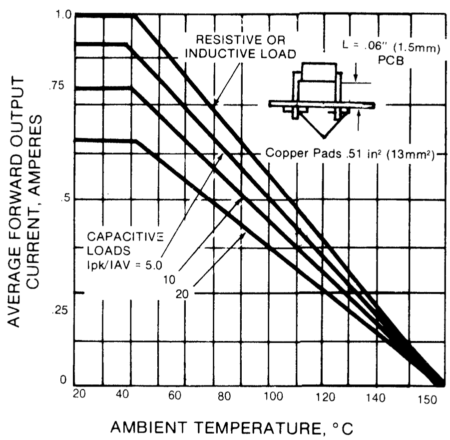


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

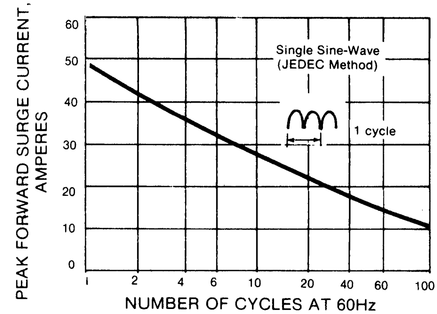


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS PER BRIDGE ELEMENT

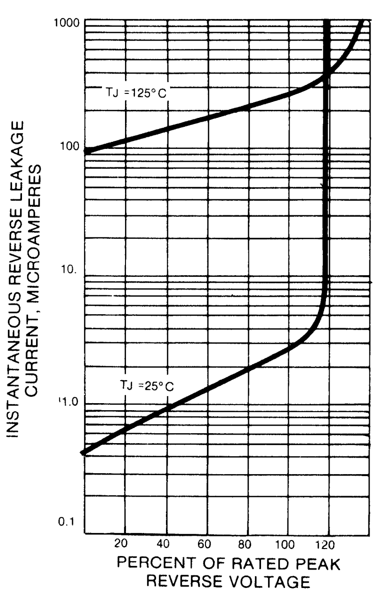


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER BRIDGE ELEMENT

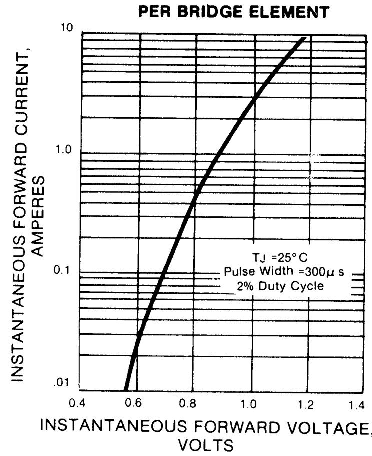
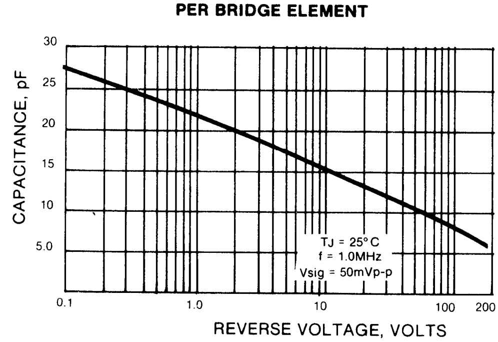


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT



GENERAL INSTRUMENT

SURFACE MOUNT BRIDGE RECTIFIER

1.0 AMPERE
50 VOLTS TO 1000 VOLTS

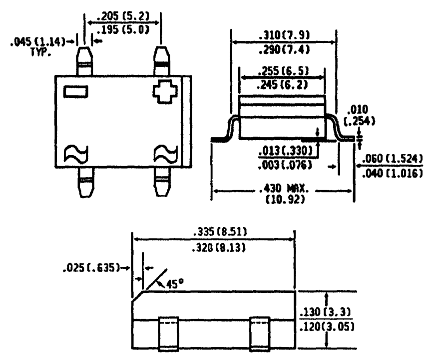
GENERAL INSTRUMENT

DF005S THRU DF10S

MINIATURE GLASS PASSIVATED SINGLE-PHASE SILICON SURFACE MOUNT BRIDGE

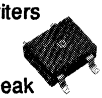
***VOLTAGE** - 50 to 1000 Volts* ***CURRENT** - 1.0 Ampere*

FEATURES



Dimensions in inches and (millimeters)

- This series is UL recognized under component index file number E54214
- Plastic material used carries Underwriters Laboratory recognition 94V-O
- Glass passivated chip- junctions
- Surge overload rating - 50 amperes peak
- Ideal for printed circuit board
- High temperature soldering guaranteed 300°C/10 seconds at 5 lbs., (2.3kg) tension



MECHANICAL DATA

Case: Molded Plastic

Terminals: Lead solderable per MIL-STD-202, Method 208

Polarity: Polarity symbols marked on body

Weight: 0.04 ounce, 1.0 gram

Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
60 Hz, resistive or inductive load.

	SYMBOLS	DF005S	DF01S	DF02S	DF04S	DF06S	DF08S	DF10S	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Output Rectified Current at $T_A = 40°C$	$I_{(AV)}$	1.0							Amp
Peak Forward Surge CurrentSingle half sine-wave superimposed onrated load (JEDEC Method)	I_{FSM}	50.0							Amps
Rating for fusing (t<8.35ms)	I^2t	10.0							A^2s
Maximum Instantaneous Forward Voltage drop per element at 1.0A	V_F	1.1							Volts
Maximum Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage per element $T_A = 125°C$	I_R	10.0 0.5							µA mA
Typical Junction Capacitance per element (Note 1)	C_J	25.0							pf
Operating Temperature Range	T_J	-55 to +150							°C
Storage Temperature Range,	T_{STG}	-55 to +150							°C

NOTE:
1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts.

FIG. 1 — DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

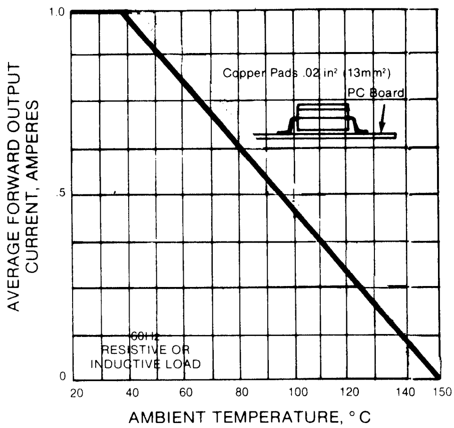


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

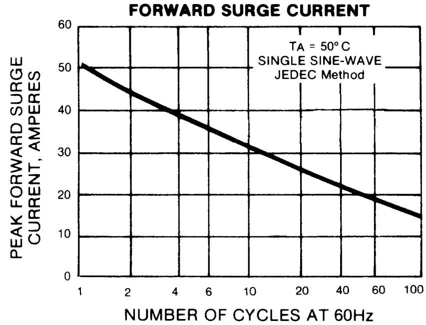


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS PER BRIDGE ELEMENT

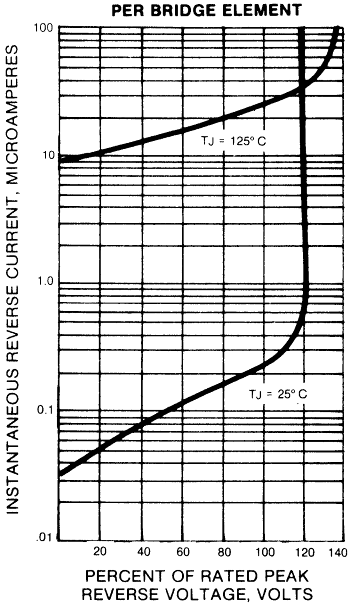


FIG. 4 — TYPICAL FORWARD CHARACTERISTICS PER BRIDGE ELEMENT

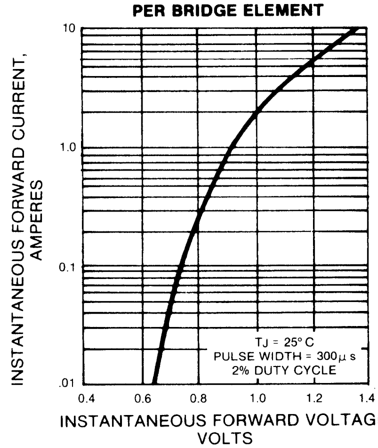
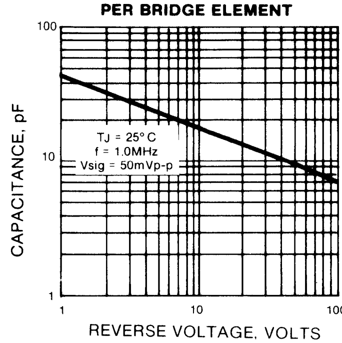


FIG. 5 — TYPICAL JUNCTION CAPACITANCE PER BRIDGE ELEMENT

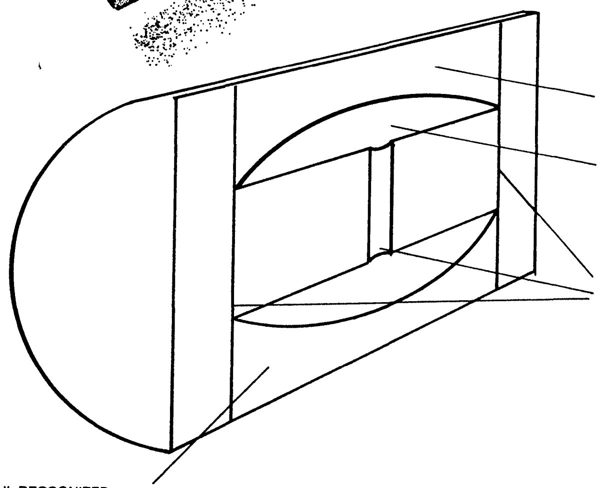


GENERAL INSTRUMENT

SURFACE MOUNT SUPERECTIFIERS

GENERAL INSTRUMENT

SUPERECTIFIER® **SURFACEMOUNT®**



PATENTED*

Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed -lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973

Our surface mount SUPERECTIFIER has redefined the concept of time and space. Passivated silicon SUPERECTIFIERs (IN6478-IN6484 and GL41A-GL41M) are 1 amp, 50-1000 PRV, leadless, surface mounted devices that provide new space options, from increased surface density **to** reduced board size. Component placement speeds can be an order of magnitude higher. Our surface mount SUPERECTIFIERs feature:

Brazing at greater than 600°C at both terminal and cell—eliminates all soft solders

Exclusive UL recognized flame-retardant epoxy molding compound rated 94V-0, the highest available **rating.** **(hermetically sealed construction.)**

No other 1 Ampere rectifier of any kind - plastic, glass or metal—can match our surface mount SUPERECTIFIER features.

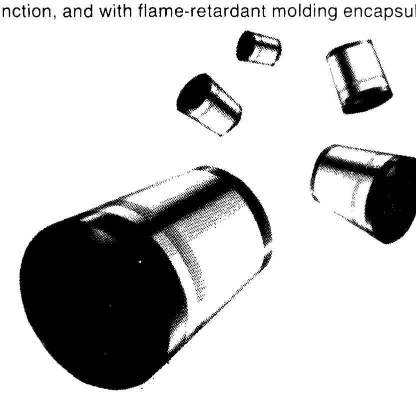
The way we make our surface mount SUPERECTIFIER is what makes them the best.

In cell construction, most other rectifiers rated up to **1** Ampere are soldered or are only pressure contacted. Our surface mounted SUPERECTIFIER is made into an entirely solid unit with leads and cell brazed at temperatures greater than 600°C. All other rectifiers fail at half that temperature!

Conventional plastic rectifiers use either varnish, silicone rubber or a thin film of silicon oxide to protect the junction. *Our surface mount SUPERECTIFIER uses a patented glass passivation to seal its junction hermetically.*

In device encapsulation, our surface mount SUPERECTIFIER uses a flame-RETARDANT molding compound, rated UL 94V-0, the highest rating available. *In fact, it is the only plastic rectifier that exceeds environmental standards of MIL-S-19500.*

In summary, the General Instrument surface mount SUPERECTIFIER is the world's only rectifier with totally brazed construction, with a patented glass passivated junction, and with flame-retardant molding encapsulation.



GENERAL INSTRUMENT

Surface Mount Superectifiers

Features:

- High Temperature Metallurgically Bonded
- Plastic Package has Underwriters Laboratory Classification 94V-0
- Glass Passivated Junction
- Exceeds Environmental Standards of MIL-STD-19500
- High Temperature Soldering Guaranteed for all present methods, including wave and vapor reflow soldering

Types:

1N6478-1N6484	1 amp, Standard Recovery Times
GL41A-GL41M	1 amp, Standard Recovery Times
RGL41A-RGL41M	1 amp, Fast Recovery Times
EGL41A-EGL41G	1 amp, Ultrafast Recovery Times
GL34A-GL34J	0.5 amp., Standard Recovery Times
RGL34A-RGL34J	0.5 amp., Fast Recovery Times
EGL34 - EGB4G	**0.5 amp Ultrafast Recovery Times**

Quick Guide To Surface Mount Superectifiers

TYPE	1N6478 thru 1N6484	GL41A thru GL41M	RGL41A* thru RGL41M*	EGL41+ thru EGL41G+	GL34A thru GL34J	RGL34A thru RGL34J	EGL34A thru EGL34G
CASE	GL41	GL41	GL41	GL41	GL34	GL34	GL34
I (A)	1.0	1.0	1.0	1.0	0.5	0.5	0.5
T (°C)	75	75	55	75	75	55	75
V = 50 (V)	1N6478	GL41A	RGL41A	EGL41A	GL34A	RGL34A	EGL34A
V = 100 (V)	1N6479	GL41B	RGL41B	EGL41B	GL34B	RGL34B	EGL34B
V = 150 (V)				EGL41C			EGL34C
V = 200 (V)	1N6480	GL41D	RGL41D	EGL41D	Gl34D	RGL34D	EGL34D
V = 300 (V)				EGL41F			EGL34F
V = 400 (V)	1N6481	GL41G	RGL41G	EGL41G	GL34G	RGL34G	EGL34G
V = 600 (V)	1N6482	GL41J	RGL41J		GL34J	RGL34J	
V = 800 (V)	1N6483	GL41K	RGL41K				
V = 1000 (V)	1N6484	GL41M	RGL41M				
SURGE (A)	30	30	30	30	10	10	10
V (V)	1.0	**1.1 / 1.2**	1.3	1.0/1 25	1.1	1.3	1.25

*Fast Recovery

+ Ultrafast Recovery

GENERAL INSTRUMENT

Silicon Chips

General Instrument's Silicon Chips are available in a large variety of current and voltage types. Chips with standard, fast, and ultrafast recovery times are available.

Each General Instrument chip is a glass passivated junction which offers easily solderable metallization as well as high surge current capability, making them ideal for hybrid circuit applications.

Types:

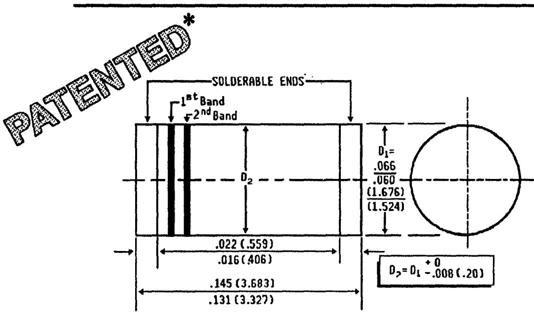
GPP 1 and 5 amp, standard recovery times
RGPP 1 and 5 amp, fast recovery times
EFR 1, 3, 5, and 8 amp, ultrafast recovery times

	Standard Recovery		Fast Recovery		Ultrafast Recovery			
TYPE	GPP1A thru GPP1M	GPP5A thru GPP5K	RGPP1A thru RGPP1K	RGPP5A thru RGPP5K	EFR1A thru EFR1D	EFR3A thru EFR3D	EFR5A thru EFR5D	EFR8A thru EFR8D
I_o (A)	1.0	5.0	1.0	5.0	1.0	3.0	5.0	8.0
@ T_A (°C)	75	100	75	100	75	75	75	75
V_R = 20 (V)								
V_R = 30 (V)								
V_R = 40 (V)								
V_R = 50 (V)	GPP1A	GPP5A	RGPP1A	RGPP5A	EFR1A	EFR3A	EFR5A	EFR8A
V_R = 60 (V)								
V_R = 100 (V)	GPP1B	GPP5B	RGPP1B	RGPP5B	EFR1B	EFR3B	EFR5B	EFR8B
V_R = 150 (V)					EFR1C	EFR3C	EFR5C	EFR8C
V_R = 200 (V)	GPP1D	GPP5D	RGPP1D	RGPP5D	EFR1D	EFR3D	EFR5D	EFR8D
V_R = 400 (V)	GPP1G	GPP5G	RGPP1G	RGPP5G				
V_R = 600 (V)	GPP1J	GPP5J	RGPP1J	RGPP5J				
V_R = 800 (V)	GPP1K	GPP5K	RGPP1K	RGPP5K				
V_R = 1000 (V)	GPP1M							
SURGE (A)	60	150	30	150	50	75	125	300
V_F (V)	1.1	1.1	1.3	1.3	0.9	0.9	0.9	0.9

BYM05-50 THRU BYM05-600
GL34A THRU GL34J

SURFACE MOUNT GLASS PASSIVATED SILICON RECTIFIER

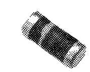
***Voltage** - 50 to 600 Volts* ***Current** - 0.5 Amperes*



Dimensions in inches and (millimeters)

**Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973.*

FEATURES

- For surface mounted applications
- High temperature metallurgically bonded - no compression contacts as found in diode-constructed rectifiers

- Glass passivated junction
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 450°C/5 seconds at terminals. Complete device submersible temperature of 260°C for 10 seconds in solder bath

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Terminals, solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any ***Handling Precautions:*** None
Weight: 0.036 gram, 0.0014 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

		BYM05					
	SYMBOLS	-50	-100	-200	-400	-600	UNITS
Standard recovery time device: 1st band is white		GL34A	GL34B	GL34D	GL34G	GL34J	
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
Maximum Average Forward Rectified Current at $T_T = 75°C$	$I_{(AV)}$	0.5					Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	10.0					Amps
Maximum Instantaneous Forward Voltage at 0.5A	V_F	1.1					Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R	5.0 50.0					µA
Maximum Full Load Reverse Current, Full Cycle Average, at $T_A = 75°C$	$I_{R(AV)}$	20					µA
Typical Junction Capacitance (Note 1)	C_J	7.0					pf
Maximum Thermal Resistance R_{thJL} (Note 2) R_{thJA} (Note 3)	$R\Theta JL$ $R\Theta JA$	70.0 150.0					°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175					°C
Polarity Color Bands (2nd Band)		Gray	Red	Orange	Yellow	Green	

NOTES: 1. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Thermal resistance junction to terminal, 5.0mm^2 copper pads to each terminal.
3. Thermal resistance junction to ambient, 5.0mm^2 copper pads to each terminal.

FIG. 1 — FORWARD CURRENT DERATING CURVE

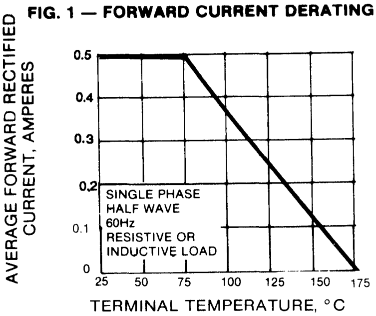


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

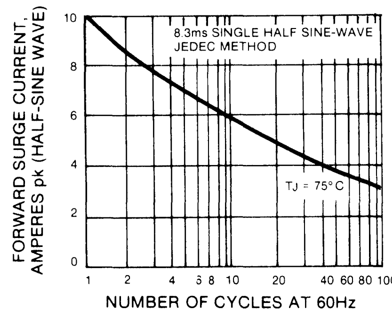


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

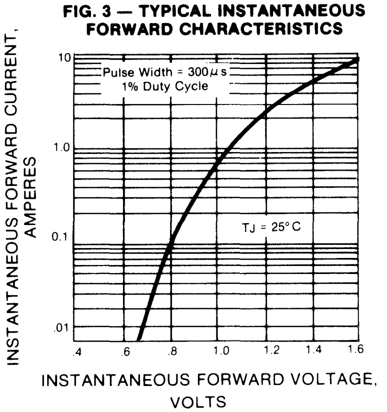


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

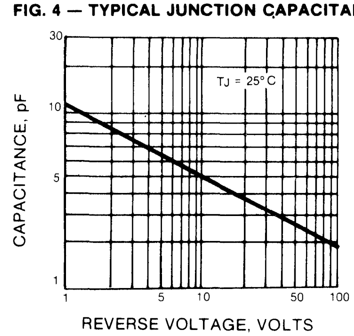
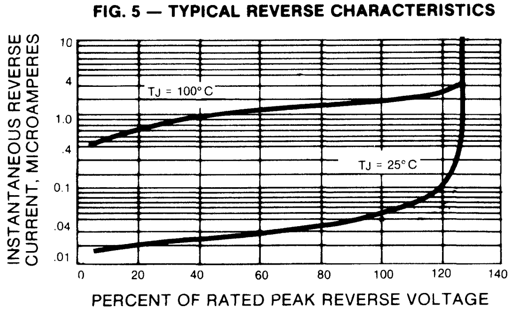


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS

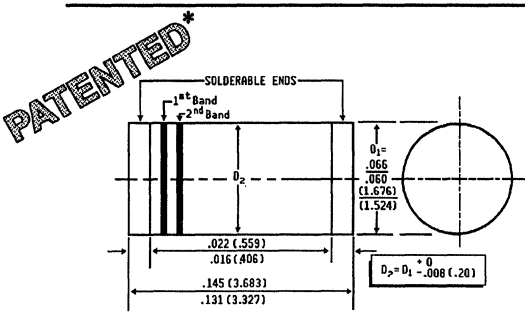


GENERAL INSTRUMENT

BYM06-50 THRU BYM06-600
RGL34A THRU RGL34J

SURFACE MOUNT GLASS PASSIVATED FAST SWITCHING SILICON RECTIFIER

Voltage *- 50 to 600 Volts* ***Current*** *- 0.5 Amperes*



Dimensions in inches and (millimeters)

**Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973.*

SUPERECTIFIER®

FEATURES

- For surface mounted applications
- High temperature metallurgically bonded - no compression contacts as found in diode-constructed rectifiers

- Glass passivated junction
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 450°C/5 seconds at terminals. Complete device submersible temperature of 260°C for 10 seconds in solder bath

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated terminals, solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any ***Handling Precautions:*** None
Weight: 0.036 gram, 0.0014 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

				BYM06			
	SYMBOLS	-50	-100	-200	-400	-600	UNITS
Fast switching device: 1st band is red		RGL34A	RGL34B	RGL34D	RGL34G	RGL34J	
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	Volts
Maximum Average Forward Rectified Current at T_T = 55°C	$I_{(AV)}$	0.5					Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	10.0					Amps
Maximum Instantaneous Forward Voltage at 0.5A	V_F	1.3					Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	5.0 50.0					μA
Maximum Full Load Reverse Current, Full Cycle Average, at T_A = 55°C	$I_{R(AV)}$	30.0					μA
Maximum Reverse Recovery Time (Note 1) T_A = 25°C	T_{RR}	150				250	ns
Typical Junction Capacitance (Note 2)	C_J	4.0					pf
Maximum Thermal Resistance (Note 3) (Note 4)	RΘJL RΘJA	70 150.0					°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175					°C
Polarity Color Bands (2nd Band)		Gray	Red	Orange	Yellow	Green	

NOTES: 1. Reverse Recovery Test Conditions I_F = 0.5A, I_R = 1.0A, Irr = .25A. 2. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal resistance from junction to terminal, 5mm^2 copper pads to each terminal
4. Thermal resistance from junction to ambient, 5mm^2 copper pads to each terminal.

FIG. 1 — FORWARD CURRENT DERATING CURVE

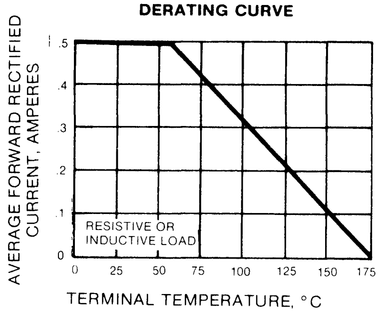


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

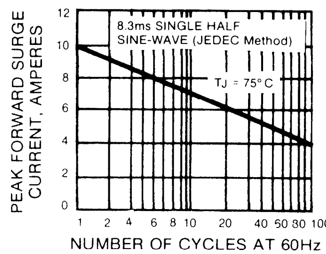


FIG. 3 — TYPICAL REVERSE CHARACTERISTICS

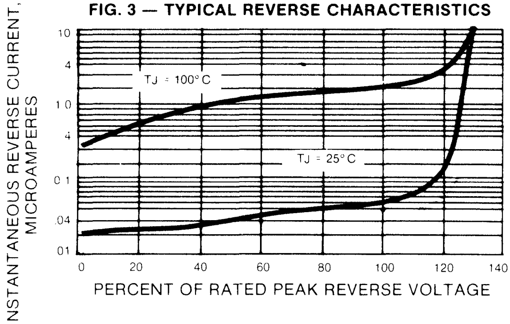


FIG. 4 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

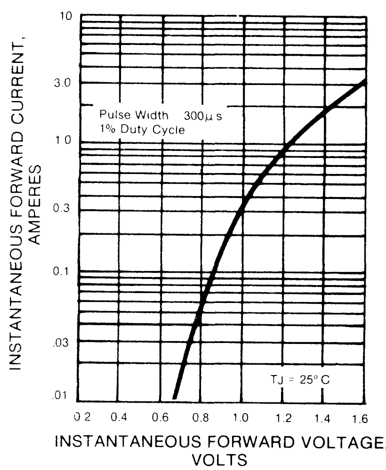


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

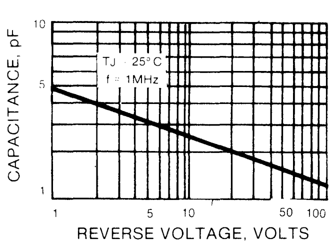
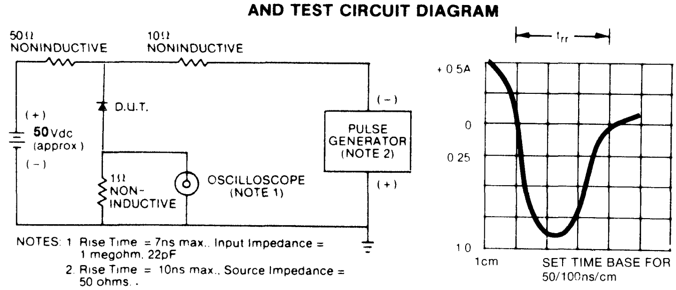


FIG. 6 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



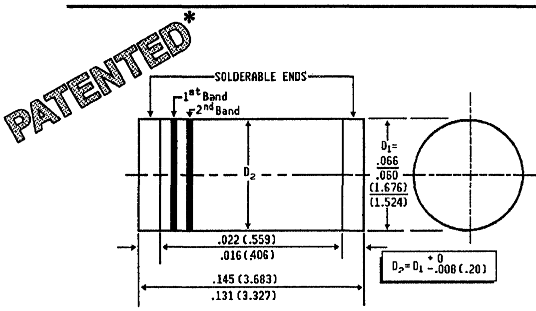
NOTES: 1. Rise Time = 7ns max., Input Impedance = 1 megohm, 22pF
2. Rise Time = 10ns max., Source Impedance = 50 ohms.

BYM07-50 THRU BYM07-400
EGL34A THRU EGL34G

SURFACE MOUNT GLASS PASSIVATED FAST EFFICIENT SILICON RECTIFIER

***Voltage** - 50 to 400 Volts* ***Current** - 0.5 Amperes*

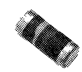
FEATURES



Dimensions in inches and (millimeters)

**Brazed-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973*

- For surface mounted applications
- High temperature metallurgically bonded - no compression contacts as found in diode-constructed rectifiers



- Glass passivated junction
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Fast switching for high efficiency
- High temperature soldering guaranteed: 450°C/5 seconds at terminals. Complete device submersible temperature of 260°C for 10 seconds in solder bath

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated terminals, solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any ***Handling Precautions:*** None
Weight: 0.036 gram, 0.0014 ounce

SUPERECTIFIER®

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

		BYM07						
	SYMBOLS	-50	-100	-150	-200	-300	-400	UNITS
Fast Efficient device: 1st band is green		EGL34A	EGL34B	EGL34C	EGL34D	EGL34F	EGL34G	
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	Volts
Maximum Average Forward Rectified Current at T_T = 75°C	$I_{(AV)}$	0.5						Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	10.0						Amps
Maximum Instantaneous Forward Voltage at 0.5A	V_F	1.25						Volts
Maximum DC Reverse Current T_A = 25°C at Rated DC Blocking Voltage T_A = 125°C	I_R	5.0 50.0						µA
Maximum Reverse Recovery Time (Note 1) T_J = 25°C	T_{RR}	50.0						nS
Typical Junction Capacitance (Note 2)	C_J	4.0						pf
Maximum Thermal Resistance (Note 3) (Note4)	$R\Theta JL$ $R\Theta JA$	70.0 150.0						°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175						°C
Polarity Color Bands (2nd Band)		Gray	Red	Pink	Orange	Brown	Yellow	

NOTES: 1. Reverse Recovery Test Conditions : I_F = 0.5A, Ir= 1.0A, Irr = .25A
2. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal resistance from junction to terminal, 5.0mm² copper pads to each terminal.
4. Thermal resistance from junction to ambient,5.0mm² copper pads to each trerminal.

FIG. 1 — FORWARD CURRENT DERATING CURVE

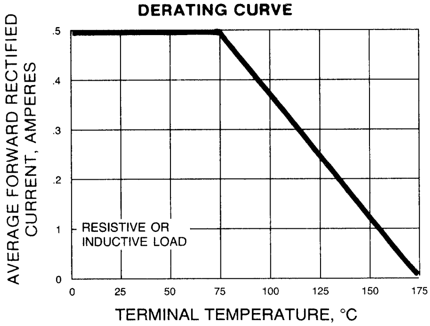


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

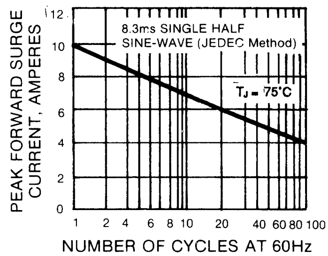


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

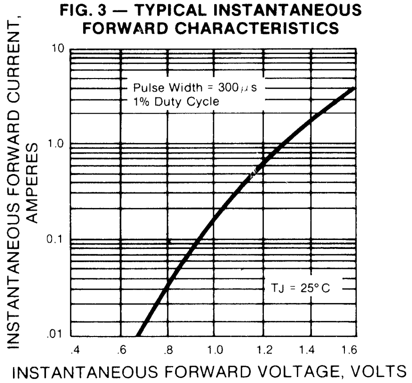


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

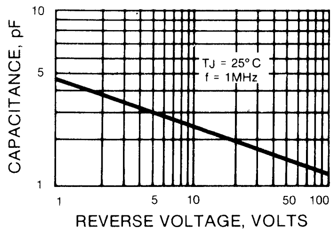
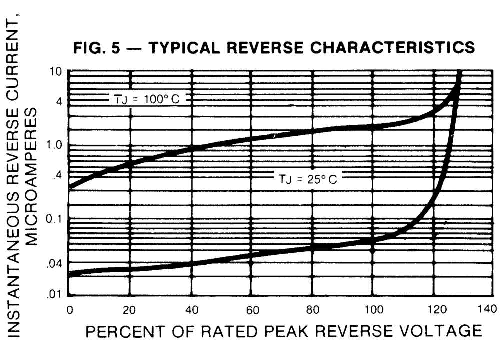


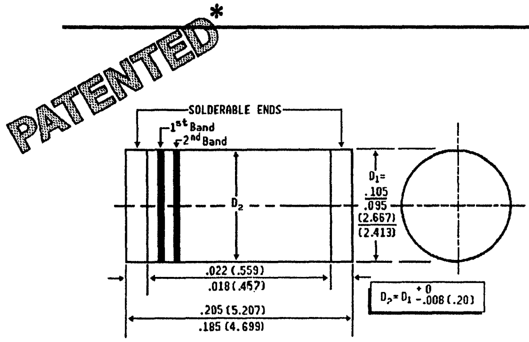
FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



1N6478 THRU 1N6484

SURFACE MOUNT GLASS PASSIVATED SILICON RECTIFIER

Voltage* - *50 to 1000 Volts*   *Current* - *1.0 Ampere

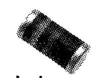


Dimensions in inches and (millimeters)

**Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973.*

SUPERECTIFIER®

FEATURES



- For surface mounted applications
- High temperature metallurgically bonded - no compression contacts as found in diode-constructed rectifiers
- Glass passivated junction
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed 450°C/5 secondsat terminals. Complete device submersible temperature of 265°C for 10 seconds in solder bath

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated terminals, solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any **Handling Precautions:** None
Weight: 0.116 gram, 0.0046 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Standard recovery time device: 1st band is white	SYMBOLS	1N 6478	1N 6479	1N 6480	1N 6481	1N 6482	1N 6483	1N 6484	UNITS
* Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
* Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
* Maximum Average Forward Rectified Current at T_T = 75°C	$I_{(AV)}$				1.0				Amps
* Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) T_A = 75°C	I_{FSM}				30.0				Amps
* Maximum Instantaneous Forward Voltage at 1.0A T_A = 75°C / T_A = 25°C	V_F				1.0 / 1.1				Volts
* Maximum DC Reverse Current T_A = 25°C / at Rated DC Blocking Voltage T_A = 125°C	I_R				10.0 / 200				µA
* Maximum Full Load Reverse Current, Full Cycle Average,at T_A = 75°C	$I_{R(AV)}$				100				µA
Typical Junction Capacitance (Note 1)	C_J				15				pf
* Maximum Thermal Resistance (Note 2) / (Note 3)	$R_{\Theta JL}$ / $R_{\Theta JA}$				20.0 / 50.0				°C/W
* Operating and Storage Temperature Range	T_J, T_{STG}				-65 to +175				°C
Polarity Color Bands (2nd Band)		Gray	Red	Orange	Yellow	Green	Blue	Violet	

NOTES: 1. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Thermal resistance from junction to terminal,6.0mm^2 copper pads to each terminal.
3. Thermal resistance from junction to ambient, 6.0mm^2 copper pads to each terminal.
* JEDEC Registered Values

FIG. 1 — FORWARD CURRENT DERATING CURVE

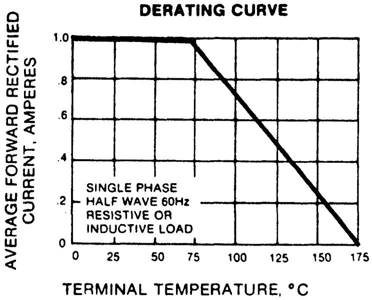


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

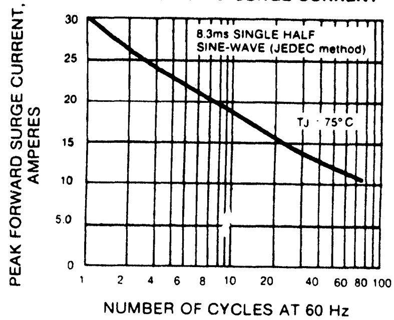


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

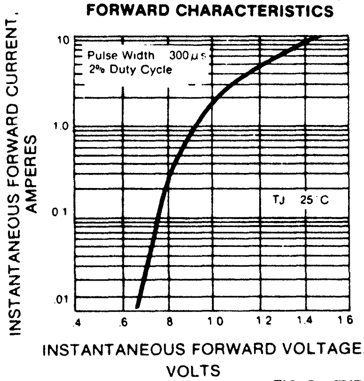


FIG. 4—TYPICAL JUNCTION CAPACITANCE

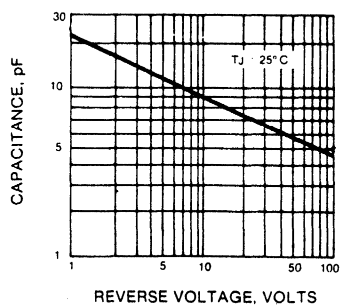
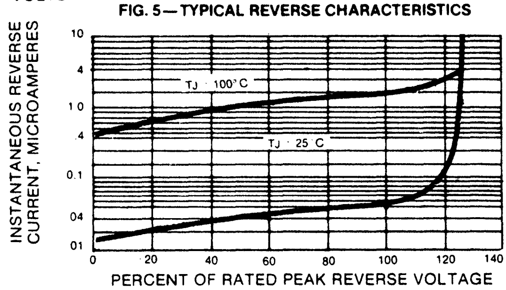


FIG. 5—TYPICAL REVERSE CHARACTERISTICS



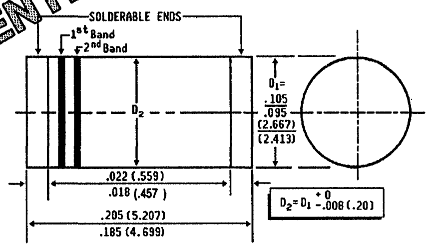
GENERAL INSTRUMENT

BYM10-50 THRU BYM10-1000
GL41A THRU GL41M

SURFACE MOUNT GLASS PASSIVATED SILICON RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 1.0 Ampere*

PATENTED*



Dimensions in inches and (millimeters)

**Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973.*

SUPERECTIFIER®

FEATURES

- For surface mounted applications
- High temperature metallurgically bonded - no compression contacts as found in diode-constructed rectifiers

- Glass passivated junction
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 450°C/5 seconds at terminals. Complete device submersible temperature of 265°C for 10 seconds in solder bath

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Terminals, solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any **Handling Precautions:** None
Weight: 0.116 gram, 0.0046 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

		BYM10					BYM10A		
	SYMBOLS	-50	-100	-200	-400	-600	-800	-1000	UNITS
Standard recovery device: 1st band is WHITE		GL41A	GL41B	GL41D	GL41G	GL41J	GL41K	GL41M	
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current $T_T = 75°C$	$I_{(AV)}$	1.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.1					1.2		Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R	10.0 50.0							µA
Maximum Full Load Reverse Current, Full Cycle Average, at $T_A = 75°C$	$I_{R(AV)}$	30.0							µA
Typical Junction Capacitance (Note 1)	C_J	15.0							pf
Maximum Thermal Resistance (Note 2) (Note 3)	$R_{\Theta JL}$ $R_{\Theta JA}$	30.0 75.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C
Polarity Color Bands (2nd Band)		Gray	Red	Orange	Yellow	Green	Blue	Violet	

NOTES: 1. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Thermal resistance from junction to terminal, 6.0mm^2 copper pads to each terminal.
3. Thermal resistance from junction to ambient, 6.0mm^2 copper pads to each terminal.

FIG. 1 — FORWARD CURRENT DERATING CURVE

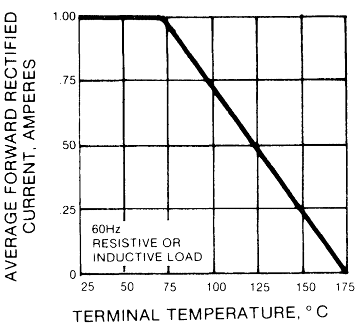


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

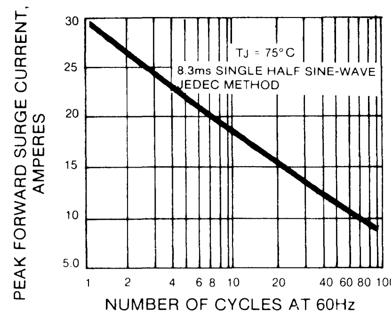


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

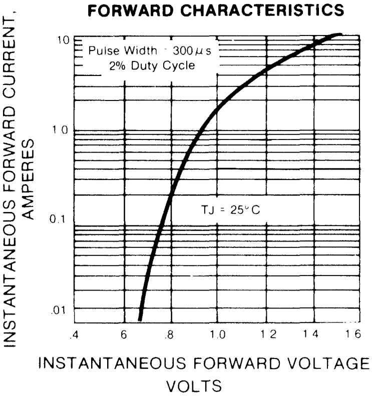


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

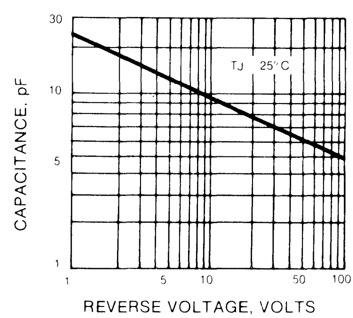
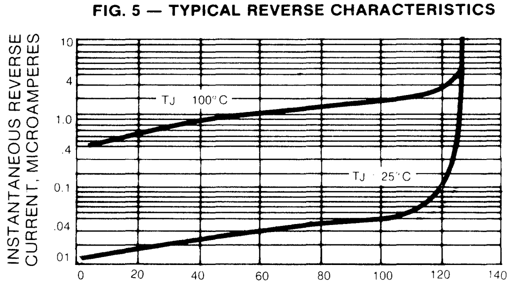


FIG. 5 — TYPICAL REVERSE CHARACTERISTICS



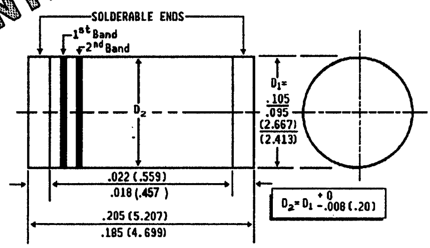
BYM11-50 THRU BYM11-1000
RGL41A THRU RGL41M

SURFACE MOUNT GLASS PASSIVATED FAST SWITCHING SILICON RECTIFIER

***Voltage** - 50 to 1000 Volts* ***Current** - 1.0 Ampere*

FEATURES

PATENTED*

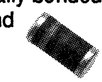


Dimensions in inches and (millimeters)

**Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973.*

SUPERECTIFIER®

- For surface mounted applications
- High temperature metallurgically bonded - no compression contacts as found in diode-constructed rectifiers



- Glass passivated junction
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Capable of meeting environmental standards of MIL-S-19500
- High temperature soldering guaranteed: 450°C/5 seconds at terminals. Complete device submersible temperature of 260°C for 10 seconds in solder bath

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Plated Terminals, solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any ***Handling Precautions:*** None
Weight: 0.116 gram, 0.0046 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

		BYM11							
	SYMBOLS	-50	-100	-200	-400	-600	-800	1000	UNITS
Fast switching time device: 1st band is RED.		RGL 41A	RGL 41B	RGL 41D	RGL 41G	RGL 41J	RGL 41K	RGL 41M	
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current $T_T = 55°C$	$I_{(AV)}$	1.0							Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0							Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.3							Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R	5.0 50.0							µA
Maximum Full Load Reverse Current, Full Cycle Average, at $T_A = 55°C$	$I_{R(AV)}$	50.0							µA
Maximum Reverse Recovery Time (Note 1) $T_J = 25°C$	T_{RR}	150				250	500	500	ns
Typical Junction Capacitance (Note 4)	C_J	15.0							pf
Maximum Thermal Resistance (Note 2) (Note 3)	$R\Theta JL$ $R\Theta JA$	30.0 75.0							°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C
Polarity Color Bands (2nd Band)		Gray	Red	Orange	Yellow	Green	Blue	Violet	

NOTES: 1. Reverse Recovery Test Conditions: I_F =0.5A, I_R = 1.0A, Irr = .25A.
2. Thermal resistance from junction to terminal, 6.0mm² copper pads to each terminal.
3. Thermal Resistance from junction to ambient 6.0mm² copper pads to each terminal
4. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.

FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

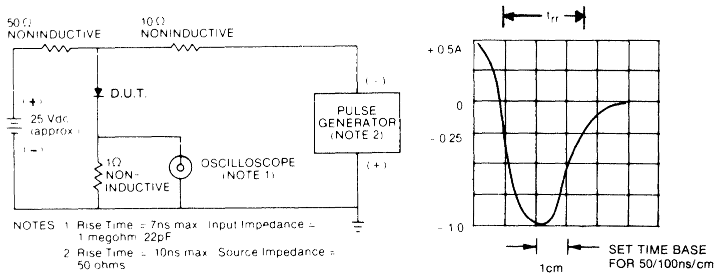


FIG. 2 — FORWARD CURRENT DERATING CURVE

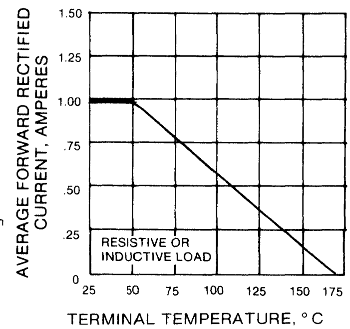


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

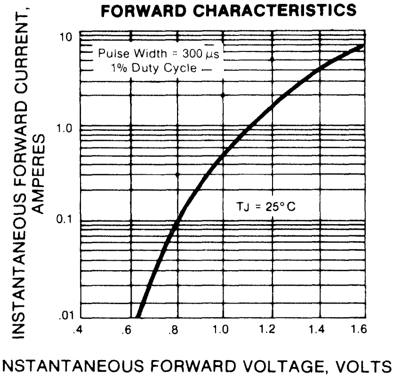


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

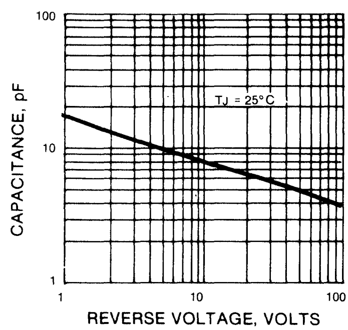


FIG. 5 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

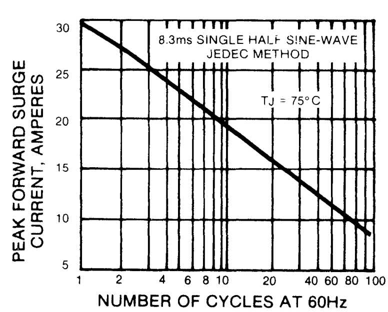
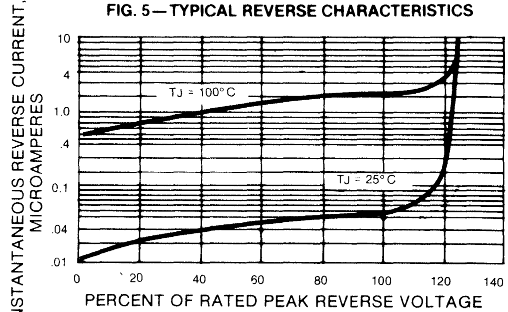


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

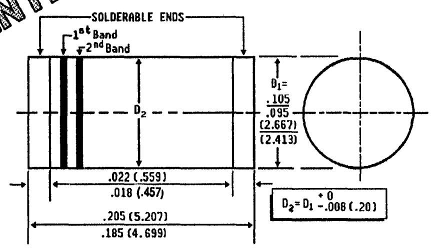


BYM12-50 THRU BYM12-400
EGL41A THRU EGL41G

SURFACE MOUNT GLASS PASSIVATED FAST EFFICIENT SILICON RECTIFIER

Voltage* - *50 to 400 Volts* *Current* - *1.0 Ampere

PATENTED*

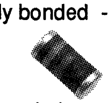


Dimensions in inches and (millimeters)

**Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly to Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973.*

SUPERECTIFIER®

FEATURES



- ◆ For surface mounted applications
- ◆ High temperature metallurgically bonded - no compression contacts as found in diode-constructed rectifiers
- ◆ Glass passivated junction
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Superfast recovery times for high efficiency
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ High temperature soldering guaranteed: 450°C/5 seconds at terminals. Complete device submersible temperature of 265°C for 10 seconds in solder bath

MECHANICAL DATA

Case: Molded plastic over glass
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any ***Handling Precautions:*** None
Weight: 0.116 gram, 0.0046 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

		BYM12						
	SYMBOLS	***-50***	***-100***	***-150***	***-200***	***300***	***-400***	***UNITS***
Fast efficient devices: 1st band is green		EGL 41A	EGL 41B	EGL 41C	EGL 41D	EGL 41F	EGL 41G	
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	Volts
Maximum Average Forward Rectified Current at $T_T = 75°C$	$I_{(AV)}$	1.0						Amps
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30.0						Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	1.0				1.25		Volts
Maximum DC Reverse Current $T_A = 25°C$ at Rated DC Blocking Voltage $T_A = 125°C$	I_R	5.0 50.0						μA
Maximum Reverse Recovery Time (Note 1) $T_J = 25°C$	T_{RR}	50						ns
Typical Junction Capacitance (Note 2)	C_J	15.0						pf
Maximum Thermal Resistance R_{thJL} (Note 3) R_{thJA} (Note 4)	$R\Theta JL$ $R\Theta JA$	30 60						°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175						°C
Polarity Color Bands (2nd Band)		Gray	Red	Pink	Orange	Brown	Yellow	

NOTES: 1. Reverse Recovery Test Conditions $I_F = .5A$, $I_R = 1.0A$, $Irr = .25A$.
2. Measured at 1 MHz and applied reverse voltage of 4.0 Volts.
3. Thermal resistance junction to terminal, 6.0mm² copper pads to each terminal.
4. Thermal resistance junction to ambient, 6.0mm² copper pads to each terminal.

FIG. 1 — FORWARD CURRENT DERATING CURVE

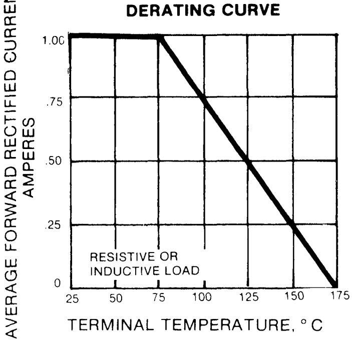


FIG. 2 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

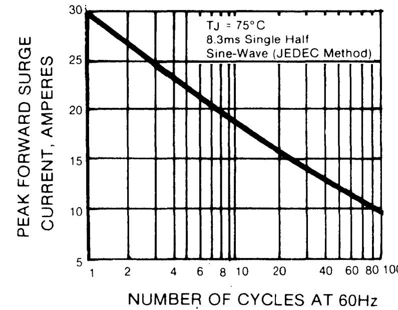


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

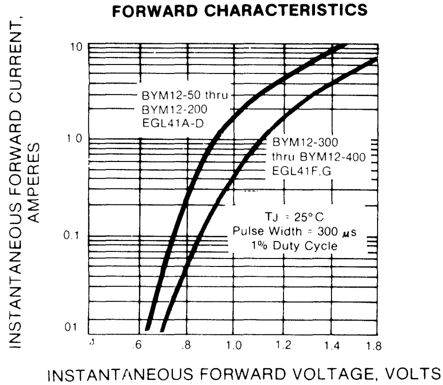


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

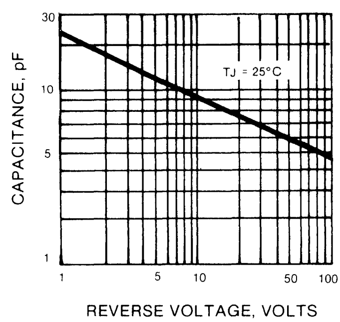
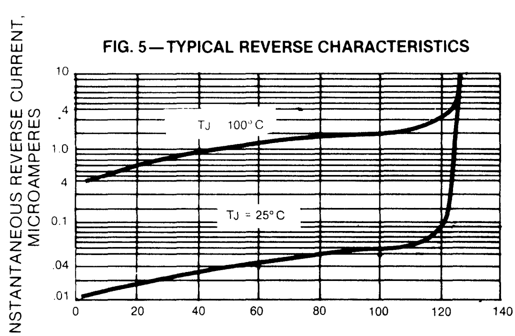


FIG. 5—TYPICAL REVERSE CHARACTERISTICS

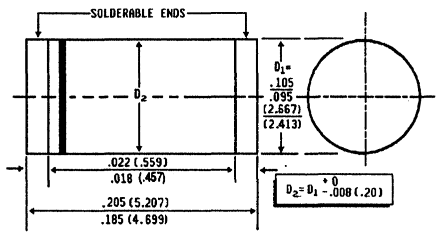


GENERAL INSTRUMENT

GLL4735 THRU GLL4763

1.0 WATT SURFACE MOUNT GLASS PASSIVATED ZENER

***Voltage-** 6.2-91.0 Volts* ***Power Rating** - 1.0 Watt*



The plastic material covering the glass passivated junction

FEATURES

- For surface mounted applications
- Plastic package has Underwriter Labaoratory Flammability Classification 94 V-O
- Glass passivated junction
- Low zener impedance
- Excellent clamping capability
- High temperature soldering guaranteed: 250°C/10 seconds/ at terminals

MECHANICAL DATA

Case: Molded plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: Red band denotes cathode
Mounting Position: Any
Handling Precautions: None
Weight: 0.116 grams, 0.0046 ounce

OPERATING AND STORAGE TEMPERATURE RANGE -65°C to +175°C

Type	*Nominal Zener Voltage @IZT Vz Volts	Maximum DC Power Dissipation @TT = 75°C PD Watts	Test Current IZT mA	Maximum Dynamic Impedence ZZT OHMs	ZZK@ OHMs	IZK MA	Maximum Reverse Leakage Current @TA = 25°C IR µA	VR Volts	Maximum Surge Current @TA = 25°C (Note 1) IR mApk	Maximum Forward Voltage @200mA @TA = 25°C Volts
GLL4735	6.2	1.0	41.0	2.0	700	1.0	10.0	3.0	730.0	1.2
GLL4736	6.8	1.0	37.0	3.5	700	1.0	10.0	4.0	660.0	1.2
GLL4737	7.5	1.0	34.0	4.0	700	0.5	10.0	5.0	605.0	1.2
GLL4738	8.2	1.0	31.0	4.5	700	0.5	10.0	6.0	550.0	1.2
GLL4739	9.1	1.0	28.0	5.0	700	0.5	10.0	7.0	500.0	1.2
GLL4740	10	1.0	25.0	7.0	700	0.25	10.0	7.6	454.0	1.2
GLL4741	11	1.0	23.0	8.0	700	0.25	5.0	8.4	414.0	1.2
GLL4742	12	1.0	21.0	9.0	700	0.25	5.0	9.1	380.0	1.2
GLL4743	13	1.0	19.0	10.0	700	0.25	5.0	9.9	344.0	1.2
GLL4744	15	1.0	17.0	14.0	700	0.25	5.0	11.4	305.0	1.2
GLL4745	16	1.0	15.5	16.0	700	0.25	5.0	12.2	285.0	1.2
GLL4746	18	1.0	14.0	20.0	750	0.25	5.0	13.7	250.0	1.2
GLL4747	20	1.0	12.5	22.0	750	0.25	5.0	15.2	225.0	1.2
GLL4748	22	1.0	11.5	23.0	750	0.25	5.0	16.7	205.0	1.2
GLL4749	24	1.0	10.5	25.0	750	0.25	5.0	18.2	190.0	1.2
GLL4750	27	1.0	9.5	35.0	750	0.25	5.0	20.6	170.0	1.2
GLL4751	30	1.0	8.5	40.0	1000	0.25	5.0	22.8	150.0	1.2
GLL4752	33	1.0	7.5	45.0	1000	0.25	5.0	25.1	135.0	1.2
GLL4753	36	1.0	7.0	50.0	1000	0.25	5.0	27.4	125.0	1.2
GLL4754	39	1,0	6.5	60.0	1000	0.25	5.0	29.7	115.0	1.2
GLL4755	43	1.0	6.0	70.0	1500	0.25	5.0	32.7	110.0	1.2
GLL4756	47	1.0	5.5	80.0	1500	0.25	5.0	35.8	95.0	1.2
GLL4757	51	1.0	5.0	95.0	1500	0.25	5.0	38.8	90.0	1.2
GLL4758	56	1.0	4.5	110.0	2000	0.25	5.0	42.6	80.0	1.2
GLL4759	62	1.0	4.0	125.0	2000	0.25	5.0	47.1	70.0	1.2
GLL4760	68	1.0	3.7	150.0	2000	0.25	5.0	51.7	65.0	1.2
GLL4761	75	1.0	3.3	175.0	2000	0.25	5.0	56.0	60.0	1.2
GLL4762	82	1.0	3.0	200.0	3000	0.25	5.0	62.2	55.0	1.2
GLL4763	91	1.0	2.0	250.0	3000	0.25	5.0	69.2	50.0	1.2

*Standard Voltage Tolerance±10%, Suffix A .5% Note 1 : Surge Current is non-repetitive, 8.3 ms pulse width square wave or equivalent sine-wave superimposed on IZT per JEDEC method.

FIG. 1 — MAXIMUM CONTINUOUS POWER DISSIPATION

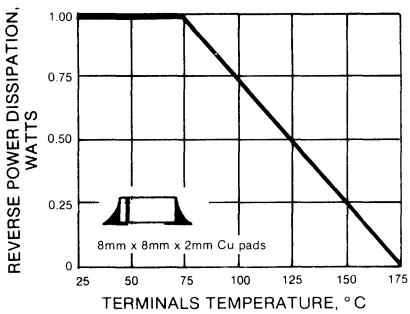


FIGURE 2 — TYPICAL ZENER IMPEDANCE

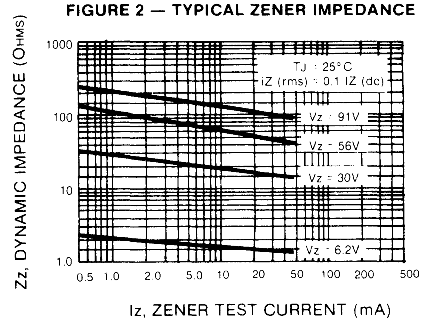


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

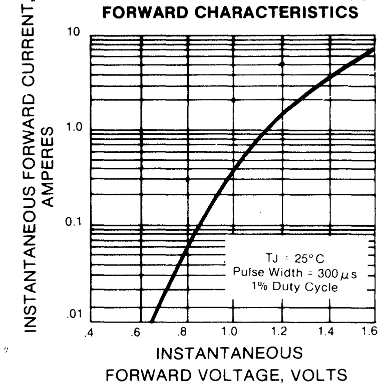


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

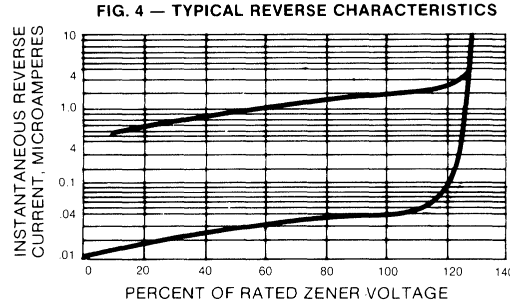
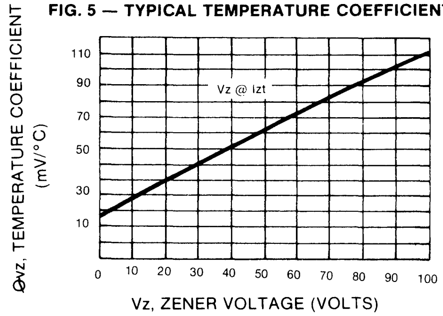


FIG. 5 — TYPICAL TEMPERATURE COEFFICIENTS



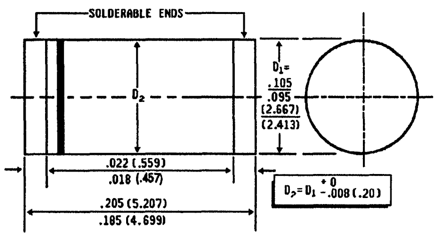
GENERAL INSTRUMENT

ZGL41-100 THRU ZGL41-200

1.0 WATT SURFACE MOUNT GLASS PASSIVATED ZENER

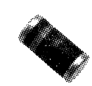
Voltage- *100 - 200 Volts* ***Power Rating -*** *1.0 Watt*

FEATURES



Dimensions in inches
and
(millimeters)

- For surface mounted applications
- Plastic package has Underwriters Labaoratory Flammability Classification 94 V-O
- Glass passivated junction
- Low zener impedance
- Excellent clamping capability
- High temperature soldering guaranteed: 250°C/10 seconds/ at terminals



MECHANICAL DATA

Case: Molded plastic

Terminals: Solderable per MIL-STD-202, Method 208

Polarity: Red band denotes cathode

Mounting Position: Any

Handling Precautions: None

Weight: 0.116 grams, 0.0046 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

The plastic material covering the glass passivated junction carries U/L recognition 94V-O
OPERATING AND STORAGE TEMPERATURE RANGE -65°C to +175°C

TYPE	*NOMINAL ZENER VOLTAGE @ I_{ZT} V_Z VOLTS	MAXIMUM DC POWER DISSIPATION @ T_T=75 PD WATTS	TEST CURRENT IZT mA	MAXIMUM DYNAMIC IMPEDANCE ZZT OHMS	ZZK @ OHMS	IZK mA	MAXIMUM REVERSE LEAKAGE CURRENT @ T_A=25 C I_R µA	I_{ZM} VOLTS	MAXIMUM SURGE CURRENT @T_A=25 C (NOTE 1) V_F mAdc	MAXIMUM FORWARD VOLTAGE @ 200mA @ T_A=25 C VOLTS
ZGL41-100	100	1.0	3.7	250	3100	0.25	1.0	76.0	10.0	1.5
ZGL41-110	110	1.0	3.4	300	4000	0.25	1.0	83.6	9.1	1.5
ZGL41-120	120	1.0	3.1	380	4500	0.25	1.0	91.2	8.3	1.5
ZGL41-130	130	1.0	2.9	450	5000	0.25	1.0	98.8	7.7	1.5
ZGL41-140	140	1.0	2.7	525	5500	0.25	1.0	106.4	7.1	1.5
ZGL41-150	150	1.0	2.5	600	6000	0.25	1.0	114	6.7	1.5
ZGL41-160	160	1.0	2.3	700	6500	0.25	1.0	121.6	6.3	1.5
ZGL41-170	170	1.0	2.2	800	6750	0.25	1.0	129.2	5.9	1.5
ZGL41-180	180	1.0	2.1	900	7000	'0.25	1.0	136.98	5.6	1.5
ZGL41-190	190	1.0	2.0	1050	7500	0.25	1.0	144.4	5.3	1.5
ZGL41-200	200	1.0	1.9	1200	8000	0.25	1.0	152	5.0	1.5

* Standard Voltage Tolerance $\pm$ 10%, Suffix A $\pm$ 5%.

FIG. 1 — MAXIMUM CONTINUOUS POWER DISSIPATION

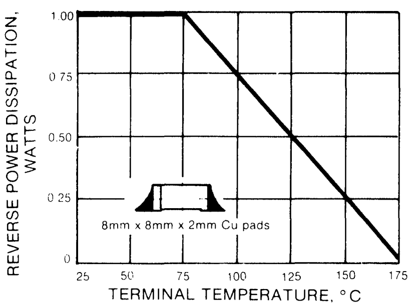


FIG. 2 — TYPICAL ZENER IMPEDANCE

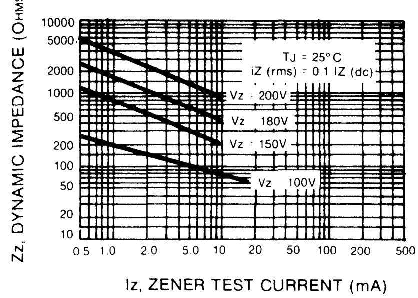


FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

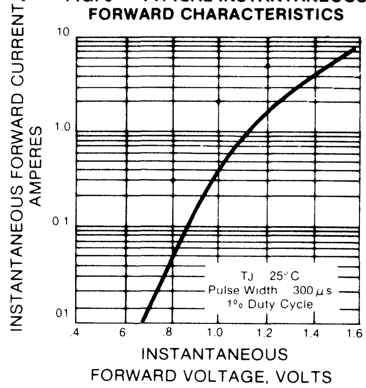


FIG. 4 — TYPICAL REVERSE CHARACTERISTICS

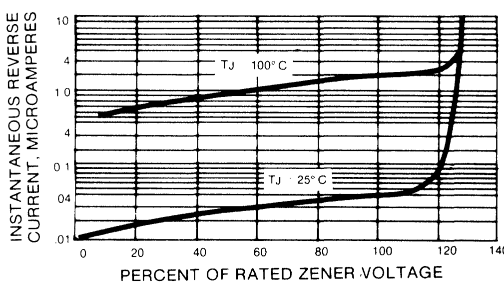
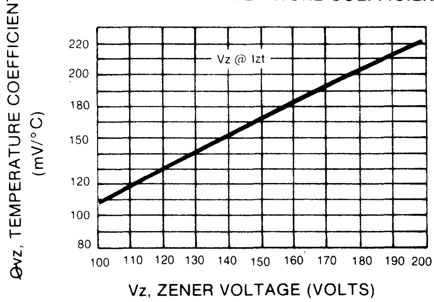


FIG. 5 — TYPICAL TEMPERATURE COEFFICIENTS

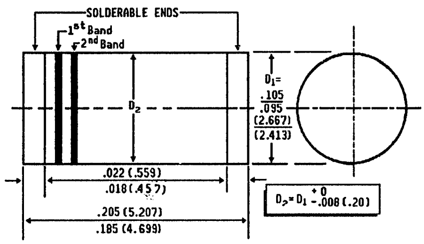


BYM13-20 THRU BYM13-60
SGL41-20 THRU SGL41-60

SURFACE MOUNT SCHOTTKY RECTIFIER

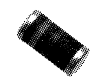
Voltage *- 20 to 60 Volts* ***Current*** *- 1.0 Amperes*

FEATURES



Dimensions in inches and (millimeters)

- For surface mounted applications
- Plastic material used carries Underwriters Laborataory Flammabiliby Classifications 94V-O
- Metal to silicon rectifier, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low V_F
- For use in low voltage, high frequency inverters, free wheeling and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds at terminals



MECHANICAL DATA

Case: Molded plastic
Terminals: Solderable per MIL-STD-202, Method 208
Polarity: Two bands indicate cathode
1st band denotes device type 2nd band denotes voltage type
Mounting Position: Any
Handling Precautions: None
Weight: 0.116 gram, 0.0046 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

		BYM13					
	SYMBOLS	*-20*	*-30*	*-40*	*-50*	*-60*	*UNITS*
Schottky devices: 1st band is orange		SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60	
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	20	30	40	50	60	Volts
Maximum RMS Voltage	V_{RMS}	14	21	28	35	42	Volts
Maximum DC Blocking Voltage	V_{DC}	20	30	40	50	60	Volts
Maximum Average Forward Rectified Current at T_T = 75°C	$I_{(AV)}$			1.0			Amps
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}			30.0			Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F		.50		.70		Volts
Maximum Reverse Current T_J = 25°C at Rated DC Blocking Voltage T_J = 100°C	I_R			0.5 10			mA
Typical Junction Capacitance (Note 1)	C_J		110		80		pf
Maximum Thermal Resistance R_{thJL} (Note 2) R_{thJA} (Note 3)	RΘJL RΘJA			30 75			°C/W
Operating Temperature Range	T_J			-65 to +125			°C
Storage Temperature Range	T_{STG}			-65 to +175			°C
Polarity Color Bands (2nd Band)		Gray	Red	Orange	Yellow	Green	

NOTES:
1. Measured at 1 MHz and applied reverse voltage of 4.0 V_{DC}.
2. Thermal resistance junction to terminal, 6.0mm^2 copper pads to each terminal.
3. Thermal resistance junction to ambient, 6.0mm^2 copper pads to each terminal.

FIG. 1 — FORWARD CURRENT DERATING CURVE

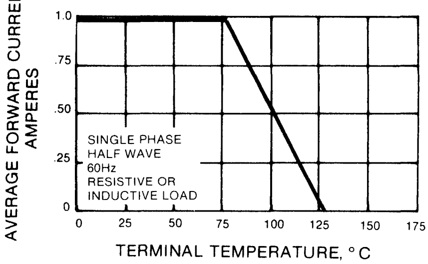


FIG. 2 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

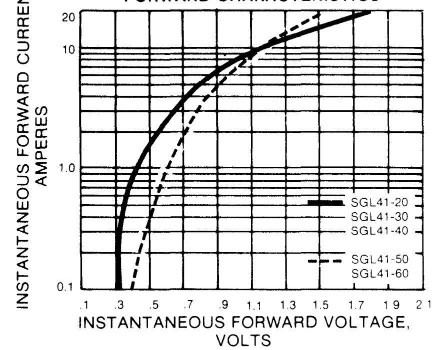


FIG. 3A — TYPICAL REVERSE CHARACTERISTICS

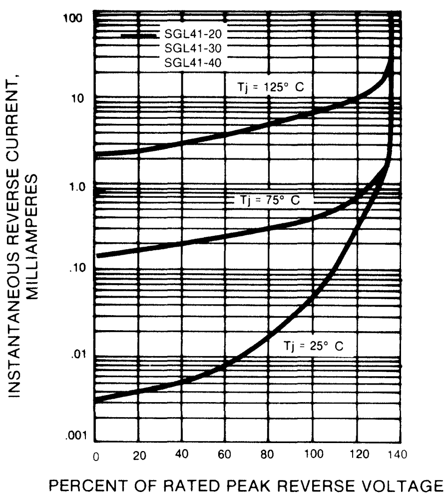


FIG. 3B — TYPICAL REVERSE CHARACTERISTICS

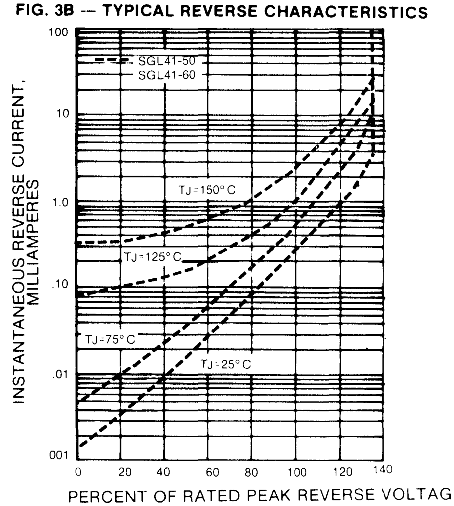


FIG. 4 — TYPICAL JUNCTION CAPACITANCE

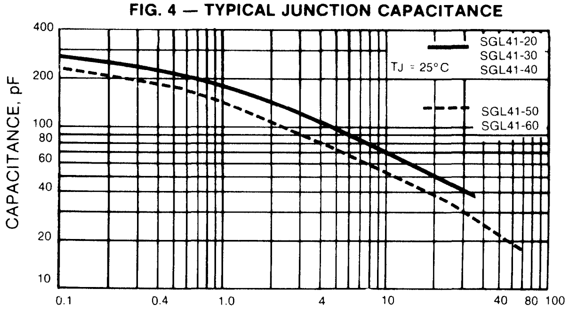
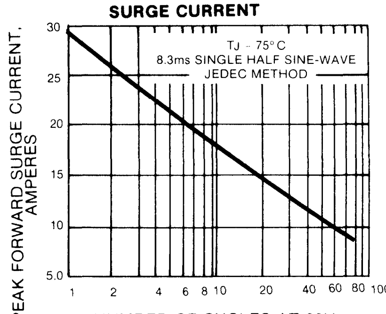


FIG.5—MAXIMUM NON—REPETITIVE SURGE CURRENT

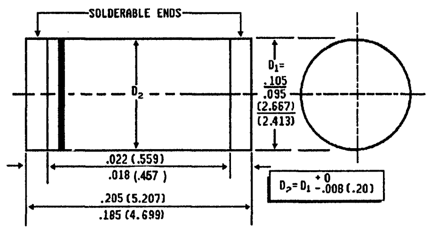


TGL41 SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

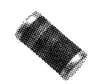
***Voltage** - 6.8 to 200 Volts*

FEATURES



Dimensions in inches and (millimeters)

- For surface mounted applications
- Plastic material used carries Underwriters Labarataory Flammabiliby Classifications 94V-O
- Glass passivated junction
- Excellent clamping capability



- Fast response time: typically less than 1.0ps from 0 volts to BV min.
- Typical I_R less than 1 μ A above 10V
- High temperature soldering guaranteed: 250°C/10 seconds at terminals

MECHANICAL DATA

Case: Molded plastic

Terminals: Solderable per MIL-STD-202, Method 208

Polarity: Blue band denotes cathode

Mounting Position: Any

Handling Precautions: None

Weight: 0.116 gram, 0.0046 ounce

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATINGS	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 400	Watts
Steady State Power Dissipation at T_T = 75°C (Note 2)	P_D	1.0	Watt
Peak Forward Surge Current, 8.3ms single half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	40.0	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	°C

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on 8.0 mm ^{2} copper pads to each terminal.
3. 8.3ms single half sine-wave duty cycle = 4 pulses per minutes maximum.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C UNLESS OTHERWISE NOTED)

DEVICE	Breakdown Voltage V_{BR} Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R (μA)	Maximum Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperatrue Coefficient of V_{BR} (% / °C)
TGL41-6.8	6.12	7.48	10	5.50	1000	37	10.8	0.060
TGL41-6.8A	6.45	7.14	10	5.80	1000	38	10.5	0.060
TGL41-7.5	6.75	8.25	10	6.05	500	34	11.7	0.064
TGL41-7.5A	7.13	7.88	10	6.40	500	35	11.3	0.064
TGL41-8.2	7.38	9.02	10	6.63	200	32	12.5	0.068
TGL41-8.2A	7.79	8.61	10	7.02	200	33	12.1	0.068
TGL41-9.1	8.19	10.0	1.0	7.37	50	29	13.8	0.071
TGL41-9.1A	8.65	9.55	1.0	7.78	50	30	13.4	0.071
TGL41-10	9.00	11.0	1.0	8.10	10	27	15.0	0.076
TGL41-10A	9.50	10.5	1.0	8.55	10	28	14.5	0.076
TGL41-11	9.90	12.1	1.0	8.92	5.0	25	16.2	0.078
TGL41-11A	10.5	11.6	1.0	9.40	5.0	26	15.6	0.078
TGL41-12	10.8	13.2	1.0	9.72	5.0	23	17.3	0.081
TGL41-12A	11.4	12.6	1.0	10.2	5.0	24	16.7	0.081
TGL41-13	11.7	14.3	1.0	10.5	5.0	21	19.0	0.084
TGL41-13A	12.4	13.7	1.0	11.1	5.0	22	18.2	0.084
TGL41-15	13.5	16.5	1.0	12.1	5.0	18.20	22.0	0.087
TGL41-15A	14.3	15.8	1.0	12.8	5.0	18.90	21.2	0.087
TGL41-16	14.4	17.6	1.0	12.9	5.0	17.00	23.5	0.089
TGL41-16A	15.2	16.8	1.0	13.6	5.0	17.80	22.5	0.089
TGL41-18	16.2	19.8	1.0	14.5	5.0	15.10	26.5	0.091
TGL41-18A	17.1	18.9	1.0	15.3	5.0	15.90	25.2	0.091
TGL41-20	18.0	22.0	1.0	16.2	5.0	13.70	29.1	0.093
TGL41-20A	19.0	21.0	1.0	17.1	5.0	14.40	27.7	0.093
TGL41-22	19.8	24.2	1.0	17.8	5.0	12.50	31.9	0.095
TGL41-22A	20.9	23.1	1.0	18.8	5.0	13.10	30.6	0.095
TGL41-24	21.6	26.4	1.0	19.4	5.0	11.50	34.7	0.097
TGL41-24A	22.8	25.2	1.0	20.5	5.0	12.00	33.2	0.097
TGL41-27	24.3	29.7	1.0	21.8	5.0	10.20	39.1	0.099
TGL41-27A	25.7	28.4	1.0	23.1	5.0	10.70	37.5	0.099
TGL41-30	27.0	33.0	1.0	24.3	5.0	9.20	43.5	0.100
TGL41-30A	28.5	31.5	1.0	25.6	5.0	9.70	41.4	0.100
TGL41-33	29.7	36.3	1.0	26.8	5.0	8.40	47.7	0.101
TGL41-33A	31.4	34.7	1.0	28.2	5.0	8.80	45.7	0.101
TGL41-36	32.4	39.6	1.0	29.1	5.0	7.70	52.0	0.102
TGL41-36A	34.2	37.8	1.0	30.8	5.0	8.00	49.9	0.102
TGL41-39	35.1	42.9	1.0	31.6	5.0	7.10	56.4	0.103
TGL41-39A	37.1	41.0	1.0	33.3	5.0	7.40	53.9	0.103
TGL41-43	38.7	47.3	1.0	34.8	5.0	6.50	61.9	0.104
TGL41-43A	40.9	45.2	1.0	36.8	5.0	6.70	59.3	0.104

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

DEVICE	Breakdown Voltage V_{BR} Volts (Note 1) MIN.	MAX.	@IT (mA)	Working Peak Reverse Voltage VRWM (Volts)	Maximum Reverse Leakage at V_{RWM} I_R (μA)	Maximum Reverse Current I_{RSM} (Note 2) Amps	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperature Coefficient of V_{BR} (% / °C)
TGL41-47	42.3	51.7	1.0	38.1	5.0	5.90	67.8	0.104
TGL41-47A	44.7	49.4	1.0	40.2	5.0	6.20	64.8	0.104
TGL41-51	45.9	56.1	1.0	41.3	5.0	5.40	73.5	0.105
TGL41-51A	48.5	53.6	1.0	43.6	5.0	5.70	70.1	0.105
TGL41-56	50.4	61.6	1.0	45.4	5.0	5.00	80.5	0.106
TGL41-56A	53.2	58.8	1.0	47.8	5.0	5.20	77.0	0.106
TGL41-62	55.8	68.2	1.0	50.2	5.0	4.50	89.0	0.107
TGL41-62A	58.9	65.1	1.0	53.0	5.0	4.70	85.0	0.107
TGL41-68	61.2	74.8	1.0	55.1	5.0	4.10	98.0	0.107
TGL41-68A	64.6	71.4	1.0	58.1	5.0	4.30	92.0	0.107
TGL41-75	67.5	82.5	1.0	60.7	5.0	3.70	108.0	0.108
TGL41-75A	71.3	78.8	1.0	64.1	5.0	3.90	103.0	0.108
TGL41-82	73.8	90.2	1.0	66.4	5.0	3.40	118.0	0.108
TGL41-82A	77.9	86.1	1.0	70.1	5.0	3.50	113.0	0.108
TGL41-91	81.9	100.0	1.0	73.7	5.0	3.00	131.8	0.109
TGL41-91A	86.5	95.50	1.0	77.8	5.0	3.20	125.0	0.109
TGL41-100	90.0	110.0	1.0	81.0	5.0	1.39	144.0	0.109
TGL41-100A	95.0	105.0	1.0	85.5	5.0	1.46	137.0	0.109
TGL41-110	99.0	121.0	1.0	89.2	5.0	1.27	158.0	0.110
TGL41-110A	105.0	116.0	1.0	94.0	5.0	1.32	152.0	0.110
TGL41-120	108.0	132.0	1.0	97.2	5.0	1.16	173.0	0.110
TGL41-120A	114.0	126.0	1.0	102.0	5.0	1.21	165.0	0.110
TGL41-130	117.0	143.0	1.0	105.0	5.0	1.07	187.0	0.110
TGL41-130A	124.0	137.0	1.0	111.0	5.0	1.12	179.0	0.110
TGL41-150	135.0	165.0	1.0	121.0	5.0	.93	215.0	0.111
TGL41-150A	143.0	158.0	1.0	128.0	5.0	.97	207.0	0.111
TGL41-160	144.0	176.0	1.0	130.0	5.0	.87	230.0	0.111
TGL41-160A	152.0	168.0	1.0	136.0	5.0	.91	219.0	0.111
TGL41-170	153.0	187.0	1.0	138.0	5.0	.82	244.0	0.111
TGL41-170A	162.0	179.0	1.0	145.0	5.0	.85	234.0	0.111
TGL41-180	162.0	198.0	1.0	146.0	5.0	.78	258.0	0.111
TGL41-180A	171.0	189.0	1.0	154.0	5.0	.81	246.0	0.111
TGL41-200	180.0	220.0	1.0	162.0	5.0	.70	287.0	0.111
TGL41-200A	190.0	210.0	1.0	171.0	5.0	.73	274.0	0.111

NOTES:

1. V_{BR} measured after IT applies for 300 μs IT = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derate per Figure 2.

FIGURE 2 — PULSE DERATING CURVE

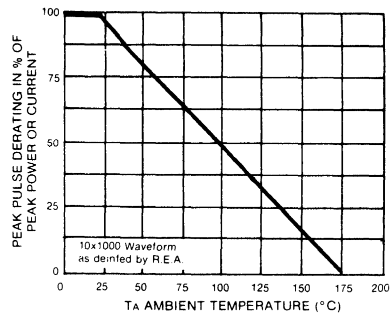


FIGURE 1 — PULSE RATING CURVE

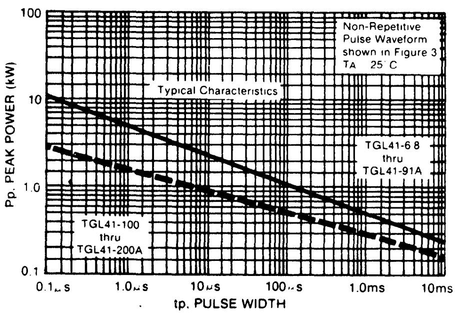


FIGURE 3 — PUSLE WAVEFORM

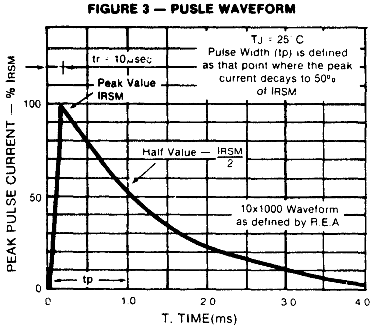


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

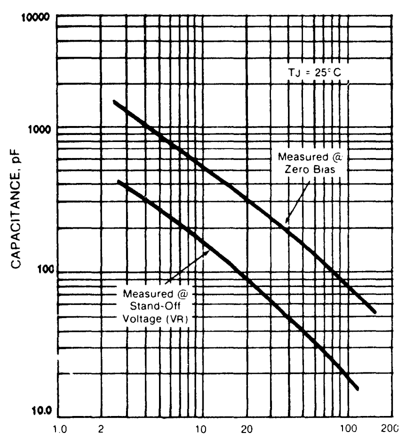


FIGURE 5 — STEADY STATE POWER DERATING

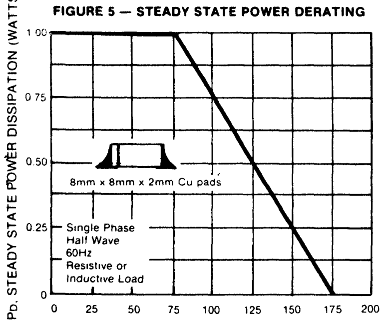
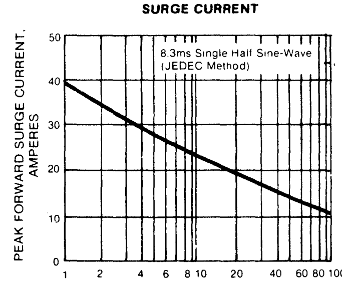


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



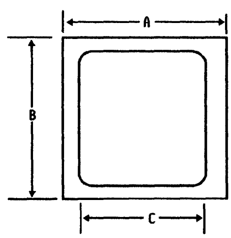
GENERAL INSTRUMENT

GPP1 & GPP5 SERIES

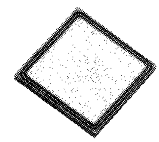
GLASS PASSIVATED RECTIFIER CHIPS

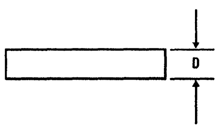
***Voltage** - 50 to 1000 Volts* ***Current** - 1.0 and 5.0 Amperes*

FEATURES



- Ideal for Hybrid Circuits
- Solderable Metallization
- Typical I_R less than 1 μA
- Glass Passivated Junction
- High Surge Capability
- Mounting Postion: Any





METALLIZATION: GOLD ON NICKEL

	Dimension A	Dimension B	Dimension C	Dimension D
GPP1	.062 (1.6) / .058 (1.5)	.062 (1.6) / .058 (1.5)	.048 (1.2) / .044 (1.1)	.010 (.25) / .008 (.20)
GPP5	.102 (2.6) / .098 (2.5)	.102 (2.6) / .098 (2.5)	.086 (2.2) / .082(2.1)	.010 (0.25) / .008 (0.20)

Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

	SYMBOLS	GPP1A GPP5A	GPP1B GPP5B	GPP1D GPP5D	GPPG GPP5G	GPP1J GPP5J	GPP1K GPP5K	GPP1M	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current (Note 1) GPP1 T_A = 75°C / GPP5 T_A = 100°C	$I_{(AV)}$	1.0 / 5.0							Amps
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method) GPP1 / GPP5	I_{FSM}	60.0 / 150.0							Amps
Maximum Instantaneous Forward Voltage at specified current GPP1 I_F = 1.0A / GPP5 I_F = 5.0A	V_F	1.1 / 1.1							Volts
Maximum Reverse Leakage Current at Rated DC Blocking Voltage GPP1 / GPP5	I_R	5.0 / 10.0							μA
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175							°C

NOTES:
1. Actual rating is heat sink dependent.

Fig. 1—FORWARD CURRENT DERATING CURVE

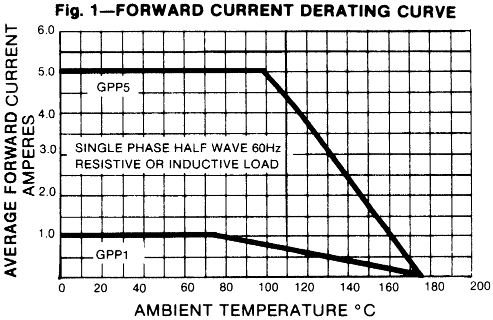


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

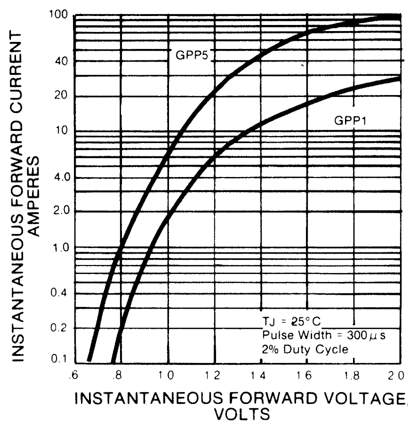


Fig. 3 — MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

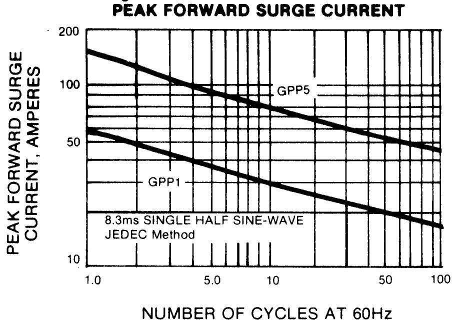


Fig. 4—TYPICAL REVERSE CHARACTERISTICS

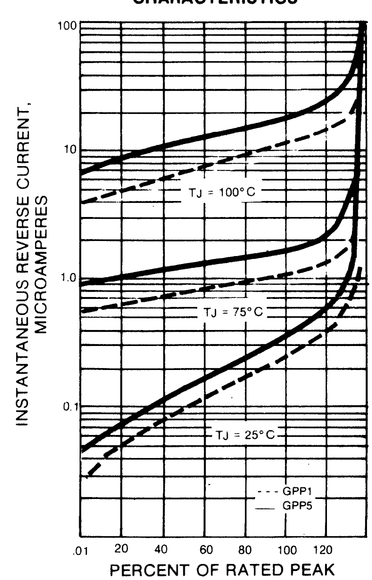
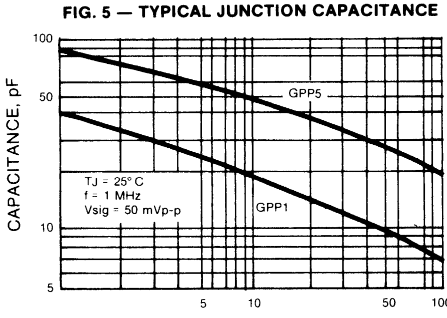


FIG. 5 — TYPICAL JUNCTION CAPACITANCE

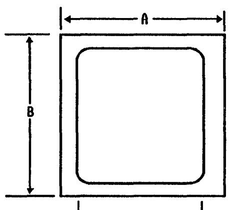


RGPP1 & RGPP5 SERIES

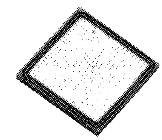
FAST RECOVERY GLASS PASSIVATED RECTIFIER CHIPS

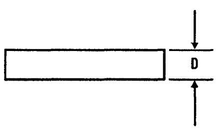
***Voltage** - 50 to 800 Volts* ***Current** - 1.0 and 5.0 Amperes*

FEATURES



- Ideal for Hybrid Circuits
- Solderable Metallization
- Glass Passivated Junction
- High Surge Capability
- Mounting Postion: Any





METALLIZATION: GOLD ON NICKEL

	Dimension A	Dimension B	Dimension C	Dimension D
RGPP1	.062 (1.6) .058 (1.5)	.062 (1.6) .058 (1.5)	.048 (1.2) .044 (1.1)	.010 (.25) .008 (.20)
RGPP5	.102 (2.6) .098 (2.5)	.102 (2.6) .098 (2.5)	.082 (2.1) .078 (2.0)	.012 (0.30) .010 (0.25)

Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 HZ, resistive or inductive load.
For capacitive load, derate current by 20%.

	RGPP1A *RGPP5A*	*RGPP1B* *RGPP5B*	*RGPP1D* *RGPP5D*	*RGPP1G* *RGPP5G*	*RGPP1J* *RGPP5J*	*RGPP1K* *RGPP5K*	*UNITS*
Maximum Recurrent Peak Reverse Voltage	50	100	200	400	600	800	Volts
Maximum RMS Voltage	35	70	140	280	420	560	Volts
Maximum DC Blocking Voltage	50	100	200	400	600	800	Volts
Maximum Average Forward Rectified Current (Note 1) RGPP1 $T_A = 75°C$ / RGPP5 $T_A = 100°C$				1.0 5.0			Amps
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method) RGPP1 / RGPP5				30.0 150.0			Amps
Maximum Forward Voltage at Rated Forward Current (Pulse Width = 300 µs, Duty Factor = 1%)				1.3			Volts
Maximum Reverse Leakage Current at Rated DC Blocking Voltage $T_A = 25°C$ RGPP1 / RGPP5				10.0 25.0			µA
Maximum Reverse Recovery Time (Note 2)		150		200	250	350	ns
Operating and Storage Temperature Range T_J, T_{STG}				-65 to +150			°C

NOTES:
1. Actual rating is heat sink dependent.
2. Reverse Recovery Test Conditions: $I_F = 0.5A$, $I_R = 1.0A$, $Irr = 0.25A$.

Fig. 1—FORWARD CURRENT DERATING CURVE

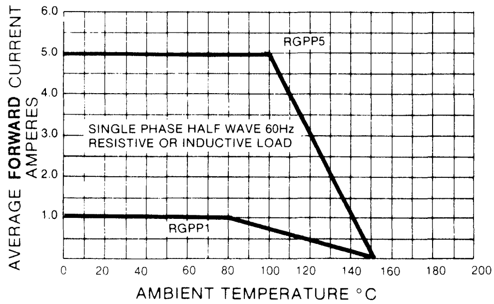


Fig. 2—TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

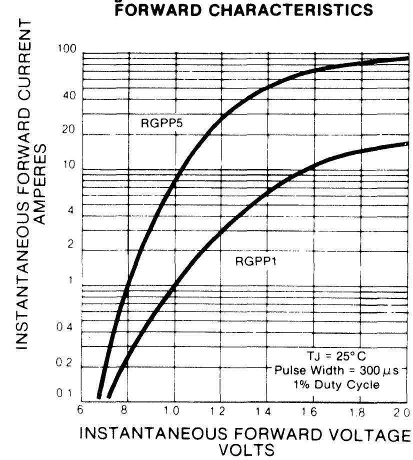


FIG. 3 — MAXIMUM NON-REPETITIVE SURGE CURRENT

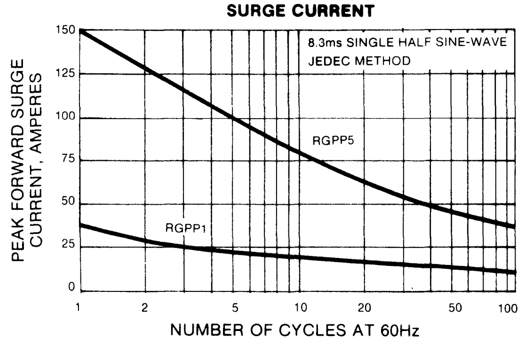


Fig. 4—TYPICAL REVERSE CHARACTERISTICS

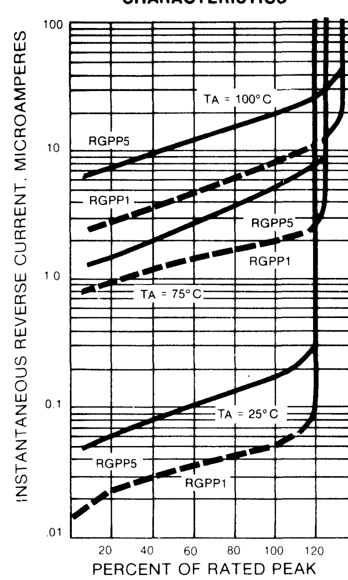
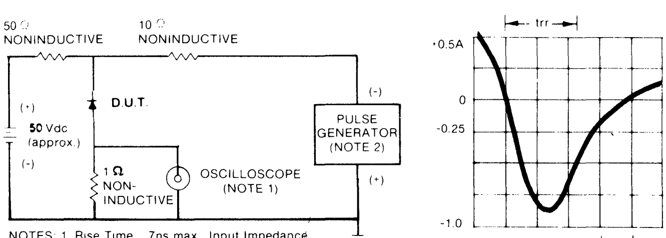


FIG. 1 — REVERSE RECOVERY TIME CHARACTERISTIC AND TEST DIAGRAM



NOTES: 1. Rise Time 7ns max., Input Impedance 1 megohm, 22pF.
2. Rise Time = 10ns max., Source Impedance 50 ohms.

TRANSIENT VOLTAGE SUPPRESSORS

General Instrument Transient Voltage Suppressors are the state-of-the-art in semiconductor surge protection for modern electronic equipment.

Because TVS devices are semiconductors, there is no inherent wear out mechanism. When overstressed, they short circuit at the changing voltage and protect the associated equipment. The clamping voltage is close to the operating voltage enabling a high degree of protection while assuring the devices are off until their operation is required.

General Instrument TVS units are available in four power ranges: 400,600,1500, and 5,000 watts with a wide variety of voltages.

GENERAL INSTRUMENT

P4KA SERIES

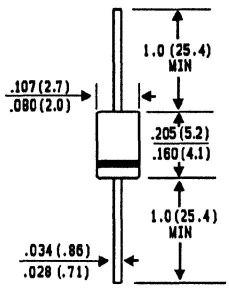
AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE- 6.8 to 43 Volts

400 Watt Peak Power   1.0 Watt Steady State

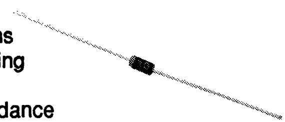
FEATURES

DO-41



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammabillty Classification 94V-O
- Glass passivated junction
- Exclusive G.I. PAR construction
- 400W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 10 µ A above 10V at 175°C
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension
- Designed to handle under the hood applications



MECHANICAL DATA

Case : Molded plastic over a passivated junction
Termlnals: Axial leads, solderable per MIL-ST-202, Method 208
Polarlty: Color band denoted cathode except Bipolar
Mountlng Posltlon: Any
Welght : 0.012 ounce, 0.3 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P4KA6.8 thru types P4KA43.
Electrical characteristics apply in both directions

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 400	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	1.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	IFSM	40.0	Amps
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +185	°C

NOTES:
1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 1.57 in^2 ($40mm^2$).
3. 8.3ms single half sine-wave, duty cycle =4 pulses per Minutes maximum

DEVICE	Breakdown Voltage VBR Volts (Note1) Min	Breakdown Voltage VBR Volts (Note1) Max	@ I_T (mA)	Working Peak Reverse Voltage at V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	T_C = 150°C Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximum Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperature Coefficeint of V_{BR} (% / °C)
P4KA6.8	6.12	7.48	10	5.50	300	1000	39.8	10.8	0.057
P4KA6.8A	6.45	7.14	10	5.80	300	1000	41.0	10.5	0.057
P4KA7.5	6.75	8.25	10	6.05	150	500	36.8	11.7	0.06
P4KA7.5A	7.13	7.88	10	6.40	150	500	38.1	11.3	0.061
P4KA8.2	7.38	9.02	10	6.63	50	200	34.4	12.5	0.065
P4KA8.2A	7.79	8.61	10	7.02	50	200	35.5	12.1	0.065
P4KA9.1	8.19	10.0	1.0	7.37	10	50	32.2	13.8	0.068
P4KA9.1A	8.65	9.55	1.0	7.78	1.0	50	32.1	13.4	0.068
P4KA10	9.00	11.0	1.0	8.10	1.0	10	28.7	15.0	0.073
P4KA10A	9.50	10.5	1.0	8.55	1.0	5.0	29.7	14.5	0.073
P4KA11	9.90	12.1	1.0	8.92	1.0	5.0	26.5	16.2	0.075
P4KA11A	10.5	11.6	1.0	9.40	1.0	5.0	27.6	15.6	0.075
P4KA12	10.8	13.2	1.0	9.72	1.0	5.0	24.9	17.3	0.076
P4KA12A	11.4	12.6	1.0	10.2	1.0	5.0	25.8	16.7	0.078
P4KA13	11.7	14.3	1.0	10.5	1.0	5.0	22.6	19.0	0.081
P4KA13A	12.4	13.7	1.0	11.1	1.0	5.0	23.6	18.2	0.081
P4KA15	13.5	16.3	1.0	12.1	1.0	5.0	19.6	22.0	0.084
P4KA15A	14.3	15.8	1.0	12.8	1.0	5.0	20.3	21.2	0.084
P4KA16	14.4	17.6	1.0	12.9	1.0	5.0	18.3	23.5	0.086
P4KA16A	15.2	16.8	1.0	13.6	1.0	5.0	19.1	22.5	0.086
P4KA18	16.2	19.8	1.0	14.5	1.0	5.0	16.2	26.5	0.088
P4KA18A	17.1	18.9	1.0	15.3	1.0	5.0	16.9	25.5	0.088
P4KA20	18.0	22.0	1.0	16.2	1.0	5.0	14.8	29.1	0.090
P4KA20A	19.0	21.0	1.0	17.0	1.0	5.0	15.5	27.7	0.090
P4KA22	19.8	24.2	1.0	17.8	1.0	5.0	13.5	31.9	0.092
P4KA22A	20.9	23.1	1.0	18.8	1.0	5.0	14.1	30.6	0.092
P4KA24	21.6	26.4	1.0	19.4	1.0	5.0	12.4	34.2	0.094
P4KA24A	22.8	25.2	1.0	20.5	1.0	5.0	13.0	33.2	0.094
P4KA27	24.3	29.7	1.0	21.8	1.0	5.0	11.0	39.1	0.096
P4KA27A	25.7	28.4	1.0	23.1	1.0	5.0	11.5	37.5	0.096
P4KA30	27.0	33.0	1.0	24.3	1.0	5.0	9.9	43.5	0.097
P4KA30A	28.5	31.5	1.0	25.6	1.0	5.0	10.4	41.4	0.097
P4KA33	29.7	36.3	1.0	26.8	1.0	5.0	9.0	47.7	0.098
P4KA33A	31.4	34.7	1.0	28.2	1.0	5.0	9.4	45.7	0.098
P4KA36	32.4	39.6	1.0	29.1	1.0	5.0	8.3	52.0	0.099
P4KA36A	34.2	37.8	1.0	30.8	1.0	5.0	8.6	49.9	0.099
P4KA39	35.1	42.9	1.0	31.6	1.0	5.0	7.6	56.4	0.100
P4KA39A	37.1	41.0	1.0	33.3	1.0	5.0	8.0	53.9	0.100
P4KA43	38.7	47.3	1.0	34.8	1.0	5.0	7.0	61.9	0.101
P4KA43A	40.9	45.2	1.0	36.8	1.0	5.0	7.3	59.3	0..101

NOTES:

1. V_{BR} measured after IT applied for 300 μs , IT = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derated per Figue 2.
3. V_F = 3.5 V max., I_F = 25A for all types on 1/2 Square or Equivalent Sine Wave PW = 8.33 ms, Duty Cycle = 4 Pulses per Minute Maximum

FIGURE 1 — PULSE RATING CURVE

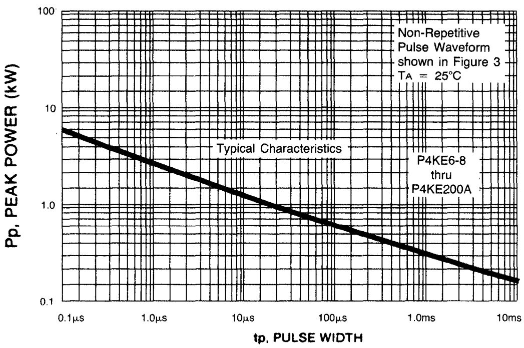


FIGURE 2 — PULSE DERATING CURVE

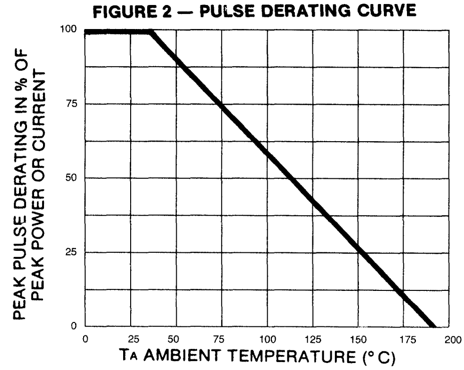


FIGURE 3 — PULSE WAVEFORM

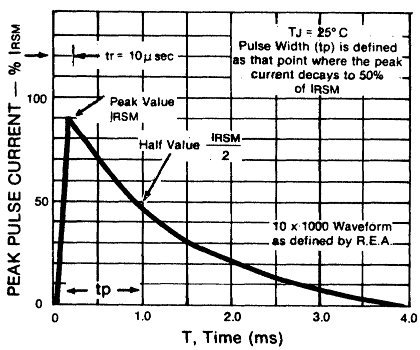


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

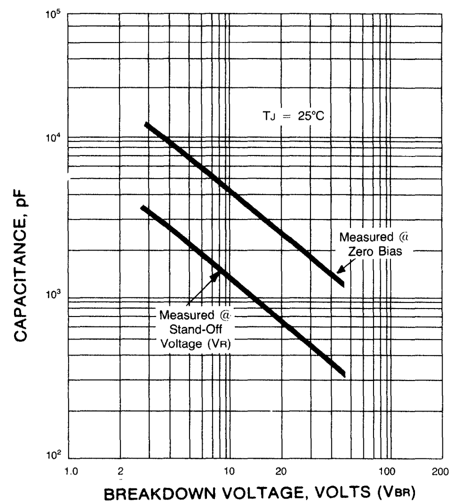


FIGURE 5 — STEADY STATE POWER DERATING

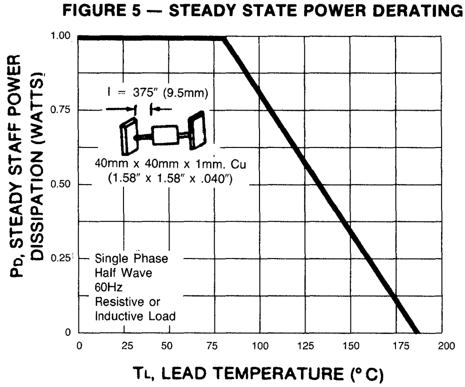
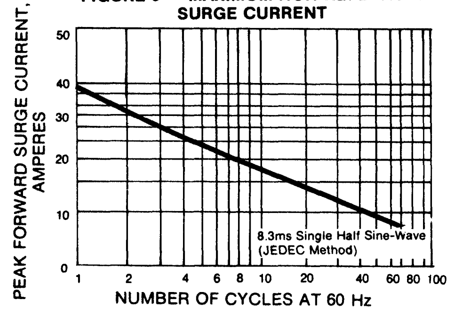


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



P6KA SERIES

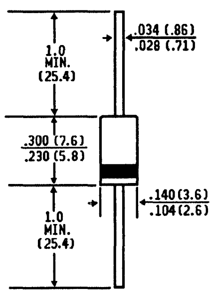
AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE- 6.8 to 43 Volts

600 Watt Peak Power 5.0 Watt Steady State

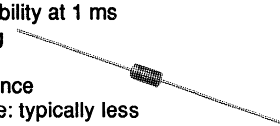
FEATURES

DO-15



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction
- Exclusive G.I. PAR construction
- 600W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 10 μ A above 10V at 175°C
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension
- Designed to handle under the hood applications



MECHANICAL DATA

Case : Molded plastic over a passivated junction

Terminals: Axial leads, solderable per MIL-ST-202, Method 208

Polarity: Color band denoted cathode except Bipolar

Mounting Position: Any

Weight : 0.015 ounce, 0.4 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P6KA6.8 through types P6KA43. Electrical characteristics apply in both directions

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 600	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	100	Amps
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +185	°C

NOTES:
1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 1.57 in^2 (40mm^2).
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum.

ELECTRICAL CHARACTERISITCS (T_A = 25°C unless otherwise noted)

DEVICE	Breakdown Voltage V_{BR} Volts (Note1) Min	Max	@ I_T (mA)	Working Peak Reverse Voltage (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(µA)	T_C = 150°C Maximum Reverse LeakageI_{RSM} at V_{RWM} I_R(µA)	Maximum Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM}(Volts)	Maximum Temperature Coefficient of VBR (% / °C)
P6KA6.8	6.12	7.48	10	5.50	500	1000	59.7	10.8	0.057
P6KA6.8A	6.45	7.14	10	5.80	500	1000	61.4	10.5	0.057
P6KA7.5	6.75	8.25	10	6.05	250	500	58.1	11.7	0.061
P6KA7.5A	7.13	7.88	10	6.40	250	500	57.1	11.3	0.061
P6KA8.2	7.38	9.02	10	6.63	100	200	51.6	12.5	0.065
P6KA8.2A	7.79	8.61	10	7.02	100	200	53.3	12.1	0.065
P6KA9.1	8.19	10.0	1.0	7.37	25	50	46.7	13.8	0.068
P6KA9.1A	8.65	9.55	1.0	7.78	25	50	48.1	13.4	0.068
P6KA10	9.00	11.0	1.0	8.10	5.0	10	43.0	15.0	0.073
P6KA10A	9.50	10.5	1.0	8.55	5.0	10	44.5	14.5	0.073
P6KA11	9.90	12.1	1.0	8.92	2.0	5.0	39.8	16.2	0.075
P6KA11A	10.5	11.6	1.0	9.40	2.0	5.0	41.3	15.6	0.076
P6KA12	10.8	13.2	1.0	9.72	2.0	5.0	37.3	17.3	0.076
P6KA12A	11.4	12.6	1.0	10.2	2.0	5.0	38.6	16.7	0.078
P6KA13	11.7	14.3	1.0	10.5	2.0	5.0	35.9	19.0	0.081
P6KA13A	12.4	13.7	1.0	11.1	2.0	5.0	35.4	18.2	0.081
P6KA15	13.5	16.3	1.0	12.1	2.0	5.0	29.3	22.0	0.084
P6KA15A	14.3	15.8	1.0	12.8	2.0	5.0	30.4	21.2	0.084
P6KA16	14.4	17.6	1.0	12.9	2.0	5.0	27.4	23.5	0.086
P6KA16A	15.2	16.8	1.0	13.6	2.0	5.0	28.7	22.5	0.086
P6KA18	16.2	19.8	1.0	14.5	2.0	5.0	24.3	26.5	0.088
P6KA18A	17.1	18.9	1.0	15.3	2.0	5.0	25.6	25.2	0.088
P6KA20	18.0	22.0	1.0	16.2	2.0	5.0	22.2	29.1	0.090
P6KA20A	19.0	21.0	1.0	17.1	2,0	5.0	23.3	27.7	0.090
P6KA22	19.8	24.2	1.0	17.8	2.0	5.0	20.2	31.9	0.092
P6KA22A	20.9	23.1	1.0	18.8	2.0	5.0	21.1	30.6	0.092
P6KA24	21.6	26.4	1.0	19.4	2.0	5.0	18.6	34.7	0.094
P6KA24A	22.8	25.2	1.0	20.5	2.0	5.0	19.4	33.6	0.094
P6KA27	24.3	29.7	1.0	21.8	2.0	5.0	16.5	39.1	0.096
P6KA27A	25.7	28.4	1.-0	23.1	2.0	5.0	17.2	37.5	0.096
P6KA30	27.0	33.0	1.0	24.3	2.0	5.0	14.8	43.5	0.097
P6KA30A	28.5	31.5	1.0	25.6	2.0	5.0	15.6	41.4	0.097
P6KA33	29.7	36.3	1.0	26.8	2.0	5.0	13.5	47.7	0.098
P6KA33A	31.4	34.7	1.0	28.2	2.0	5.0	14.1	45.7	0.098
P6KA36	32.4	39.6	1.0	29.1	2.0	5.0	12.4	52.0	0.099
P6KA36A	34.2	37.8	1.0	30.8	2.0	5.0	12.9	49.9	0.099
P6KA39	35.1	42.9	1.0	31.6	2.0	5.0	11.4	56.4	0.100
P6KA39A	37.1	41.0	1.0	33.3	2.0	5.0	12.0	53.9	0.100
P6KA43	38.7	47.3	1.0	34.8	2.0	5.0	10.4	61.9	0.101
P6KA43A	40.9	45.2	1.0	36.8	2.0	5.0	10.9	59.3	0.101

NOTES:
1. V_{BR} measured after IT applied for 300 µs. I_T = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derate per Figure 2.
3. V_F = 3.5 V max., I_F = 50A for all types on 1/2 Square or Equivalent Sine Wave.
PW = 8.3ms, Duty Cycle = 4 Pulses per Minute maximum.

FIGURE 1 — PULSE RATING CURVE

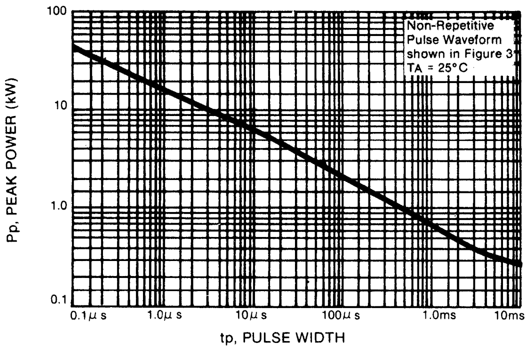


FIGURE 2 — PULSE DERATING CURVE

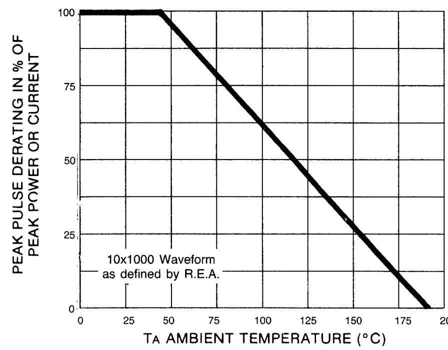


FIGURE 3 — PULSE WAVEFORM

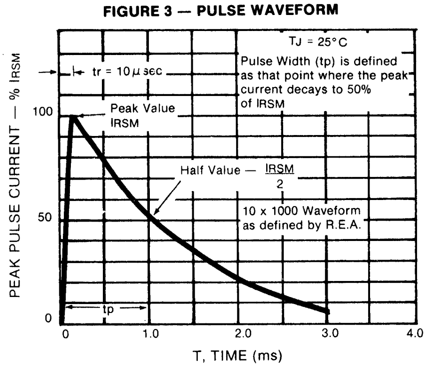


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

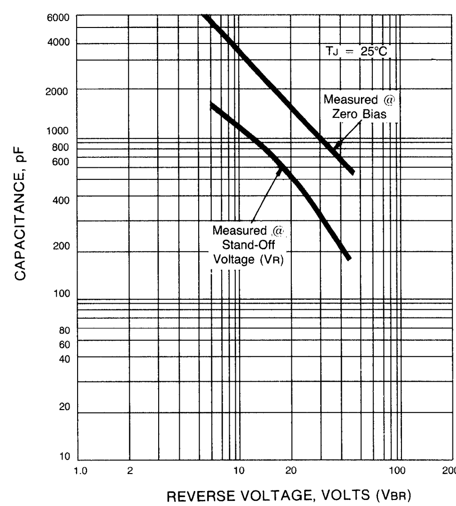


FIGURE 5 — STEADY STATE POWER DERATING

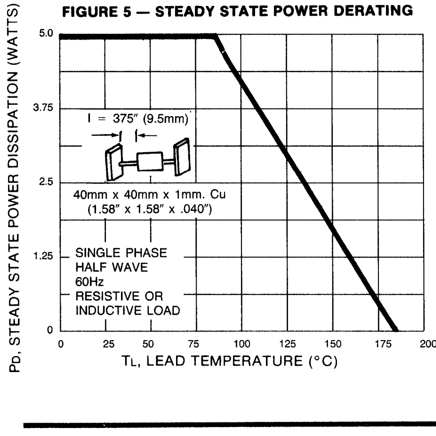
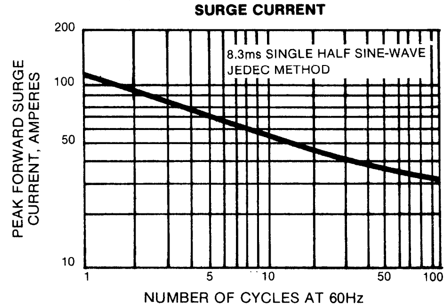


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



GENERAL INSTRUMENT

1.5KA SERIES

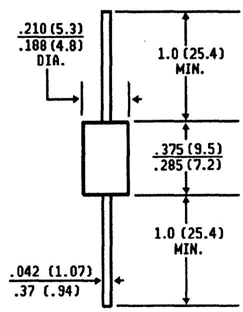
AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE- *6.8 to 43 Volts*

1500 Watt Peak Power   5.0 Watt Steady State

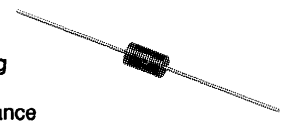
FEATURES

DO-201



Dimensions in inches
and
(millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction
- Exclusive G.I. PAR construction
- 1500W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 20 µ A above 10V at 175°C
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension
- Designed to handle under the hood applications



MECHANICAL DATA

Case : Molded plastic over a passivated junction

Terminals: Axial leads, solderable per MIL-ST-202, Method 208

Polarity: Color band denoted cathode except Bipolar

Mounting Position: Any

Weight : 0.045 ounce, 1.2 grams

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5KA6.8 thru types 1.5KA43
Electrical characteristics apply in both directions

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 1500	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	200	Amps
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +185	°C

NOTES:
1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 0.79 in^2 (20mm^2).
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

DEVICE	Breakdown Voltage VBR@ Volts (Note1) MIN	MAX	IT (mA)	Working Peak Reverse Voltage at V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	T_C = 150°C Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximum Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperature Coefficeint of V_{BR} (% / °C)
1.5KA6.8	6.12	7.48	10	5.50	500	2000	149	10.8	0.057
1.5KA6.8A	6.45	7.14	10	5.80	500	2000	153	10.5	0.057
1.5KA7.5	6.75	8.25	10	6.05	250	1000	137	11.7	0.061
1.5KA7.5A	7.13	7.88	10	6.40	250	1000	143	11.3	0.061
1.5KA8.2	7.38	9.02	10	6.63	100	400	129	12.5	0.065
1.5KA8.2A	7.79	8.61	10	7.02	100	400	133	12.1	0.065
1.5KA9.1	8.19	10.0	1.0	7.37	25	100	117	13.8	0.068
1.5KA9.1A	8.65	9.55	1.0	7.78	25	100	120	13.4	0.068
1.5KA10	9.00	11.0	1.0	8.10	5	20	107	15.0	0.073
1.5KA10A	9.50	10.5	1.0	8.55	5	20	111	14.5	0.073
1.5KA11	9.90	12.1	1.0	8.92	2	10	99.5	16.2	0.075
1.5KA11A	10.5	11.6	1.0	9.40	2	10	103	15.6	0.076
1.5KA12	10.8	13.2	1.0	9.72	2	10	93.2	17.3	0.076
1.5KA12A	11.4	12.6	1.0	10.2	2	10	96.5	19.0	0.078
1.5KA13	11.7	14.3	1.0	10.5	2	10	84.8	18.2	0.081
1.5KA13A	12.4	13.7	1.0	11.1	2	10	88.6	22.0	0.081
1.5KA15	13.5	16.3	1.0	12.1	2	10	73.3	21.2	0.084
1.5KA15A	14.3	15.8	1.0	12.8	2	10	76.0	23.5	0.084
1.5KA16	14.4	17.6	1.0	12.9	2	10	68.6	23.5	0.086
1.5KA16A	15.2	16.8	1.0	13.6	2	10	71.6	22.5	0.086
1.5KA18	16.2	19.8	1.0	14.5	2	10	60.8	26.5	0.088
1.5KA18A	17.1	18.9	1.0	15.3	2	10	64.0	25.2	0.088
1.5KA20	18.0	22.0	1.0	16.2	2	10	55.4	29.1	0.090
1.5KA20A	19.0	21.0	1.0	17.1	2	10	58.2	27.7	0.090
1.5KA22	19.8	24.2	1.0	17.8	2	10	50.5	31.9	0.092
1.5KA22A	20.9	23.1	1.0	18.8	2	10	52.7	30.6	0.092
1.5KA24	21.6	26.4	1.0	19.4	2	10	46.5	34.7	0.094
1.5KA24A	22.8	25.2	1.0	20.5	2	10	48.6	33.2	0.094
1.5KA27	24.3	29.7	1.0	21.8	2	10	41.2	39.1	0.096
1.5KA27A	25.7	28.4	1.0	23.1	2	10	43.4	37.5	0.096
1.5KA30	27.0	33.0	1.0	24.3	2	10	37.0	43.5	0.097
1.5KA30A	28.5	31.5	1.0	25.6	2	10	38.9	41.4	0.097
1.5KA33	29.7	36.3	1.0	26.8	2	10	33.8	47.7	0.098
1.5KA33A	31.4	34.7	1.0	28.2	2	10	35.3	45.7	0.098
1.5KA36	32.4	39.6	1.0	29.1	2	10	31.0	52.0	0.099
1.5KA36A	34.2	37.8	1.0	30.8	2	10	32.3	49.9	0.099
1.5KA39	35.1	42.9	1.0	31.6	2	10	28.6	56.4	0.100
1.5KA39A	37.1	41.0	1.0	33.3	2	10	29.9	53.9	0.100
1.5KA43	38.7	47.3	1.0	34.8	2	10	26.0	61.9	0.101
1.5KA43A	40.9	45.2	1.0	36.8	2	10	27.2	59.3	0. 101

NOTES:

1. V_{BR} measured after IT applied for 300 μs. IT = Square Wave Pulse or eqivalent.
2. Surge current Waveform per Figure 3 and Derate per Figure 2.
3. V_F = 3.5V mas., I_F = 100A for all types per 1/2 Square or Equivalent Sine Wave. PW = 8.3 ms, Duty Cycle = 4 Pulses per Minute Maximum.

FIGURE 1 — PULSE RATING CURVE

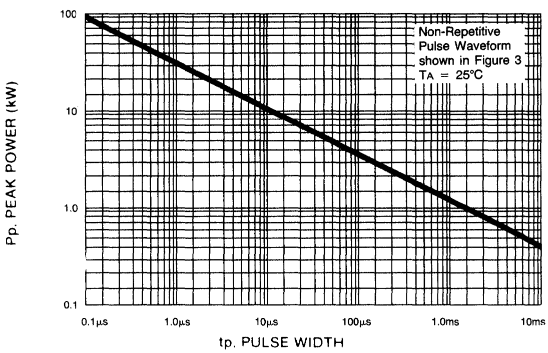


FIGURE 2—PULSE DERATING CURVE

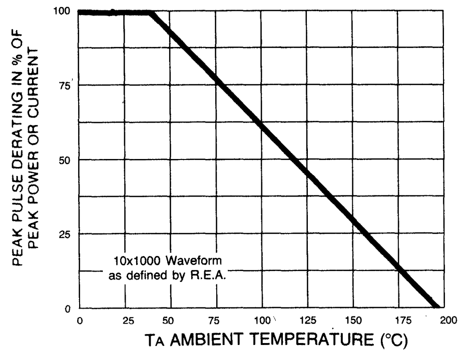


FIGURE 3 — PULSE WAVEFORM

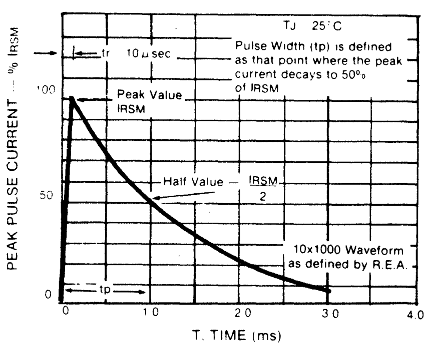


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

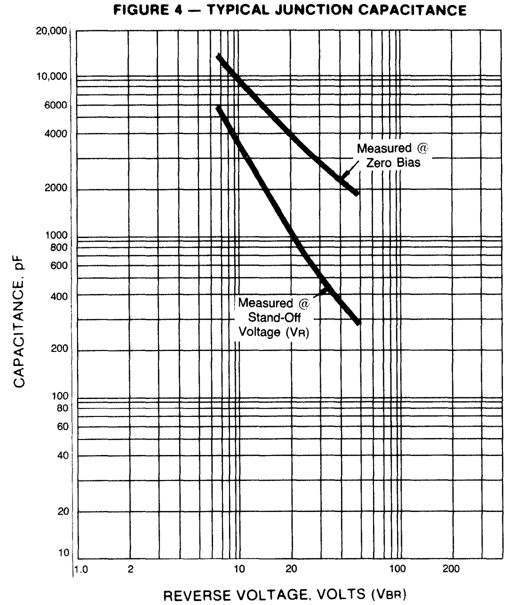


FIGURE 5 — STEADY STATE POWER DERATING

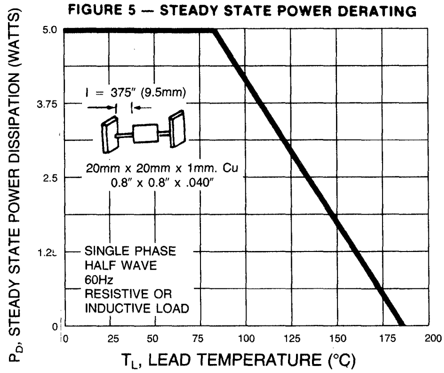
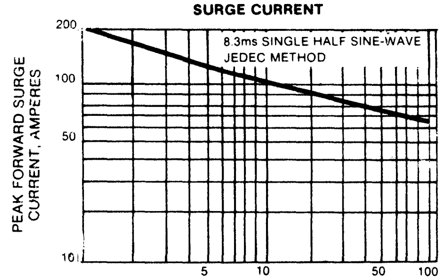


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



GENERAL INSTRUMENT

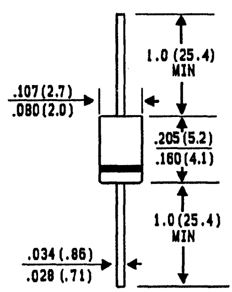
P4KE SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE- 6.8 to 400 Volts

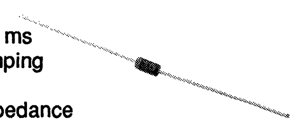
400 Watt Peak Power 1.0 Watt Steady State

DO-41



Dimensions in inches and (millimeters)

FEATURES



- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction in DO-41 package
- 400W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 1 μ A above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension

MECHANICAL DATA

Case : Molded plastic over glass passivated junction
Terminals: Axial leads, solderable per MIL-ST-202, Method 208
Polarity: Color band denoted cathode except Bipolar
Mounting Position: Any
Weight : 0.012 ounce, 0.3 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P4KE7.5 thru types P4KE400
Electrical characteristics apply in both directions

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 400	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	1.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	40.0	Amps
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175	°C

NOTES:
1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 1.57 in^2 ($40mm^2$).
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum

Device	Breakdown Voltage V_{BR} Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} $I_R(\mu A)$	Maximm Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperatuure Coefficient of V_{BR} (%C)
P4KE6.8	6.12	7.48	10	5.50	1000	38	10.8	0.057
P4KE6.8A	6.45	7.14	10	5.80	1000	40	10.5	0.057
P4KE7.5	6.75	8.25	10	6.05	500	36	11.7	0.061
P4KE7.5A	7.13	7.88	10	6.40	500	37	11.3	0.061
P4KE8.2	7.38	9.02	10	6.63	200	33	12.5	0.065
P4KE8.2A	7.79	8.61	10	7.02	200	35	12.1	0.065
P4KE9.1	8.19	10.0	1.0	7.37	50	30	13.8	0.068
P4KE9.1A	8.65	9.55	1.0	7.78	50	31	13.4	0.068
P4KE10	9.00	11.0	1.0	8.10	10	28	15.0	0.073
P4KE10A	9.50	10.5	1.0	8.55	10	29	14.5	0.073
P4KE11	9.90	12.1	1.0	8.92	5.0	26	16.2	0.075
P4KE11A	10.5	11.6	1.0	9.40	5.0	27	15.6	0.075
P4KE12	10.8	13.2	1.0	9.72	5.0	24	17.3	0.076
P4KE12A	11.4	12.6	1.0	10.2	5.0	25	16.7	0.078
P4KE13	11.7	14.3	1.0	10.5	5.0	22	19.0	0.081
P4KE13A	12.4	13.7	1.0	11.1	5.0	23	18.2	0.081
P4KE15	13.5	16.3	1.0	12.1	5.0	19	22.0	0.084
P4KE15A	14.3	15.8	1.0	12.8	5.0	20	21.2	0.084
P4KE16	14.4	17.6	1.0	12.9	5.0	18	23.5	0.086
P4KE16A	15.2	16.8	1.0	13.6	5.0	19	22.5	0.086
P4KE18	16.2	19.8	1.0	14.5	5.0	16	26.5	0.088
P4KE18A	17.1	18.9	1.0	15.3	5.0	17	25.5	0.088
P4KE20	18.0	22.0	1.0	16.2	5.0	14	29.1	0.090
P4KE20A	19.0	21.0	1.0	17.1	5.0	15	27.7	0.090
P4KE22	19.8	24.2	1.0	17.8	5.0	13	31.9	0.092
P4KE22A	20.9	23.1	1.0	18.8	5.0	14	30.6	0.092
P4KE24	21.6	26.4	1.0	19.4	5.0	12	34.7	0.094
P4KE24A	22.8	25.2	1.0	20.5	5.0	13	33.2	0.094
P4KE27	24.3	29.7	1.0	21.8	5.0	11	39.1	0.096
P4KE27A	25.7	28.4	1.0	23.1	5.0	11.2	37.5	0.096
P4KE30	27.0	33.0	1.0	24.3	5.0	10	43.5	0.097
P4KE30A	28.5	31.5	1.0	25.6	5.0	10	41.4	0.097
P4KE33	29.7	36.3	1.0	26.8	5.0	9	47.7	0.098
P4KE33A	31.4	34.7	1.0	28.2	5.0	9	45.7	0.098
P4KE36	32.4	39.6	1.0	29.1	5.0	8	52.0	0.099
P4KE36A	34.2	37.8	1.0	30.8	5.0	8.4	49.9	0.099
P4KE39	35.1	42.9	1.0	31.6	5.0	7.4	56.4	0.100
P4KE39A	37.1	41.0	1.0	33.3	5.0	7.8	53.9	0.100
P4KE43	38.7	47.3	1.0	34.8	5.0	6.8	61.9	0.101
P4KE43A	40.9	45.2	1.0	36.8	5.0	7.1	59.3	0.101
P4KE47	42.3	51.7	1.0	38.1	5.0	6.2	67.8	0.101
P4KE47A	44.7	49.4	1.0	40.2	5.0	6.5	64.8	0.101
P4KE51	45.9	56.1	1.0	41.3	5.0	5.7	73.5	0.102
P4KE51A	48.5	53.6	1.0	43.6	5.0	6.0	70.1	0.102
P4KE56	50.4	61.6	1.0	45.4	5.0	5.2	80.5	0.103
P4KE56A	53.2	58.8	1.0	47.8	5.0	5.5	77.0	0.103
P4KE62	55.8	68.2	1.0	50.2	5.0	4.7	89.0	0.104
P4KE62A	58.9	65.1	1.0	53.0	5.0	5.0	85.0	0.104
P4KE68	61.2	74.8	1.0	55.1	5.0	4.3	98.0	0.104
P4KE68A	64.6	71.4	1.0	58.1	5.0	4.6	92.0	0.104
P4KE75	67.5	82.5	1.0	60.7	5.0	3.9	108.0	0.105
P4KE75A	71.3	78.8	1.0	64.1	5.0	4.1	103.0	0.105

Device	Breakdown Voltage V_{BR} Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximm Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperatuure Coefficient of V_{BR} (%C)
P4KE82	73.8	90.2	1.0	66.4	5.0	3.6	118.0	0.105
P4KE82A	77.9	86.1	1.0	70.1	5.0	3.7	113.0	0.105
P4KE91	81.9	100.0	1.0	73.7	5.0	3.2	131.8	0.106
P4KE91A	86.5	95.50	1.0	77.8	5.0	3.4	125.0	0.106
P4KE100	90.0	110.0	1.0	81.0	5.0	2.9	144.0	0.106
P4KE100A	95.0	105.0	1.0	85.5	5.0	3.1	137.0	0.106
P4KE110	99.0	121.0	1.0	89.2	5.0	2.7	158.0	0.107
P4KE110A	105.0	116.0	1.0	94.0	5.0	2.8	152.0	0.107
P4KE120	108.0	132.0	1.0	97.2	5.0	2.4	173.0	0.107
P4KE120A	114.0	126.0	1.0	102.0	5.0	2.5	165.0	0.107
P4KE130	117.0	143.0	1.0	105.0	5.0	2.2	187.0	0.107
P4KE130A	124.0	137.0	1.0	111.0	5.0	2.3	179.0	0.107
P4KE150	135.0	165.0	1.0	121.0	5.0	2.0	215.0	0.108
P4KE150A	143.0	158.0	1.0	128.0	5.0	2.0	207.0	0.108
P4KE160	144.0	176.0	1.0	130.0	5.0	1.8	230.0	0.108
P4KE160A	152.0	168.0	1.0	136.0	5.0	1.9	219.0	0.108
P4KE170	153.0	187.0	1.0	138.0	5.0	1.7	244.0	0.108
P4KE170A	162.0	179.0	1.0	145.0	5.0	1.8	234.0	0.108
P4KE180	162.0	198.0	1.0	146.0	5.0	1.6	258.0	0.108
P4KE180A	171.0	189.0	1.0	154.0	5.0	1.7	246.0	0.108
P4KE200	180.0	220.0	1.0	162.0	5.0	1.5	287.0	0.108
P4KE200A	190.0	210.0	1.0	171.0	5.0	1.53	274.0	0.108
P4KE220	198.0	242.0	1.0	175.0	5.0	1.16	344.0	0.108
P4KE220A	209.0	231.0	1.0	185.0	5.0	1.22	328.0	0.108
P4KE250	225.0	275.0	1.0	202.0	5.0	1.11	360.0	0.110
P4KE250A	237.0	267.0	1.0	214.0	5.0	1.16	344.0	0.110
P4KE300	270.0	330.0	1.0	243.0	5.0	0.93	430.0	0.110
P4KE300A	285.0	315.0	1.0	256.0	5.0	0.97	414.0	0.110
P4KE350	315.0	385.0	1.0	284.0	5.0	0.79	504.0	0.110
P4KE350A	332.0	368.0	1.0	300.0	5.0	0.83	482.0	0.110
P4KE400	360.0	440.0	1.0	324.0	5.0	0.70	574.0	0.110
P4KE400A	380.0	420.0	1.0	342.0	5.0	0.73	548.0	0.110

NOTES:

1. V_{BR} measured after I_T applied for 300 µs , I_T = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derated per Figue 2.
3. V_F = 3.5 V at I_F = 25A (P4KE6.8 thru P4KE91A)
   V_F = 5.0 V at I_F 25A (P4KE100 thru P4KE400A) on 1/2 Square or Equivalent Sine Wave.
   PW = 8.3ms, Duty Cycle = 4 Pulses per Minute Maximum
4. For Bipolar types moving V_R of 10 volts and under, the I_R limit is doubled.

FIGURE 1 — PULSE RATING CURVE

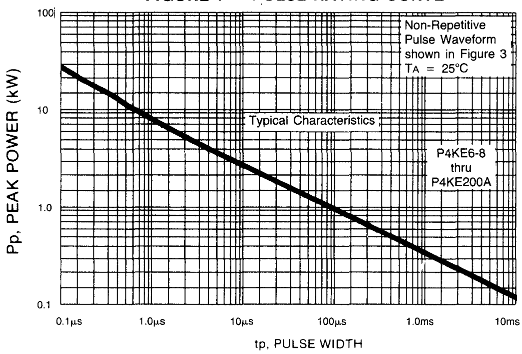


FIGURE 2 — PULSE DERATING CURVE

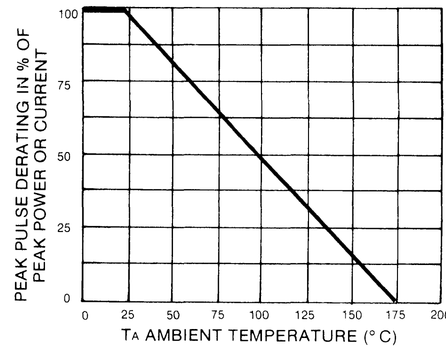


FIGURE 3 — PULSE WAVEFORM

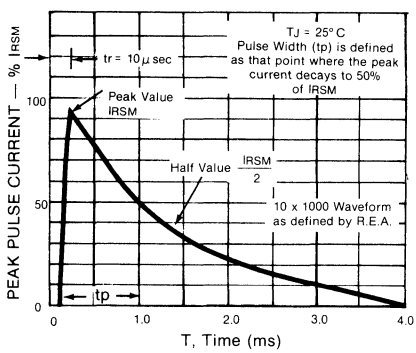


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

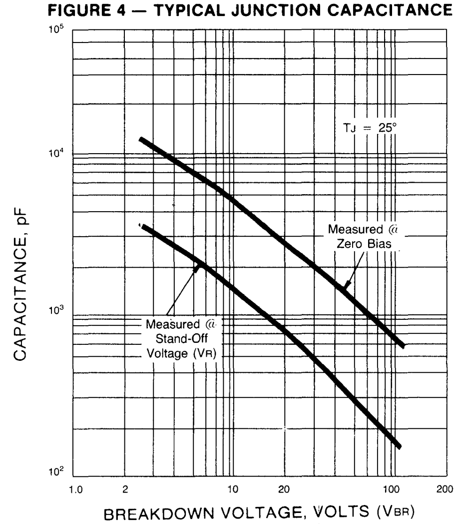


FIGURE 5 — STEADY STATE POWER DERATING

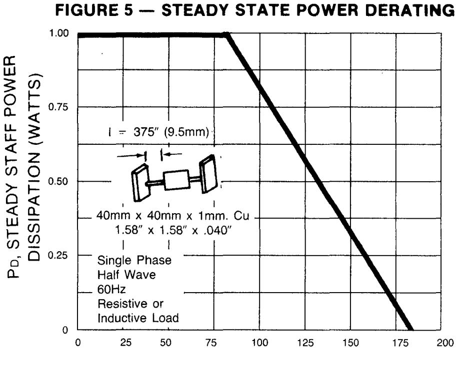
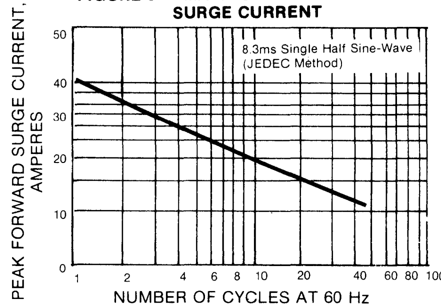


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



GENERAL INSTRUMENT

BZW04 SERIES

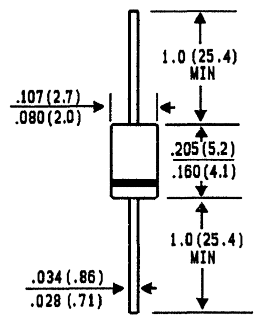
GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

***VOLTAGE-** 6.8 to 440 Volts*

400 Watt Peak Power 1.0 Watt Steady State

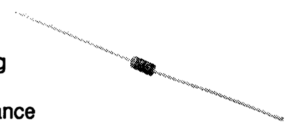
FEATURES

DO-41



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction in DO-41 package
- 400W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 1 μ A above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension



MECHANICAL DATA

Case : Molded plastic over glass passivated junction
Terminals: Axial leads, solderable per MIL-ST-202, Method 208
Polarity: Color band denoted cathode except Bipolar
Mounting Position: Any
Weight : 0.012 ounce, 0.3 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use B.
Electrical characteristics apply in both directions

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 400	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	1.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	IFSM	40.0	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	°C

NOTES:
1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 1.57 in^2 (40mm^2).
3. 8.3ms single half sine-wave, duty cycle =4 pulses per Minutes maximum.

Device	Breakdown Voltage V_{BR} Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximm Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperatuure Coefficient of V_{BR} (%C)
BZW04P5V8	6.45	7.48	10	5.8	1000	38	10.5	.057
BZW04-5V8	6.45	7.14	10	5.8	1000	38	10.5	.057
BZW04P6V4	7.13	8.25	10	6.4	500	35.4	11.3	.061
BZW04-6V4	7.13	7.88	10	6.4	500	35.4	11.3	.061
BZW04P7V0	7.79	9.02	10	7.02	200	33	12.1	.065
BZW04-7V0	7.79	8.61	10	7.02	200	33	12.1	.065
BZW04P7V8	8.65	10.0	1	7.78	50	30	13.4	.068
BZW04-7V8	8.65	9.55	1	7.78	50	30	13.4	.073
BZW04P8V5	9.50	11.0	1	8.55	10	27.6	14.5	.073
BZW04-8V5	9.50	10.5	1	8.55	10	27.6	14.5	.075
BZW04P9V4	10.5	12.1	1	9.4	5	25.7	15.6	.075
BZW04P10	11.4	13.2	1	10.2	5	24	16.7	.078
BZW04-10	11.4	12.6	1	10.2	5	24	16.7	.078
BZW04P11	12.4	14.3	1	11.1	5	22	18.2	.081
BZW04-11	12.4	13.7	1	11.1	5	22	18.2	.081
BZW04P13	14.3	16.5	1	12.8	5	19	21.2	.084
BZW04-13	14.3	15.8	1	12.8	5	19	21.2	.084
BZW04P14	15.2	17.6	1	13.6	5	17.8	22.5	.086
BZW04-14	15.2	16.8	1	13.6	5	17.8	22.5	.086
BZW04P15	17.1	19.8	1	15.3	5	16	25.2	.088
BZW04-15	17.1	18.9	1	15.3	5	16	25.2	.088
BZW04P17	19.0	22.0	1	17.1	5	14.5	27.7	.090
BZW04-17	19.0	21.0	1	17.1	5	14.5	27.7	.090
BZW04P19	20.9	24.2	1	18.8	5	13.0	30.6	.092
BZW04-19	20.9	23.1	1	18.8	5	13.0	30.6	.092
BZW04P20	22.8	26.4	1	20.5	5	12.0	33.2	.094
BZW04-20	22.8	25.2	1	20.5	5	12.0	33.2	.094
BZW04P23	25.7	29.7	1	23.1	5	10.7	37.5	.096
BZW04-23	25.7	28.4	1	23.1	5	10.7	37.5	.096
BZW04P26	28.5	33.0	1	25.6	5	9.6	41.5	.097
BZW04-26	28.5	31.5	1	25.6	5	9.6	41.5	.097
BZW04P28	31.4	36.3	1	28.2	5	8.8	45.7	.098
BZW04-28	31.4	34.7	1	28.2	5	8.8	45.7	.098
BZW04P31	34.2	39.6	1	30.8	5	8.0	49.9	.099
BZW04-31	34.2	37.8	1	30.8	5	8.0	49.9	.099
BZW04P33	37.1	42.9	1	33.3	5	7.4	53.9	.100
BZW04-33	37.1	41.0	1	33.3	5	7.4	53.9	.100
BZW04P37	40.9	42.3	1	36.8	5	6.7	59.3	.101
BZW04-37	40.9	45.2	1	36.8	5	6.7	59.3	.101
BZW04P40	44.7	51.7	1	40.2	5	6.2	64.8	.101
BZW04-40	44.7	49.4	1	40.2	5	6.2	64.8	.101
BZW04P44	48.5	56.1	1	43.6	5	5.7	70.1	.102
BZW04-44	48.5	53.6	1	43.6	5	5.7	70.1	.102
BZW04P48	53.2	61.6	1	47.8	5	5.2	77.0	.103
BZW04-48	53.2	58.8	1	47.8	5	5.2	77.0	.103
BZW04P53	58.9	68.2	1	53.0	5	4.7	85.0	.104
BZW04-53	58.9	65.1	1	53.0	5	4.7	85.0	.104
BZW04P58	64.6	74.8	1	58.1	5	4.3	92.0	.104
BZW04-58	64.6	71.4	1	58.1	5	4.3	92.0	.104
BZW04P64	71.3	82.5	1	64.1	5	3.9	103.0	.105
BZW04-64	71.3	78.8	1	64.1	5	3.9	103.0	.105
BZW04P70	77.9	90.2	1	70.1	5	3.5	113.0	.105
BZW04-70	77.9	86.1	1	70.1	5	3.5	113.0	.105
BZW04P78	86.5	100	1	77.8	5	3.2	125.0	.106
BZW04-78	86.5	95.5	1	77.8	5	3.2	125.0	.106

Device	Breakdown Voltage VBR Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximm Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at IRSM (Clamping Voltage V_{RSM} (Volts)	Maximum Temperatuure Coefficient of VBR (%C)
BZW04P85	95.0	110	1	85.5	5	2.9	137.0	.106
BZW04-85	95.0	105	1	85.5	5	2.9	137.0	.106
BZW04P94	105	121	1	94.0	5	2.6	152.0	.107
BZW04-94	105	116	1	94.0	5	2.6	152.0	.107
BZW04P102	114	132	1	102.0	5	2.4	165.0	.107
BZW04-102	114	126	1	102.0	5	2.4	165.0	.107
BZW04P111	124	143	1	111.0	5	2.2	179.0	.107
BZW04-111	124	137	1	111.0	5	2.2	179.0	.107
BZW04P128	143	165	1	128.0	5	2.0	207.0	.108
BZW04-128	143	158	1	128.0	5	2.0	207.0	.108
BZW04P136	152	176	1	136.0	5	1.8	219.0	.108
BZW04-136	152	168	1	136.0	5	1.8	219.0	.108
BZW04P145	161	187	1	145.0	5	1.7	234.0	.108
BZW04-145	161	179	1	145.0	5	1.7	234.0	.108
BZW04P154	171	198	1	154.0	5	1.6	246.0	.108
BZW04-154	171	189	1	154.0	5	1.6	246.0	.108
BZW04P171	190	220	1	171.0	5	1.5	274.0	.108
BZW04-171	190	210	1	171.0	5	1.5	274.0	.108
BZW04P188	209	242	1	188.0	5	1.4	301.0	.108
BZW04-188	209	231	1	188.0	5	1.4	301.0	.108
BZW04P213	237	275	1	213.0	5	1.5	344.0	.110
BZW04-213	237	263	1	213.0	5	1.5	344.0	.110
BZW04P239	266	308	1	239.0	5	1.5	384.0	.110
BZW04-239	266	294	1	239.0	5	1.5	384.0	.110
BZW04P256	285	330	1	256.0	5	1.2	414.0	.110
BZW04-256	285	315	1	256.0	5	1.2	414.0	.110
BZW04P273	304	352	1	273.0	5	1.2	438.0	.110
BZW04-273	304	336	1	273.0	5	1.2	438.0	.110
BZW04P299	332	385	1	299.0	5	0.9	482.0	.110
BZW04-299	332	368	1	299.0	5	0.9	482.0	.110
BZW04P342	380	440	1	342.0	5	0.9	548.0	.110
BZW04-342	380	420	1	342.0	5	0.9	548.0	.110
BZW04P376	418	484	1	376.0	5	0.8	603.0	.110
BZW04-376	418	462	1	376.0	5	0.8	603.0	.110

NOTES:

1. V_{BR} measured after I_T applied for 300 μs , I_T = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derated per Figue 2.
3. V_F = 3.5 V at I_F = 25A (BZW04-5V8 thru BZW04-91)
   V_F = 5.0 V at I_F = 25A (BZW04P102 thru BZW04-376) on 1/2 Square or Equivalent Sine Wave.
   PW = 8.3 ms, Duty Cycle = 4 Pulses per Minute Maximum.

FIGURE 1 — PULSE RATING CURVE

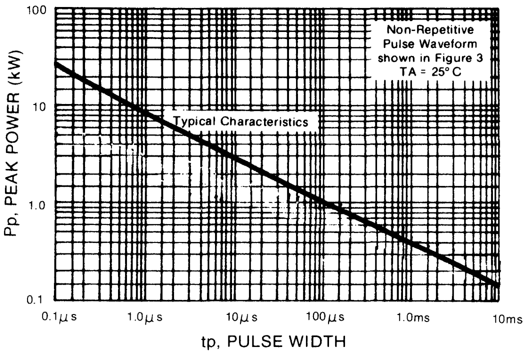


FIGURE 3 — PULSE WAVEFORM

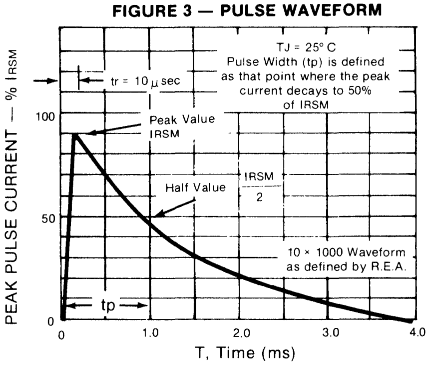


FIGURE 5 — STEADY STATE POWER DERATING

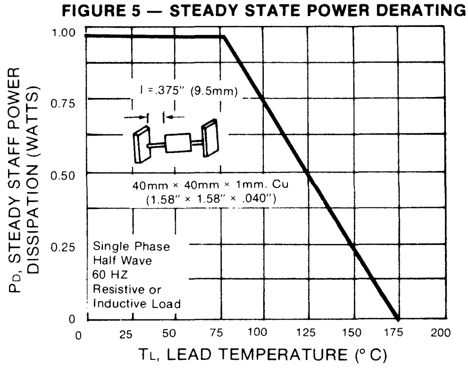


FIGURE 2 — PULSE DERATING CURVE

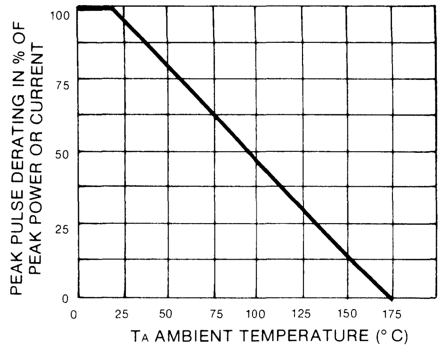


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

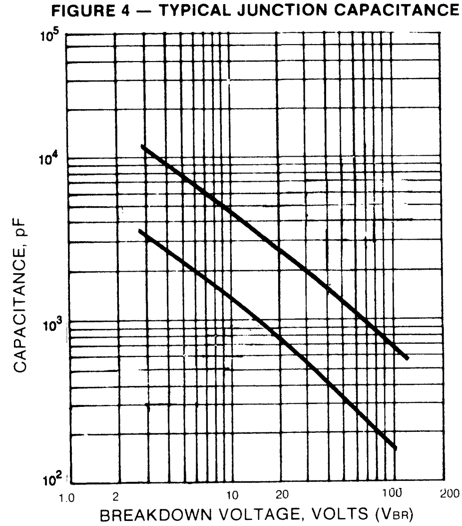
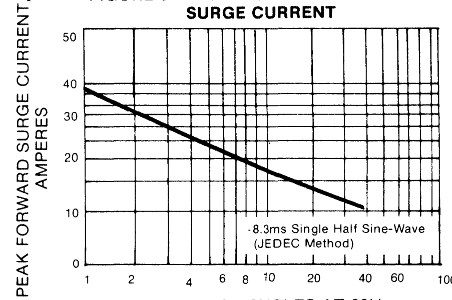


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



GENERAL INSTRUMENT

P6KE SERIES

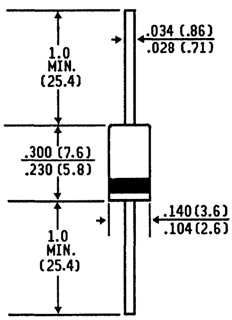
GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

***VOLTAGE-** 6.8 to 400 Volts*

600 Watt Peak Power   5.0 Watt Steady State

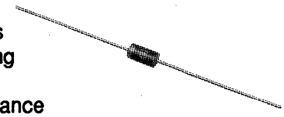
FEATURES

DO-15



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction in DO-15 package
- 600W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 1 μ A above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension



MECHANICAL DATA

Case : Molded plastic over glass passivated junction
Terminals: Axial leads, solderable per MIL-ST-202, Method 208
Polarity: Color band denoted cathode except Bipolar
Mounting Position: Any
Weight : 0.015 ounce, .4 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P6KE7.5 thru types P6KE400
Electrical characteristics apply in both directions

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 600	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	IFSM	100	Amps
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175	°C

NOTES:
1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 1.57 in^2 (40mm^2).
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum.

Device	Breakdown Voltage V_{BR} Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximum Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperatuure Coefficient of V_{BR} (%C)
P6KE6.8	6.12	7.48	10	5.50	1000	56	10.8	0.057
P6KE6.8A	6.45	7.14	10	5.80	1000	57	10.5	0.057
P6KE7.5	6.75	8.25	10	6.05	500	51	11.7	0.061
P6KE7.5A	7.13	7.88	10	6.40	500	53	11.3	0.061
P6KE8.2	7.38	9.02	10	6.63	200	48	12.5	0.065
P6KE8.2A	7.79	8.61	10	7.02	200	50	12.1	0.065
P6KE9.1	8.19	10.0	1.0	7.37	50	44	13.8	0.068
P6KE9.1A	8.65	9.55	1.0	7.78	50	45	13.4	0.068
P6KE10	9.00	11.0	1.0	8.10	10	40	15.0	0.073
P6KE10A	9.50	10.5	1.0	8.55	10	41	14.5	0.073
P6KE11	9.90	12.1	1.0	8.92	5.0	37	16.2	0.075
P6KE11A	10.5	11.6	1.0	9.40	5.0	38	15.6	0.075
P6KE12	10.8	13.2	1.0	9.72	5.0	35	17.3	0.078
P6KE12A	11.4	12.6	1.0	10.2	5.0	36	16.7	0.078
P6KE13	11.7	14.3	1.0	10.5	5.0	32	19.0	0.061
P6KE13A	12.4	13.7	1.0	11.1	5.0	33	18.2	0.081
P6KE15	13.5	16.5	1.0	12.1	5.0	27	22.0	0.084
P6KE15A	14.3	15.8	1.0	12.8	5.0	28	21.2	0.084
P6KE16	14.4	17.6	1.0	12.9	5.0	26	23.5	0.086
P6KE16A	15.2	16.8	1.0	13.6	5.0	27	22.5	0.086
P6KE18	16.2	19.8	1.0	14.5	5.0	23	26.5	0.088
P6KE18A	17.1	18.9	1.0	15.3	5.0	24	25.2	0.088
P6KE20	18.0	22.0	1.0	16.2	5.0	21	29.1	0.090
P6KE20A	19.0	21.0	1.0	17.1	5.0	22	27.7	0.090
P6KE22	19.8	24.2	1.0	17.8	5.0	19	31.9	0.092
P6KE22A	20.9	23.1	1.0	18.8	5.0	20	30.6	0.092
P6KE24	21.6	26.4	1.0	19.4	5.0	17	34.7	0.094
P6KE24A	22.8	25.2	1.0	20.5	5.0	18	33.2	0.094
P6KE27	24.3	29.7	1.0	21.8	5.0	15	39.1	0.096
P6KE27A	25.7	28.4	1.0	23.1	5.0	16	37.5	0.096
P6KE30	27.0	33.0	1.0	24.3	5.0	14	43.5	0.097
P6KE30A	28.5	31.5	1.0	25.6	5.0	14.4	41.4	0.097
P6KE33	29.7	36.3	1.0	26.8	5.0	12.6	47.7	0.098
P6KE33A	31.4	34.7	1.0	28.2	5.0	13.2	45.7	0.098
P6KE36	32.4	39.6	1.0	29.1	5.0	11.6	52.0	0.099
P6KE36A	34.2	37.8	1.0	30.8	5.0	12.0	49.9	0.099
P6KE39	35.1	42.9	1.0	31.6	5.0	10.6	56.4	0.100
P6KE39A	37.1	41.0	1.0	33.3	5.0	11.2	53.9	0.100
P6KE43	38.7	47.3	1.0	34.8	5.0	9.6	61.9	0.101
P6KE43A	40.9	45.2	1.0	36.8	5.0	10.1	59.3	0.101
P6KE47	42.3	51.7	1.0	38.1	5.0	8.9	67.8	0.101
P6KE47A	44.7	49.4	1.0	40.2	5.0	9.3	64.8	0.101
P6KE51	45.9	56.1	1.0	41.3	5.0	8.2	73.5	0.102
P6KE51A	48.5	53.6	1.0	43.6	5.0	8.6	70.1	0.102
P6KE56	50.4	61.6	1.0	45.4	5.0	7.4	80.5	0.103
P6KE56A	53.2	58.8	1.0	47.8	5.0	7.8	77.0	0.103
P6KE62	55.8	68.2	1.0	50.2	5.0	6.8	89.0	0.104
P6KE62A	58.9	65.1	1.0	53.0	5.0	7.1	85.0	0.104
P6KE68	61.2	74.8	1.0	55.1	5.0	6.1	98.0	0.104
P6KE68A	64.6	71.4	1.0	58.1	5.0	6.5	92.0	0.104
P6KE75	67.5	82.5	1.0	60.7	5.0	5.5	108.0	0.105
P6KE75A	71.3	78.8	1.0	64.1	5.0	5.8	103.0	0.105

Device	Breakdown Voltage V_{BR} Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} $I_R(\mu A)$	Maximm Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperatuure Coefficient of V_{BR} (%C)
P6KE82	73.8	90.2	1.0	66.4	5.0	5.1	118.0	0.105
P6KE82A	77.9	86.1	1.0	70.1	5.0	5.3	113.0	0.105
P6KE91	81.9	100.0	1.0	73.7	5.0	4.5	131.8	0.106
P6KE91A	86.5	95.5	1.0	77.8	5.0	4.8	125.0	0.106
P6KE100	90.0	110.0	1.0	81.0	5.0	4.2	144.0	0.106
P6KE100A	95.0	105.0	1.0	85.5	5.0	4.4	137.0	0.106
P6KE110	99.0	121.0	1.0	89.2	5.0	3.8	158.0	0.107
P6KE110A	105.0	116.0	1.0	94.0	5.0	4.0	152.0	0.107
P6KE120	108.0	132.0	1.0	97.2	5.0	3.5	173.0	0.107
P6KE120A	114.0	126.0	1.0	102.0	5.0	3.6	165.0	0.107
P6KE130	117.0	143.0	1.0	105.0	5.0	3.2	187.0	0.107
P6KE130A	124.0	137.0	1.0	111.0	5.0	3.3	179.0	0.107
P6KE150	135.0	165.0	1.0	121.0	5.0	2.8	215.0	0.108
P6KE150A	143.0	158.0	1.0	128.0	5.0	2.9	207.0	0.108
P6KE160	144.0	176.0	1.0	130.0	5.0	2.6	230.0	0.108
P6KE160A	152.0	168.0	1.0	136.0	5.0	2.7	219.0	0.108
P6KE170	153.0	187.0	1.0	138.0	5.0	2.5	244.0	0.108
P6KE170A	162.0	179.0	1.0	145.0	5.0	2.6	234.0	0.108
P6KE180	162.0	198.0	1.0	146.0	5.0	2.3	258.0	0.108
P6KE180A	171.0	189.0	1.0	154.0	5.0	2.4	246.0	0.108
P6KE200	180.0	220.0	1.0	162.0	5.0	2.1	287.0	0.108
P6KE200A	190.0	210.0	1.0	171.0	5.0	2.2	274.0	0.108
P6KE220	198.0	242.0	1.0	175.0	5.0	1.75	344.0	0.108
P6KE220A	209.0	231.0	1.0	185.0	5.0	1.83	328.0	0.108
P6KE250	225.0	275.0	1.0	202.0	5.0	1.67	360.0	0.110
P6KE250A	237.0	263.0	1.0	214.0	5.0	1.75	344.0	0.110
P6KE300	270.0	330.0	1.0	243.0	5.0	1.4	430.0	0.110
P6KE300A	285.0	315.0	1.0	256.0	5.0	1.45	414.0	0.110
P6KE350	315.0	385.0	1.0	284.0	5.0	1.2	504.0	0.110
P6KE350A	332.0	368.0	1.0	300.0	5.0	1.25	482.0	0.110
P6KE400	360.0	440.0	1.0	324.0	5.0	1.05	574.0	0.110
P6KE400A	380.0	420.0	1.0	342.0	5.0	1.1	548.0	0.110

NOTES:
1. V_{BR} measured after I_T applied for 300 µs , I_T = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derated per Figue 2.
3. V_F = 3.5 V at I_F = 50A (P6KE6.8 thru P6KE91A)
   V_F = 5.0V at I_F = 50A (P6KE100 thru P6KE400A) on 1/2 Square or Equivalent Sine Wave
   PW = 8.3 ms, Duty Cycle = 4 Pulses per Minute Maximum
4. For bipolar types moving V_R of 10 volts and under, the I_R limit is doubled.

FIGURE 1 — PULSE RATING CURVE

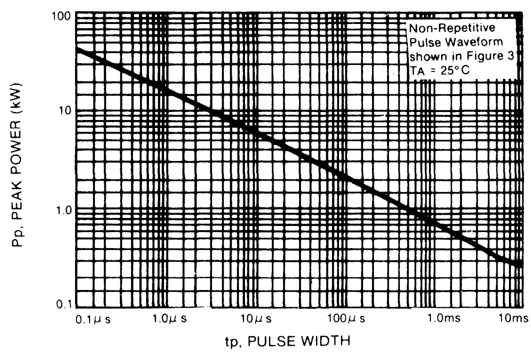


FIGURE 2 — PULSE DERATING CURVE

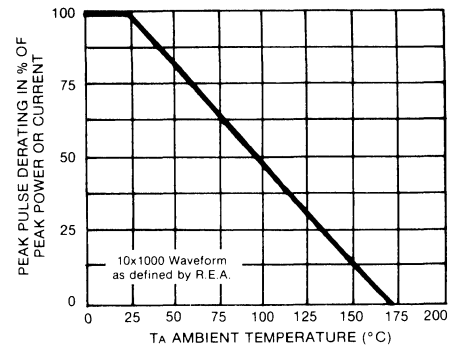


FIGURE 3 — PULSE WAVEFORM

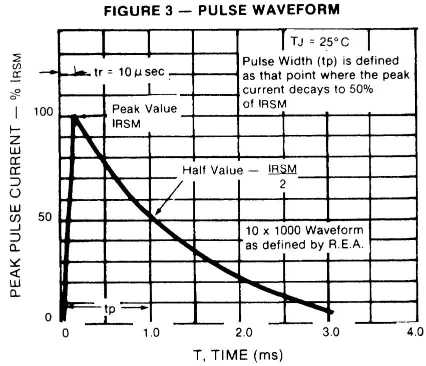


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

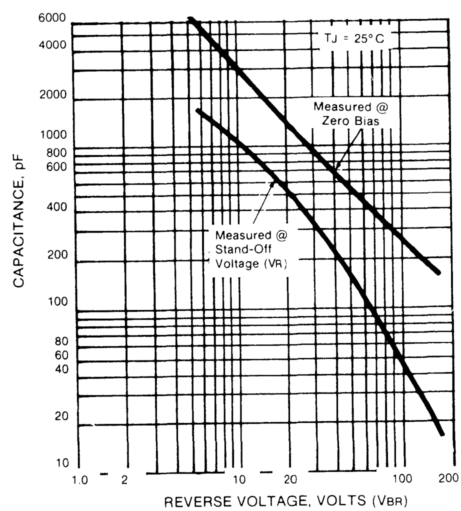


FIGURE 5 — STEADY STATE POWER DERATING

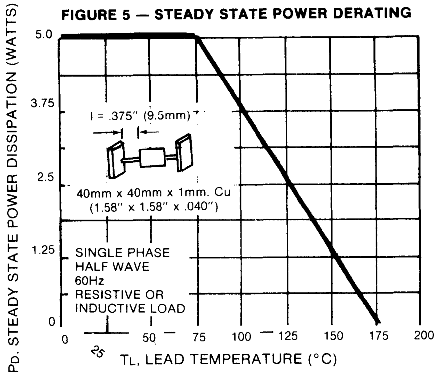
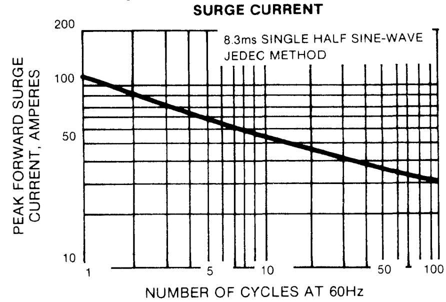


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



GENERAL INSTRUMENT

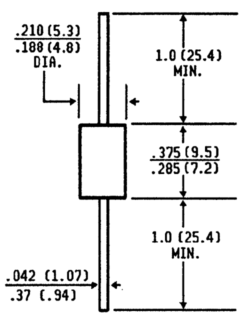
1.5KE SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE- 6.8 to 400 Volts

1500 Watt Peak Power 5.0 Watt Steady State

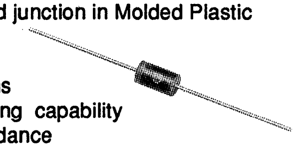
DO-201



Dimensions in inches and (millimeters)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction in Molded Plastic package
- 1500W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 1 μA above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension



MECHANICAL DATA

Case : Molded plastic over glass passivated junction

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denoted cathode except Bipolar

Mounting Position: Any

Weight : 0.045 ounce, 1.2 grams

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5KE7.5 thru types 1.5KE400

Electrical characteristics apply in both directions

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 1500	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	IFSM	200	Amps
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +175	°C

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 0.79 in^2 (20mm^2).
3. 8.3ms single half sine-wave, duty cycle =4 pulses per Minutes maximum

JEDEC TYPE NUMBER	GENERAL PART NUMBER	Breakdown Voltage* V_{BR} (Volts) Min	(Note 1) Max	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R (μA)	Maximum Reverse Surge Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperature Coefficinet of V_{BR} (%/°C)V_{RSM} (Volts)
1N6267	1.5KE6.8	6.12	7.48	10	5.50	1000	139	10.8	0.057
1N6267A	1.5KE6.8A	6.45	7.14	10	5.80	1000	143	10.5	0.057
1N6268	1.5KE7.5	6.75	8.25	10	6.05	500	128	11.7	0.061
1N6268A	1.5KE7.5A	7.13	7.88	10	6.40	500	132	11.3	0.061
1N6269	1.5KE8.2	7.38	9.02	10	6.63	200	120	12.5	0.065
1N6269A	1.5KE8.2A	7.79	8.0	10	7.02	200	124	12.1	0.065
1N6270	1.5KE9.1	8.19	10.0	1.0	7.37	50	109	13.8	0.068
1N6270A	1.5KE9.1A	8.65	9.55	1.0	7.78	50	112	13.4	0.068
1N6271	1.5KE10	9.00	11.0	1.0	8.10	10	100	15.0	0.073
1N6271A	1.5KE10A	9.50	10.5	1.0	8.55	10	103	14.5	0.073
1N6272	1.5KE11	9.90	12.1	1.0	8.92	5.0	93.0	16.2	0.075
1N6272A	1.5KE11A	10.5	11.6	1.0	9.40	5.0	96.0	15.6	0.075
1N6273	1.5KE12	10.8	13.2	1.0	9.72	5.0	87.0	17.3	0.076
1N6273A	1.5KE12A	11.4	12.6	1.0	10.2	5.0	90.0	16.7	0.078
1N6274	1.5KE13	11.7	14.3	1.0	10.5	5.0	79.0	19.0	0.081
1N6274A	1.5KE13A	12.4	13.7	1.0	11.1	5.0	82.0	18.2	0.061
1N6275	1.5KE15	13.5	16.5	1.0	12.1	5.0	68.0	22.0	0.084
1N6275A	1.5KE15A	14.3	15.8	1.0	12.8	5.0	71.0	21.2	0.084
1N6276	1.5KE16	14.4	17.6	1.0	12.9	5.0	64.0	23.5	0.066
1N6276A	1.5KE16A	15.2	16.8	1.0	13.6	5.0	67.0	22.5	0.066
1N6277	1.5KE18	16.2	19.8	1.0	14.5	5.0	56.5	26.5	0.068
1N6277A	1.5KE18A	17.1	18.9	1.0	15.3	5.0	59.5	26.2	0.089
1N6278	1.5KE20	18.0	22.0	1.0	16.2	5.0	51.5	29.1	0.090
1N6278A	1.5KE20A	19.0	21.0	1.0	17.1	5.0	54.0	27.7	0.090
1N6279	1.5KE22	19.8	24.2	1.0	17.8	5.0	47.0	31.9	0.092
1N6279A	1.5KE22A	20.9	23.1	1.0	18.8	5.0	49.0	30.6	0.092
1N6280	1.5KE24	21.6	26.4	1.0	19.4	5.0	43.0	34.7	0.094
1N6280A	1.5KE24A	22.8	25.2	1.0	20.5	5.0	45.0	33.2	0.094
1N6281	1.5KE27	24.3	29.7	1.0	21.8	5.0	38.5	39.1	0.096
1N6281A	1.5KE27A	25.7	28.4	1.0	23.1	5.0	40.0	37.5	0.096
1N6282	1.5KE30	27.0	33.0	1.0	24.3	5.0	34.5	43.5	0.097
1N6282A	1.5KE30A	28.5	31.5	1.0	25.6	5.0	36.0	41.4	0.097
1N6283	1.5KE33	29.7	36.3	1.0	26.8	5.0	31.5	47.7	0.098
1N6283A	1.5KE33A	31.4	34.7	1.0	28.2	5.0	33.0	45.7	0.098
1N6284	1.5KE36	32.4	39.6	1.0	29.1	5.0	29.0	52.0	0.099
1N6284A	1.5KE36A	34.2	37.8	1.0	30.8	5.0	30.0	49.9	0.099
1N6285	1.5KE39	35.1	42.9	1.0	31.6	5.0	26.5	56.4	0.100
1N6285A	1.5KE39A	37.1	41.0	1.0	33.3	5.0	28.0	53.9	0.100
1N6286	1.5KE43	38.7	47.3	1.0	34.8	5.0	24.0	61.9	0.101
1N6286A	1.5KE43A	40.9	45.2	1.0	36.8	5.0	25.3	59.3	0.101
1N6287	1.5KE47	42.3	51.7	1.0	36.1	5.0	22.2	67.8	0.101
1N6287A	1.5KE47A	44.7	49.4	1.0	40.2	5.0	23.2	64.8	0.101
1N6288	1.5KE51	45.9	56.1	1.0	41.3	5.0	20.4	73.5	0.102
1N6288A	1.5KE51A	48.5	53.6	1.0	43.6	5.0	21.4	70.1	0.102
1N6289	1.5KE56	50.4	61.8	1.0	45.4	5.0	18.6	80.5	0.103
1N6289A	1.5KE56A	53.2	58.8	1.0	47.8	5.0	19.5	77.0	0.103
1N6290	1.5KE62	55.8	68.2	1.0	50.2	5.0	16.9	89.0	0.104
1N6290A	1.5KE62A	58.9	65.1	1.0	53.0	5.0	17.7	85.0	0.104
1N6291	1.5KE68	61.2	74.8	1.0	55.1	5.0	15.3	98.0	0.104
1N6291A	1.5KE68A	64.6	71.4	1.0	58.1	5.0	16.3	92.0	0.104
1N6292	1.5KE75	67.5	82.5	1.0	60.7	5.0	13.9	108.9	0.105
1N6292A	1.5KE75A	71.3	78.8	1.0	64.1	5.0	14.6	103.9	0.105
1N6293	1.5KE82	73.8	90.2	1.0	66.4	5.0	12.7	118.0	0.105
1N6293A	1.5KE82A	77.9	86.1	1.0	70.1	5.0	13.3	113.0	0.105
1N6294	1.5KE91	81.9	100.0	1.0	73.7	5.0	11.4	131.0	0.106

JEDEC TYPE NUMBER	GENERAL PART NUMBER	Breakdown Voltage* V_{BR} (Volts) Min	(Note 1) Max	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R (µA)	Maximum Reverse Surge Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} Clamping Voltage) V_{RSM} (Volts)	Maximum Temperature Coefficinet of V_{BR} (%/°C)V_{RSM} (Volts)
1N6294A	1.5KE91A	86.5	95.5	1.0	77.8	5.0	12.0	125.0	0.106
1N6295	1.5KE100	90.0	110.0	1.0	81.0	5.0	10.4	144.0	0.106
1N6295A	1.5KE100A	95.0	105.0	1.0	85.5	5.0	11.0	137.0	0.106
1N6296	1.5KE110	99.0	121.0	1.0	89.2	5.0	9.5	158.0	0.107
1N6296A	1.5KE110A	106.0	116.0	1.0	94.0	5.0	9.9	152.0	0.107
1N6297	1.5KE120	108.0	132.0	1.0	97.2	5.0	8.7	173.0	0.107
1N6297A	1.5KE120A	114.0	126.0	1.0	102.0	5.0	9.1	165.0	0.107
1N6298	1.5KE130	117.0	143.0	1.0	106.0	5.0	8.0	187.0	0.107
1N6298A	1.5KE130A	124.0	137.0	1.0	111.0	5.0	8.4	179.0	0.107
1N6299	1.5KE150	136.0	165.0	1.0	121.0	5.0	7.0	215.0	0.108
1N6299A	1.5KE150A	143.0	158.0	1.0	128.0	5.0	7.2	207.0	0.106
1N6300	1.5KE160	144.0	176.0	1.0	130.0	5.0	6.5	230.0	0.106
1N6300A	1.5KE160A	152.0	168.0	1.0	136.0	5.0	6.8	219.0	0.108
1N6301	1.5KE170	153.0	167.0	1.0	138.0	5.0	6.2	244.0	0.108
1N6301A	1.5KE170A	162.0	179.0	1.0	145.0	5.0	6.4	234.0	0.108
1N6302	1.5KE180	162.0	198.0	1.0	146.0	5.0	5.8	258.0	0.108
1N6302A	1.5KE180A	171.0	189.0	1.0	154.0	5.0	6.1	246.0	0.108
1N6303	1.5KE200	180.0	220.0	1.0	162.0	5.0	5.2	287.0	0.108
1N6303A	1.5KE200A*	190.0	210.0	1.0	171.0	5.0	5.5	274.0	0.108
	1.5KE220	196.0	242.0	1.0	175.0	5.0	4.3	344.0	0.108
	1.5KE220A*	209.0	231.0	1.0	185.0	5.0	4.6	328.0	0.108
	1.5KE250	225.0	275.0	1.0	202.0	5.0	5.0	360.0	0.110
	1.5KE250A	237.0	263.0	1.0	214.0	5.0	5.0	344.0	0.110
	1.5KE300	270.0	330.0	1.0	243.0	5.0	5.0	430.0	0.110
	1.5KE300A	285.0	315.0	1.0	256.0	5.0	5.0	414.0	0.110
	1.5KE350	315.0	385.0	1.0	284.0	5.0	4.0	504.0	0.110
	1.5KE350A	333.0	368.0	1.0	300.0	5.0	4.0	482.0	0.110
	1.5KE400	360.0	440.0	1.0	324.0	5.0	4.0	574.0	0.110
	1.5KE400A	380.0	420.0	1.0	342.0	5.0	4.0	548.0	0.110

NOTES:

1. V_{BR} measured after I_T applied for 300 µs , I_T = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derated per Figue 2.
3. V_F = 3.5 V max., I_F = 100A (1.5KE 6.8 thru 1.5KE91A)
   V_F = 5.0 V max., I_F 100A (1.5KE100 thru 1.5KE400A) per 1/2 Square or Equivalent Sine Wave
   PW = 8.3 ms, Duty Cycle = 4 Pulses per Minute Maximum
   * Bidirectional versions are UL approved

FIGURE 1 — PULSE RATING CURVE

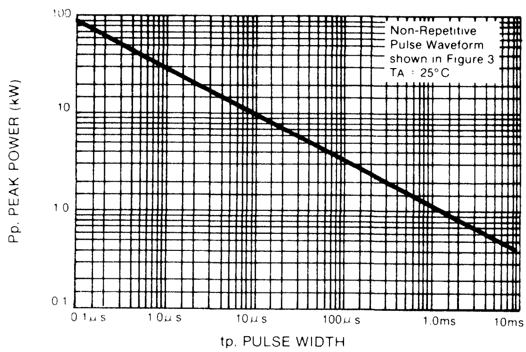


FIGURE 2 — PULSE DERATING CURVE

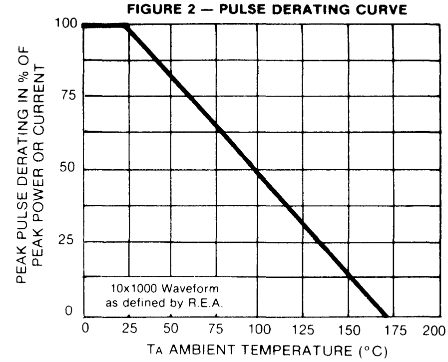


FIGURE 3 — PULSE WAVEFORM

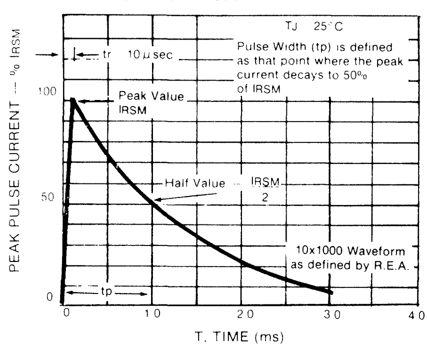


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

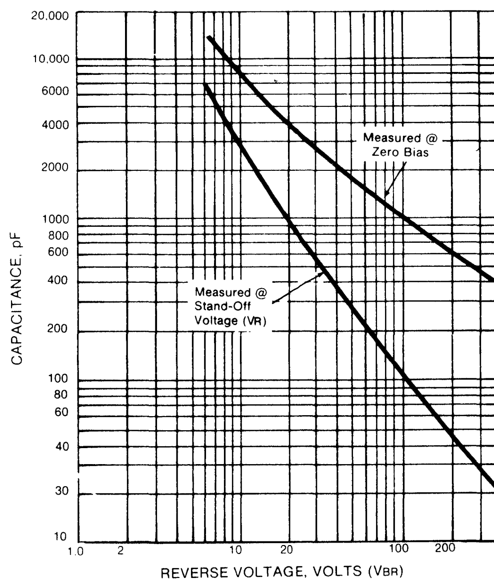


FIGURE 5 — STEADY STATE POWER DERATING

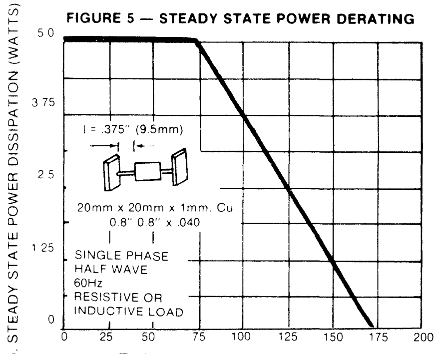
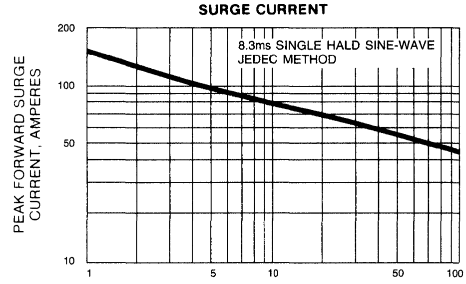


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



GENERAL INSTRUMENT

5KP SERIES

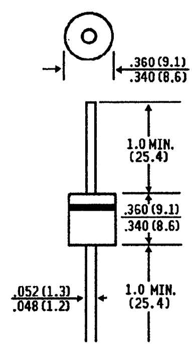
GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE- *5.0 to 110 Volts*

5000 Watt Peak Power   5.0 Watt Steady State

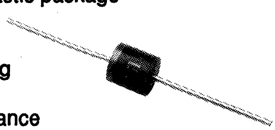
FEATURES

P600



Dimensions in innches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Exceeds environmental standards MIL-STD-19500
- Glass passivated junction in Molded Plastic package
- 5000W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min.
- Typical I_R less than 1 μ A above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension



MECHANICAL DATA

Case : Molded plastic over glass passivated junction
Terminals: Axial leads, solderable per MIL-STD-202, Method 208
Polarity: Color band denoted cathode except Bipolar
Mounting Position: Any
Weight : 0.007 ounce, 2.1 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 5KP5.0 thru types 5KP110.
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Power Dissipation at T_A = 25°C, Tp = 1ms (Note 1)	Ppk	Minimum 5000	Watts
Steady State Power Dissipation at T_L = 75°C Lead Lengths .375", (9.5mm) (Note 2)	PD	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	IFSM	400	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C

NOTES: 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 0.79 in^2 (20mm^2).
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum

ELECTRICAL CHARACTERISTICS (ta = 25°C unless otherwise noted)

Device	Breakdown Voltage V_{BR} Volts (Note 1) MIN	MAX	@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximmm Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage) V_{RSM} (Volts)	Maximum Temperatuure Coefficient of V_{BR} (%C)
5KP5.0	6.40	7.30	50	5.0	2000	520	9.6	0.057
5KP5.0A	6.40	7.00	50	5.0	2000	543	9.2	0.057
5KP6.0	6.67	8.15	50	6.0	5000	439	11.4	0.061
5KP6.0A	6.67	7.37	50	6.0	5000	485	10.3	0.061
5KP6.5	7.22	8.82	50	6.5	2000	407	12.3	0.065
5KP6.5A	7.22	7.98	50	6.5	2000	447	11.2	0.065
5KP7.0	7.78	9.51	50	7.0	1000	378	13.3	0.068
5KP7.0A	7.78	8.60	50	7.0	1000	417	12.0	0.068
5KP7.5	8.33	10.2	5.0	7.5	250	350	14.3	0.073
5KP7.5A	8.33	9.21	5.0	7.5	250	388	12.9	0.073
5KP8.0	8.89	10.9	5.0	8.0	150	333	15.0	0.075
5KP8.0A	8.89	9.83	5.0	8.0	150	367	13.6	0.075
5KP8.5	9.44	11.5	5.0	8.5	50	314	15.9	0.078
5KP8.5A	9.44	10.4	5.0	8.5	50	347	14.4	0.078
5KP9.0	10.0	12.2	5.0	9.0	20	295	16.9	0.081
5KP9.0A	10.0	11.1	5.0	9.0	20	325	15.4	0.081
5KP10	11.1	13.6	5.0	10.0	15	266	18.8	0.084
5KP10A	11.1	12.3	5.0	10.0	15	294	17.0	0.084
5KP11	12.2	14.9	5.0	11.0	10	249	20.1	0.086
5KP11A	12.2	13.5	5.0	11.0	10	274	18.2	0.086
5KP12	13.3	16.3	5.0	12.0	10	227	22.0	0.088
5KP12A	13.3	14.7	5.0	12.0	10	251	19.9	0.088
5KP13	14.4	17.6	5.0	13.0	10	210	23.8	0.090
5KP13A	14.4	15.9	5.0	13.0	10	232	21.5	0.090
5KP14	15.6	19.1	5.0	14.0	10	194	25.8	0.092
5KP14A	15.6	17.2	5.0	14.0	10	215	23.2	0.092
5KP15	16.7	20.4	5.0	15.0	10	188	26.9	0.094
5KP15A	16.7	18.5	5.0	15.0	10	206	24.4	0.094
5KP16	17.8	21.8	5.0	16.0	10	176	28.8	0.096
5KP16A	17.8	19.7	5.0	16.0	10	176	26.0	0.096
5KP17	18.9	23.1	5.0	17.0	10	164	30.5	0.097
5KP17A	18.9	20.9	5.0	17.0	10	161	27.6	0.097
5KP18	20.0	24.4	5.0	18.0	10	155	32.2	0.098
5KP18A	20.0	22.1	5.0	18.0	10	172	29.2	0.098
5KP20	22.2	27.1	5.0	20.0	10	139	35.8	0.099
5KP20A	22.2	24.5	5.0	20.0	10	154	32.4	0.099
5KP22	24.4	29.8	5.0	22.0	10	127	39.4	0.100
5KP22A	24.4	26.9	5.0	22.0	10	141	35.5	0.100
5KP24	26.7	32.6	5.0	24.0	10	116	43.0	0.101
5KP24A	26.7	29.5	5.0	24.0	10	128	38.9	0.101
5KP26	28.9	35.3	5.0	26.0	10	107	46.6	0.101
5KP26A	28.9	31.9	5.0	26.0	10	119	42.1	0.101
5KP28	31.1	38.0	5.0	28.0	10	99	50.1	0.102
5KP28A	31.1	34.4	5.0	28.0	10	110	45.4	0.102
5KP30	33.3	40.7	5.0	30.0	10	93	53.5	0.103
5KP30A	33.3	36.8	5.0	30.0	10	103	48.4	0.103
5KP33	36.7	44.9	5.0	33.0	10	85	59.0	0.104
5KP33A	36.7	40.6	5.0	33.0	10	94	53.3	0.104
5KP36	40.0	48.9	5.0	36.0	10	78	64.3	0.104
5KP36A	40.0	44.2	5.0	36.0	10	85	58.1	0.104
5KP40	44.4	54.3	5.0	40.0	10	70	71.4	0.105

ELECTRICAL CHARACTERISTICS (ta = 25°C unless otherwise noted)

Device	Breakdown Voltage V_{BR} Volts (Note 1)		@IT (mA)	Working Peak Reverse Voltage V_{RWM} (Volts)	Maximum Reverse Leakage at V_{RWM} I_R(μA)	Maximm Reverse Current I_{RSM} (Note 2) (Amps)	Maximum Reverse Voltage at I_{RSM} (Clamping Voltage V_{RSM} (Volts)	Maximum Temperatuure Coefficient of V_{BR} (%C)
	MIN	MAX						
5KP40A	44.4	49.1	5.0	40.0	10	78	64.5	0.105
5KP43	47.8	58.4	5.0	43.0	10	65	76.7	0.105
5KP43A	47.8	52.8	5.0	43.0	10	72	69.4	0.105
5KP45	50.0	61.1	5.0	45.0	10	62	80.3	0.106
5KP45A	50.0	55.3	5.0	45.0	10	69	72.7	0.106
5KP48	53.3	65.2	5.0	48.0	10	58	85.5	0.106
5KP48A	53.3	58.9	5.0	48.0	10	65	77.4	0.106
5KP51	56.7	69.3	5.0	51.0	10	55	91.1	0.107
5KP51A	56.7	62.7	5.0	51.0	10	61	82.4	0.107
5KP54	60.0	73.3	5.0	54.0	10	52	96.3	0.107
5KP54A	60.0	66.3	5.0	54.0	10	57	87.1	0.107
5KP58	64.4	78.7	5.0	58.0	10	49	103.0	0.107
5KP58A	64.4	71.2	5.0	58.0	10	53	93.6	0.107
5KP60	66.7	81.5	5.0	60.0	10	47	107.0	0.108
5KP60A	66.7	73.7	5.0	60.0	10	52	96.8	0.108
5KP64	71.1	96.9	5.0	64.0	10	44	114.0	0.108
5KP64A	71.1	78.6	5.0	64.0	10	49	103.0	0.108
5KP70	77.6	95.1	5.0	70.0	10	40	125.0	0.108
5KP70A	77.8	86.0	5.0	70.0	10	44	113.0	0.108
5KP75	83.3	102.0	5.0	75.0	10	37	134.0	0.108
5KP75A	83.3	92.1	5.0	75.0	10	41	121.0	0.108
5KP78	86.7	106.0	5.0	78.0	10	36	139.0	0.108
5KP78A	86.7	95.8	5.0	78.0	10	40	126.0	0.108
5KP85	94.9	115.0	5.0	85.0	10	33	151.0	0.108
5KP85A	94.4	104.0	5.0	85.0	10	36	137.0	0.110
5KP90	100	122.0	5.0	90.0	10	31	160.0	0.110
5KP90A	100	111.0	5.0	90.0	10	34	146.0	0.110
5KP100	111	136.0	5.0	100.0	10	28	179.0	0.110
5KP100A	111	123.0	5.0	100.0	10	31	162.0	0.110
5KP110	122	149.0	5.0	110.0	10	26	196.0	0.112
5KP110A	122	135.0	5.0	110.0	10	28	177.0	0.112

NOTES:

1. V_{BR} measured after I_T applied for 300 ms. I_T = Square Wave Pulse or equivalent.
2. Surge Current waveform per Figure 3 and Derate per Figure 2.
3. Vf = 3.5 Volts max I_F = 100A for all types on 1/2 square or Equivalent Sine Wave.
   PW = 8.3ms. Duty Cycle = 4 Pulse per Minute maximum.
4. For bipolar types with V_R 10 Vo!ts and under, the I_R limit is doubled.

FIGURE 1 — PULSE RATING CURVE

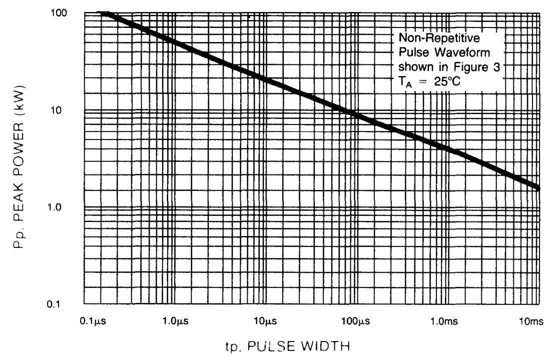


FIGURE 2 — PULSE DERATING CURVE

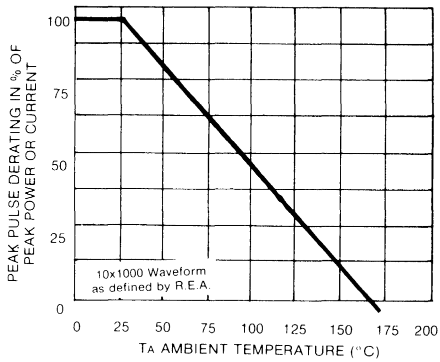


FIGURE 3 — PULSE WAVEFORM

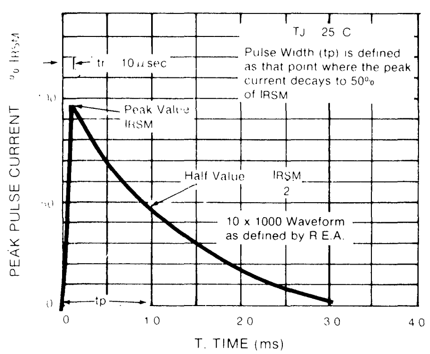


FIGURE 4 — TYPICAL JUNCTION CAPACITANCE

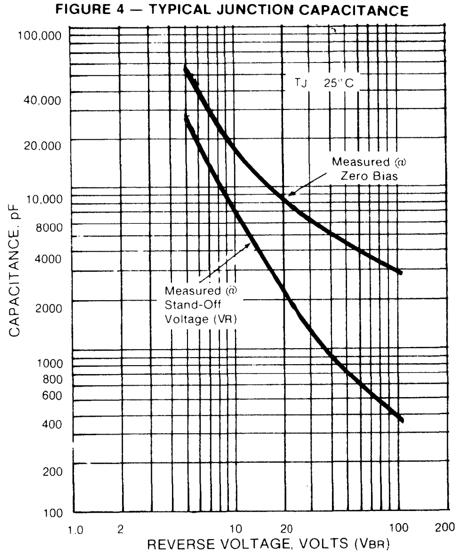


FIGURE 5 — STEADY STATE POWER DERATING

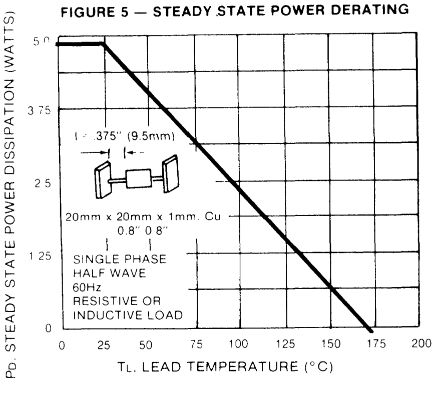
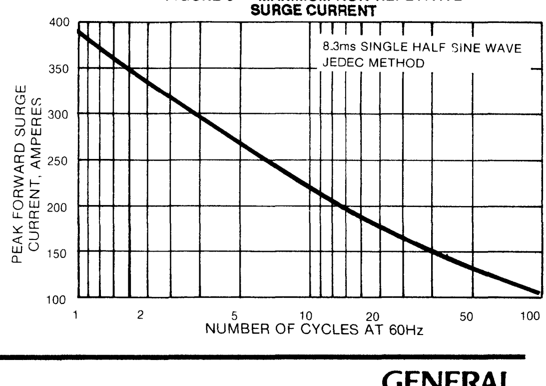


FIGURE 6 — MAXIMUM NON-REPETITIVE SURGE CURRENT



GENERAL INSTRUMENT

Transient Voltage Suppressors may be used at various points in a circuit to provide various degrees of protection. The following is a typical linear power supply with transient voltage suppressor units placed at different points. All provide protection of the load.

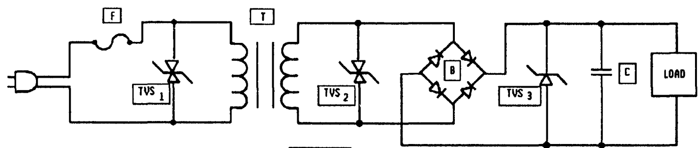


FIGURE 1

Transient Voltage Suppressor 1 provides maximum protection. However, the system will probably require replacement of the line fuse (F) since it provides a dominant portion of the series impedance when a surge is encountered.

Transient Voltage Suppressor 2 provides excellent protection of circuitry excluding the transformer (T). However, since the transformer is a large part of the series impedance, the chance of the line fuse opening during the surge condition is reduced.

Transient Voltage Suppressor 3 provides the load with complete protection. It uses a unidirectional Transient Voltage Suppressor, which is a cost advantage. The series impedance now includes the line fuse, transformer, and bridge rectifier (B) so failure of the line fuse is further reduced. If only Transient Voltage Suppressor 3 is in use, then the bridge rectifier is unprotected and would require a higher voltage and current rating to prevent failure by transients.

Any combination of these three, or any one of these applications, will prevent damage to the load. This would require varying trade-offs in power supply protection versus maintenance (time changing the fuse).

An additional method is to utilize the Transient Voltage Suppressor units as a controlled avalanche bridge. This reduces the parts count and incorporates the protection within the bridge rectifier.

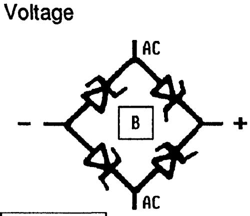


FIGURE 2

The wattage ratings are available in 400 watts (P4KE, BZW04), 600 watts (P6KE), 1500 watts (1.5KE Series) and 5000 watts (5KP Series).

For voltage ranges not seen on specification sheet, please consult factory or the nearest sales office.

APPLICATION NOTES

GENERAL INSTRUMENT

DESIGN GUIDELINES FOR SCHOTTKY RECTIFIERS

Known limitations of Schottky rectifiers -- including limited high temperature operation, high leakage and limited voltage range -- can be measured and controlled, allowing wide application on switch mode power supplies.

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Schottky rectifiers have been used in the power supply industry for approximately 15 years. During this time, significant fiction as well as fact has been associated with this type of rectifier. The primary assets of Schottky devices are switching speeds approaching zero-time and very low forward voltage drop (Vf). This combination makes Schottky barrier rectifiers ideal for the output stages of switching power supplies. On the negative side, Schottky devices are also known for limited high-temperature operation, high leakage and limited voltage range (BVR). Though these limitations exist, they are quantifiable and controllable, allowing wide application of these devices in switch mode power supplies.

High leakage, when associated with standard P-N junction rectifiers, usually indicates "badness," implying poor reliability. In a Schottky device, leakage at high temperature (75 °C and greater) is often on the order to several milliamps, depending on chip size. In the case of Schottky barrier rectifiers, high-temperature leakage and forward voltage drop are controlled by two primary factors: the size of the chip's active area and the barrier height (ϕ B).

Design of a Schottky rectifier can be viewed as a tradeoff. A high barrier height device exhibits low leakage at high temperature, however, the forward voltage drop increases. These parameters are also controlled by the die size and resistivity of the starting material. A larger die will lower the Vf but raise the leakage if all other parameters are held constant. The resistivity of the starting material must be chosen in a range where the breakdown voltage (BVR) is not degraded at the low end and the forward end of the resistivity range. Since a larger chip size is obviously more expensive, this is not the primary method for controlling these parameters. Chip size is usually set to a dimension where the current density through the die is kept at a safe level.

Barrier Height (ϕ B), A Factor

General Instrument produces two product lines of Schottky barrier rectifiers. One line is referred to as the "MBR" series, a high-temperature, low-leakage, relatively high V_f type of Schottky device with a high barrier height (ϕ B). The second line is the "SBL" series, designed to operate at lower temperature (125°C or less); however, while leakage current is higher, forward voltage drop (V_f) is significantly lower and they are designed with

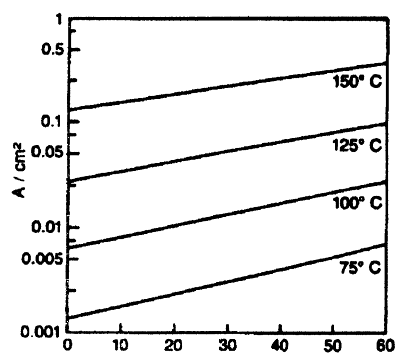


Figure 1

Voltage versus die area leakage barrier height = 0.71 volts

a low- ϕB barrier height.The low- ϕB- line SBL series uses a nichrome battier metal with a barrier height of ϕ B = 0.64 eV. The high- ϕ B MBR series uses a nichrome-platinum barrier metal to achieve barrier height (ϕ B = 0.71 eV). Both series are guard-ring protected against excessive transient voltages.

Both the low- and high-barrier-height Schottky devices are valuable in a variety of applications. When the true operating temperature of the Schottky rectifier exceeds 125°C, the high-barrier-height series must be used to avoid thermal runaway. This occurs when excessive self-heating of the rectifier causes large leakage currents, resulting in additional self-heating. The process becomes a form of positive thermal feedback and may lead to damage in the rectifier or inappropriate functioning of the circuit utilizing the device.

Using a high-barrier-height (MBR) component prevents this anomaly, but sacrifices higher forward voltage. Operating the low barrier height (SBL) series at a junction temperature of 125° C or less prevents thermal runaway from occurring. If the junction temperature (Tj) in the application can be kept below 125° C, a decision on the use of a low- or high-barrier-height Schottky device must be made.

The following procedure has been developed to provide an analytical method of selecting the most efficient Schottky barrier device for a given application.

Calculating The Barrier Height (ϕB) of Schottky Rectifiers

Calculating the barrier height of a Schottky rectifier where ϕ B is not given is a straightforward process. The following two equations will yield an excellent engineering approximation of the barrier height, ϕ B:

$$\phi B = (-KT/q)\, LN\, (J / R^*T) \qquad (1)$$

$$J_o = I_o / ACTIVE\ AREA\ (cm^2)$$

$$\phi\ B = \text{barrier height (eV)} \qquad (2)$$

K = Boltsman's constant = 8.62×105 eV/° K

T = ambient temperature in degrees Kelvin

J_o = current density at zero volts

R^* = Richardon's constant = $112\ /cm^2\ k^2$

I_o = forward current at zero volts

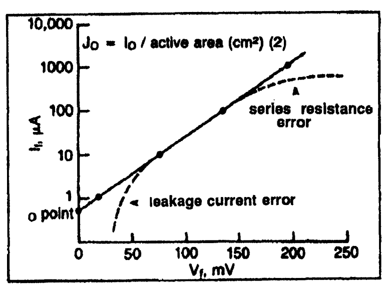
To solve Equation One, the current density J_o (Equation Two) must be found first:

$$J_o = I_o / ACTIVE\ AREA\ (cm^2) \qquad (2)$$

General Instrument provides the active area of its Schottky die in its product literature. If a manufacturer does not supply this information, decapsulating the device under question and measuring it with a precision caliper can provide an approximation of the active Schottky area, assuming 90% of the total chip area is active.

$$\text{Total die area} \times 0.9 = \text{active area} \qquad (3)$$

The calculation of I_o is done graphically (Graph 1). A minimum of three low-current room-temperature forward voltage drop Vf measurements are needed. This data is graphed on semi-log paper (Graph 1) where the vertical axis (log scales) is the current and the horizontal axis (linear scale) is the measured V_f. When these points are graphed, the result should be a true straight line. If the graph curves downward (see the dotted line on the left side of Graph 1), it indicates that the lowest measurement current is being affected by the rectifier's room temperature leakage. In this case, the current level at which the Vf measurements are taken should be increased to "swamp" out the contribution of low level leakage on the measurement. If the current levels are raised excessively, the series resistance of the device in question will influence the measurements. This causes a downward curve as represented by the dotted line on the right side of ***Graph 1.*** Again, the results should yield a true straight line.



Graph 1

Calculation of J_o (current density at zero volts

The point where the line intercepts the vertical axis is the current at zero volts (I_o). J_o is then calculated:

$$J_o = I_o / ACTIVE\ AREA\ (cm^2) \qquad (2)$$

This result is then placed into the first equation:

$$\phi B = (-KT/q) LN (J_o / R^*T^2) \qquad (1)$$

The results of the calculation are usually in the range of 0.6 eV to 0.8 eV. Results well outside this range indicate either a defective rectifier, measurement, or calculation error.

Selecting Efficient Schottky Devices

Normalized graphs of the low (SBL) and high (MBR) barrier height processes are provided. The vertical axis on all graphs is in amperes per square centimeter (A/cm^2). The horizontal axis provides forward voltage drop for the low and high barrier parts. Two additional graphs have the horizontal axis labeled for reverse voltage (Vr) for both the low and high barrier series. The graphs for the low barrier (SBL) series parts have curves for operation at 75 °C, 100 °C and 125 °C.

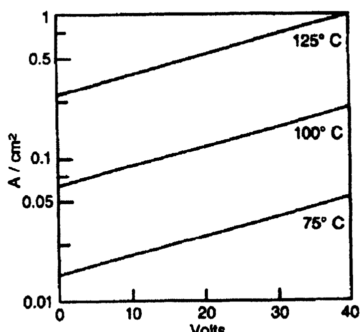


Figure 2

Voltage versus die area leakage barrier heitght = 0.64 volts

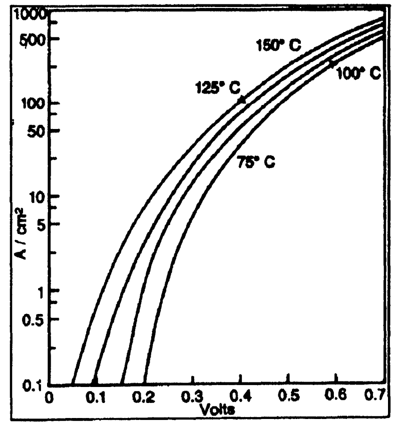


Figure 3

Die area current versus forward voltage drop barrier height = 0.71

These curves may be used in two ways. If the die size, barrier height, temperature and forward current (I_f) are known, V_f can be graphically calculated. Using the leakage curves, and knowing the reverse voltage (V_r) to which the device will be subjected, it is possible to find the leakage current. Conversely, if the circuit parameters are set, the curves will provide the die size in A/cm^2 equations, making it possible to analytically select either a low- or high-barrier-height rectifier for maximum circuit efficiency. Most Schottky rectifiers are used in switch mode power supplies.

To select a Schottky rectifier that yields maximum efficiency, it is necessary to determine the "duty cycle equilibrium point," or the duty cycle point at which both a low- and high-barrier-height part will dissipate precisely the same amount of power:

$$D\,(P_{df}\phi BL) + (1\text{-}D)(P_{dr}\phi BL\,) + =$$

$$D\,(P_{dr}\phi BH + \ (1\text{-}D)\,(D_{dr}\phi BH) \qquad (1)$$

$$P_{dt} = P_{df} + P_{dr} \qquad (2)$$

$$P_{df} \ = I_f \times V_f \qquad (3)$$

$$P_{dr} = I_r \times V_r \qquad (4)$$

D = duty cycle forward conduction

$1\text{-}D$ = duty cycle reverse blocking

I_f = forward current

I_r = reverse current

P_{df} = power dissipation in forward

P_{dr} = power dissipation in reverse

P_{dt} = total power dissipation

V_f = forward voltage drop

V_r = reverse voltage

ϕBL = low barrier height

ϕBH = high barrier height

The following is an example of the use of this equation :

Given the need for a 30-volt Schottky capable of operating at 10 amperes, the choice is between a SBL1040 (ϕBL = 0.64) or a MBR1045 (ϕBH = 0.71). These two devices were chosen for convenience in this example because of their equal die size (0.0477cm^2 active area).

The equilibrium point must be calculated for 75°C, 100°C and 125° C. For demonstration purposes, only the 75°C equilibrium point will be calculated in detail; the other two points are calculated in the same manner. The reverse leakage (I_r) and forward voltage drop (V_f) are derived from **Graphs 1** through **4** using the temperature, die size and ϕ B given above.

For the low-barrier-height SBL1040:

$P_{dr} = V_r \times I_r$ = watts (4)

$30\ V \times (1.9 \times 10^{-3}\ A) = 0.057\ W$

$P_{dr} = I_f \times V_f$ = watts (3) (3)

$10\ A \times 0.46\ V = 4.6\ W$

For the high-barrier-height MBR1045:

$P_{dr} = V_r \times I_r$ = watts (4)--30

$V \times (1.43 \times 10^{-4}\ A) = 4.29 \times 10^{-3}\ W$

$P\ df = I_f \times V_f$ = watts (3)

$10\ A \times 0.565\ V = 5.65\ W$

Solving for the equilibrium point at 75° C:

LOW BARRIER ***HIGH BARRIER***

$(D \times P_{df\phi BL}) + [(1-D) \times P_{dr\phi BL}] =$

$(D \times P_{df\phi BH}) + [(1-D) \times_{dr\phi BH}]$

$(D \times 4.6\ W) + [(1-D)\ 0.057W] =$

$(D \times 5.65W) + [(1-D)0.00429W]$

$0.05271 = 1.1027\ D$

$D = 0.0478$

$D\% = 0.0478 \times 100$

duty cycle equilibrium point, D = 4.78%

Switching loss is assumed to be equal on both sides of the equation and thus is ignored. This procedure is then repeated for 100°C and 125 °C. After calculating the equilibrium point for 100 °C and 125° C, the results are:

TEMP	*DUTY CYCLE EQUIBRIUM POINT %*
75°C	*4.78%*
100°C	*15.93%*
125°C	*52.42%*

The results of these calculations are graphed in Figure 5.To the left of the equilibrium curve, the high-barrier-height

MBR1045 is most efficient; to the right of the equilibrium curve, the low-barrier-height SBL1040 is more efficient. This is easy to understand because the high-barrier-height part exhibits lower reverse power loss and at a low duty cycle more time is spent in the reverse mode.

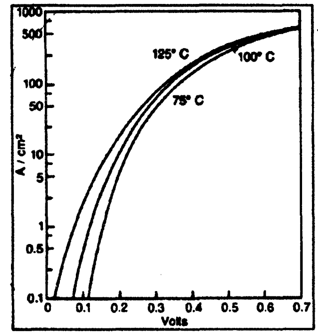


Figure 4

Die area current versus forward voltage drop barrier height = 0.64

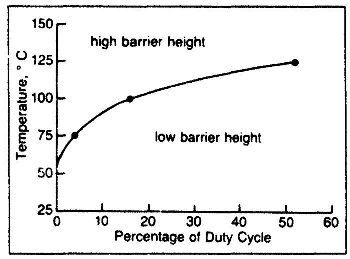


Figure 5

Duty cycle equilibrium point MBR1045 versus SBL1040

With the duty cycle higher than the equilibrium point, the part spends a larger percentage of time in the forward mode, and the low-barrier-height type part has a lower Vf and the forward power losses are reduced.

With knowledge of the application, including expected duty cycle and temperature, it is possible to choose the most efficient Schottky barrier rectifier, constructing a graph similar to Figure 1.

It is thus easy to graph the duty cycle versus temperature, as in Figure 5, and by knowing the application (expected duty cycle and temperature), make the intelligent choice of the most efficient Schottky rectifier for the application in question.

This analysis technique enables the design engineer to make an efficient and cost-effective choice of Schottky rectifier in duty-cycle-based systems. In addition, light has hopefully been shed on the difference in design philosophies between the low- and high- ϕB style of Schottky rectifiers.

SELECTING THE OPTIMUM VOLTAGE TRANSIENT SUPPRESSOR

Although the published data for several transient suppressors may appear similar enough to make the devices seem interchangeable, careful analysis can rule out nearly identical parts whose use could prove disastrous.

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Transient voltage suppressors (TVS) are specialized zener diodes intended to clamp the voltage appearing across a line, thereby preventing transient spikes from damaging sensitive components. They accomplish this conducting when the voltage across the line exceeds the zener-avalanche rating. Because transient voltages can be quite high, suppressors must be able to handle large avalanche currents. This means that care must be taken in the construction of the package and assembly process to ensure that the suppressor can tolerate high energy levels for short periods.

Typical transient voltage suppressors carry peak ratings of 400, 600, 1500 or 5000 watts. These wattages translate to 0.55, 0.80, 2.10 or 7.00 joules of energy during a 1-millisecond period. Avalanche ratings generally range from a few volts to several hundred volts. Key operating parameters include:

◆ ***Breakdown voltage (V_{BR}),*** the voltage at which a given device breaks down in its avalanche mode. This voltage is usually characterized at a test current (I_t) of 1 milliamp and is often specified as a range with minimum (V_{BR} min) and maximum (V_{BR} max) voltages listed.

◆ ***Working peak reverse voltage (V_{RWM}),*** the voltage at which the device's leakage current is measured. This voltage is always at least 10 percent lower than the mimimum breakdown voltage. Suppressors with a breakdown-voltage rating of less than 10 volts can exhibit leakage currents as high as 1 milliamp, but suppressors with higher breakdown ratings typically exhibit leakage currents of 5 microamps or less.

◆ ***Maximum reverse surge current (I_{RSM}),*** the maximum current that the suppressor is guaranteed to withstand without incurring damage. This parameter is usually characterized with a 1-millisecond exponential waveform.

◆ ***Maximum reverse voltage (V_{RSM}),*** also called the maximum clamping voltage, the maximum voltage that can appear across the suppressor when the maximum rated surge current is flowing through it.

◆ ***Maximum breakdown-voltage temperature coefficient (%V_{BR} / ° C),*** the maximum allowable change in the breakdown voltage as a function of the temperature.

Design Criteria

The best way to demonstrate the selection process is through a hypothetical example. In this example, the device to be protected is an integrated circuit, IC_x , which is designed to operate on a nominal rail voltage of 15 volts, and which has an absolute maximum voltage rating of 22 volts. The first step in the selection process is to determine the energy (joules) or power (watts) contained in the surge against which the device is to be protected, and the duration of that surge.

Transients are by definition nonrepetitive, with energy levels that are difficult to ascertain. Moreover, they generally result from an unexpected failure elsewhere in the system or from natural phenomenon such as lightning. Because of this, determining energy content and duration of the surge is the most difficult step in the transient-suppressor selection process.

Some surges, however, are predictable. The surge produced by a solenoid driver is a good example. If the inductance of the coil is known and the load on the solenoid is defined, it is possible to calculate or measure the duration and magnitude of the surge. Whenever possible, a "hands

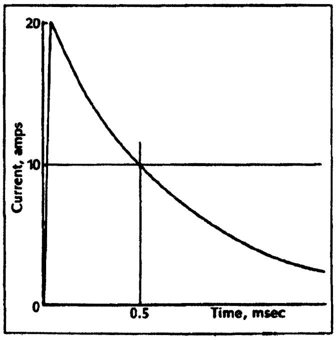


Figure 1

Waveform of an exponential -decay transient pulse with a peak current and a 0.5-millisecond pulse width at the half-peak-current point

on" measurement of the worst-case transient condition should be made. For the sake of discussion, assume that the transient being presented to IC_X has a peak current of 20 amps with a classic exponential decay, as shown in Figure 1, and a duration of 0.5 milliseconds, measured at 50 percent of the peak current.

With this data in hand, the next step is to examine manufacturer's data sheets to find a transient suppressor able to handle the anticipated surge. The breakdown voltage and maximum reverse surge current ratings published in the data sheets are key selection criteria. Since IC_X has a nominal 15-volt operating voltage, the minimum breakdown voltage must be greater than 15 volts. However, since it carries a 22-volt absolute maximum voltage rating, the suppressor's maximum breakdown voltage must be less than 22 volts. The foregoing assumes a relatively stable ambient temperature, such as that usually experienced in an office environment. If the product in which IC_X is used is expected to see wider temperature fluctuations, the minimum breakdown voltage would have to be based on the lowest expected temperature. The resulting voltage would determined by multiplying the difference between the expected temperature and room temperature by the temperature coefficient.

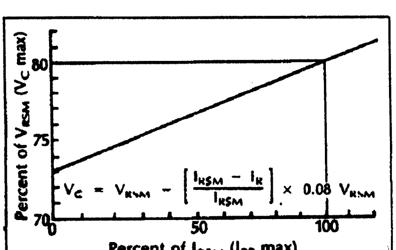
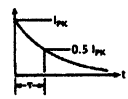
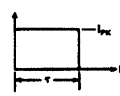
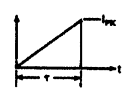
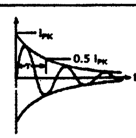
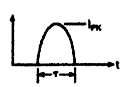


Figure 2

The clamping characateristic of a typical transient suppressor

Waveshape	Equation	K Factor
	$I_{PK}\, e^{-t/1.44\tau}$	1.4
	I_{PK}	1.0
	$I_{PK}\,(t/\tau)$	0.5
	$I_{PK}\sin(\pi t)\, e^{-t/\tau}$	0.86
	$I_{PK}\sin([\pi/\tau]\, t)$	0.637

Energy = $\int_0^\tau V_c\,(t)\; I\,(t)\; \Delta t = K\, V_c\, I$

Figure 3

The energy contained in a transient pulse depends on its wave shape

With the minumum and maximum permissible breakdown voltages in hand, examine the clamping-voltage ratings published in the manufacturer's data sheets to identify suppressors falling within the required range. It is possible that there is no device that falls well within the upper and lower limits. If the device with the closest voltage rating falls about the upper voltage limit, a very close examination of its parameters must be made. Most reputable semiconductor manufacturers apply a one-percent guardband around voltage ratings as a safety margin. In this example, the guardband raises the absolute maximum rail voltage from 22 volts to 22.22 volts.

This small increase may not seem like much, but can make the difference in selecting a transient suppressor.

Selecting the Best Transient Suppressor

Consider a situation in which the only suppressor that comes close to meeting the protection need of IC carries a maximum clamping-voltage rating of 22.5 volts. The actual voltage at which the suppressor will clamp depends on the actual current flowing through it, as shown in Figure 2, and can be predicted using the following equation:

$$V_{RSM} - [(I_{RSM} - I_R)/(I_{RSM})] \times (0.08)V = V_C$$

For the sake of discussion, consider the General Instrument type P6KE16A transient suppressor, which carries a 22.5-volt maximum clamping-voltage rating.

$$22.5 - [(27 - 20)/27] \times 0.08\ (22.5) = 22.03 \text{ volts}$$

Although the resulting clamping voltage is still greater than the 22-volt absolute maximum voltage rating carried by IC x, it is well within the 22.22-volt rating provided by the one-percent guardband. Thus, although carrying a maximum clamping-voltage rating 0.5 volt higher than the maximum voltage rating carried by IC_X, this suppressor can be safely used in this application.

The same, however, cannot be said of all 22.5-volt suppressors. Another device in the same family, the P4KE16A, has slightly different current ratings and yields considerably different results:

$$22.5 - [(19 - 20)/19] \times 0.08\ (22.5) = 22.59 \text{ volts}$$

Clearly, with a 22.59-volt clamping voltage, this device cannot be used because it exceeds the maximum clamping-voltage rating plus guardband of IC_X.

The next step in the selection process is to verify the transient suppressor's power rating. There are two approaches that can be taken:

1. Since the waveform of the transient is a classic exponential decay with a 0.5-millisecond duration at the half-peak current point, a graphic plot of peak power versus time can be used. This graph is often published in manufacturer's data sheets and if it is available for the device under consideration, one need only compare the anticipated current against the current shown in the graph. Using the peak-power versus time graph published for the P6KE series suppressors, it can be seen that with a 0.5-millisecond time-constant decay, a P6KE device can handle a peak power of 792 watts. Using Ohm's law and a 22-volt clamping voltage, this translates to:

$$I = P/V = 792/22 = 36 \text{ amps}$$

Since the anticipated peak reverse current with a 0.5-millisecond time constant is 20 amps, it is clear that a P6KE device can easily withstand the anticipated peak power of the surge.

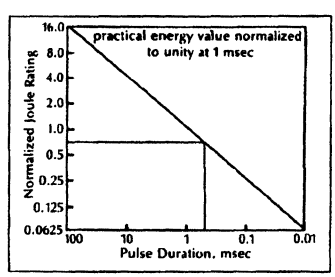
2. Calculate the energy in joules contained in the transient and compare it to the maximum energy rating of the transient suppressor. The energy in the transient, of course, depends on its wave shape, as shown in Figure 3. The amount of energy a given transient suppressor can handle, on the other hand, depends on its energy rating and the duration of the pulse, as shown in Figure 4. In this example, the waveform has an exponential shape with a 20-amp peak current and a 0.5-millisecond half-peak-power point. Using these data, the energy calculations are as follows:

$$E = V_C(t) \times I(t) \times A(t) - KV_C \times I \times \tau$$

where, in this example,

$$V_C = 2V$$
$$I = 20A$$
$$\tau = 0.5 \text{ msec}$$
$$K = 1.4 \text{ (from Figure 3)}$$
$$\text{Thus } E = 1.4 \times 22 \times 20 \times (0.5 \times 10^{-3}) = 0.308J$$

The maximum single-pulse energy rating for a P6KE series is 0.83 joules for a pulse of 1 millisecond duration. Referring to Equation 4, the energy rating for a 0.5-millisecond pulse becomes 0.7 x 0.83 J, or 0.581 joules. Clearly, then, a P6KE device can easily handle the 0.308-joule energy contained in the anticipated transient pulse.



Figue 4

Enery-handling capacity of a transient volatage suppressor as a function of the transient's duration

Conclusion

The above example assumes a non-repetitive transient, or, if repetitive, each pulse is separated from the others by an interval of least 20 seconds. Under these conditions, however, the procedures outlined provide a straightforward and reliable method of selecting the best transient voltage suppressor for a given application.

SUPERECTIFIER DESIGN BRINGS NEW LEVEL OF RELIABILITY TO SURFACE MOUNT COMPONENTS

By: Joseph M. Beck, Senior Applications Engineer

Surface Mount technology is here to stay. After years of plodding through cautious experimentation, many manufacturers now have fully automated production lines in place. These production lines place circuit components at speeds that until recently would have been unthinkable. Finally being realized are the benefits of what was once considered a "Voo Doo" manufacturing technology.

Component manufacturers have learned a great deal over the past several years as well. Initially most surface mount components were nothing more than retrofit, lead formed versions of their conventional leaded, through-hole counterparts. For most manufacturers this was the quickest and least costly method of "developing" a line of surface mountable components.

It was soon discovered, however, that this approach to component assembly would be unacceptable. Surface mount technology placed new demands upon circuit components. Electrically, the same power was being required from smaller and smaller packages. Package geometries and dimensions became critical in relation to pick and place equipment and circuit board mounting. In addition, the construction of these devices needed to be such that they would suffer no ill effects when subjected to the rigors of the new assembly environment that surface mount technology presented. Encountered in this environment was extremely high-speed pick and place equipment, component adhesive attachment, immersion in molten solder and rapid temperature changes associated with reflow soldering processes. All this meant that component manufacturers would have to re-think their approach to device fabrication. Yes, components needed to be smaller: but they also needed to be more reliable.

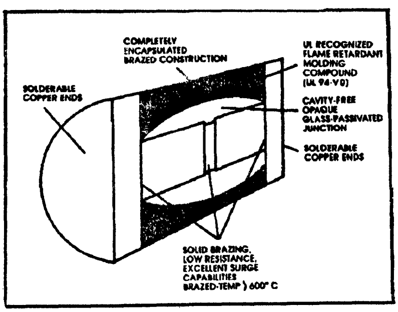


Figure 1 *SUPERECTIFIER construction*

At General Instrument, the development of new surface mount components is not something that is taken lightly. It is realized that in order to produce a truly reliable surface mount product one must first consider all relevant aspects of the technology. Only when this process has been completed can a product be developed which is surface mountable, and inherently reliable.

Surface Mount Superectifier®

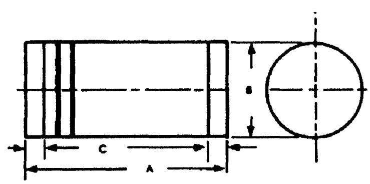
General Instrument manufactures surface mount rectifiers in the popular MELF (metalized electro face) package style. These devices, denoted as SUPERECTIFIERS, are available with a wide variety of electrical characteristics. The main difference, however, between these rectifiers and other MELF style devices lies in the area of device construction. Figure 1 shows the unique construction employed in the manufacture of the SUPERECTIFIER.

The construction of the SUPERECTIFIER does not internally utilize any soft solders. All interconnects are accomplished by the use of a high temperature brazing process (600°C). Hence, any chances of solder void occurrence or internal solder reflow during circuit board processing are eliminated. In addition, the silicon rectifier junction is completely encapsulated by a cavity-free glass. This glass encapsulation ensures that the rectifier junction is hermetically isolated from humidity and other harmful environmental intrusions.

The resultant sub-assembly could be considered to be a fully functional surface mount rectifier. In fact, many component manufacturers offer MELF devices which have this appearance; namely, an oblong glass bead with two protruding metal end terminations. However, in order that the device have a uniform shape, the General Instrument sub-assembly is over molded with epoxy. The result is a smooth, perfectly cylindrical package.

Two Sizes

Two different size SUPERECTIFIER MELF packages are available. General Instrument designation GL34 and GL41 are for 0.5 ampere and 1.0 ampere rectifier types, respectively. JEDEC mechanical specifications DO-213AA and DO213AB detail the dimensions of the GL34 and GL41, respectively. Figure 2 gives these package dimensions.



	GL34 DO-213AA		GL41 DO-213AB	
DIM.	MIN	MAX	MIN	MAX
A	.130	.146	.189	.205
B	.063	.067	.094	.105
C	.016	.022	.016	.022

NOTE: ALL DIMENSIONS IN INCHES

Figure 2

Dimensional outline

MANUFACTURING CONSIDERATIONS

Pick and Place--Surface mount SUPERECTIFIERS are supplied on tape and reel in accordance with JEDEC standard RS-481A. Removal of the devices from the embossed carrier tape is easily accomplished by all vacuum pick-up mechanisms which utilize a compliant tip. The compliant tip will form a tight seal around the cylindrical MELF design once contact with the device has been made. This is not always the case, however, when MELF devices with a non-uniform package outline are used. Figure 3 shows two such MELF outlines. Figure 3A is a device with a concave package outline. This type of package is difficult to consistently remove from the carrier tape as the exact position of pick-up on the component body is critical. Figure 3B is that of the most common form of MELF packaging. This type of construction utilizes a non-transparent glass body which is

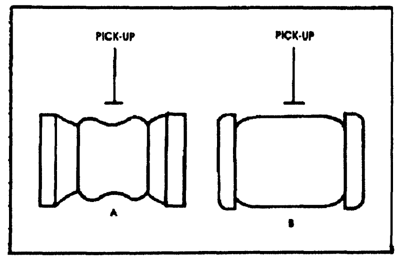


Figure 3

Non-uniform MELF outlines

often characterized by pitting and surface irregularities. The irregularities make it difficult for a vacuum pick-up to form a tight seal around the device body. The result is that components are often dropped onto the production room floor instead of being placed on the targeted circuit board. General Instrument solves these problems with a smooth surface and perfectly cylindrical package outline.

Bonding Pads -The geometries and dimensions of bonding pads are critical to the proper mounting, soldering and overall performance of all surface mount components. Figure 4 gives the recommended pad layouts for GL34 and GL41 MELF outlines. Use of these pad layouts will be primary assistance in the following three areas:

◆ Surface mount technology by nature dictates that smaller component packages dissipate the same power as their larger through-hole counterparts. Hence, adequate bonding pad land area is required in order to aid the component package in the dissipation of this power. The recommended pad layouts provide the needed land area for GL34 and GL41 devices to operate safely at their maximum ratings.

◆ Component adhesive attachment allows the package to shift slightly from its original placement position prior to adhesive curing. In addition, most adhesives tend to spread during the curing process which also may allow package misalignment. The geometry of the recommended pad layouts will tend to minimize such movements. This assumes, of course, that the package was originally positioned correctly.

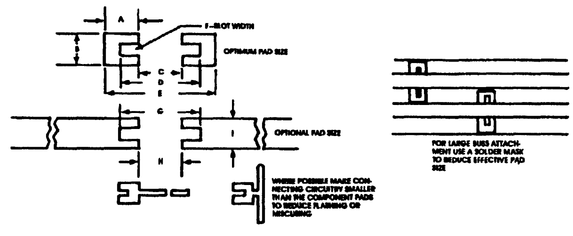
◆ During reflow soldering, solder surface tension can have a significant effect on the movement and final position of components in relation to their bonding pads. The recommended pad layouts will actually make use of the solder surface tensions to bring MELF devices into alignment with the two bonding pad land areas. This means that MELF devices which are initially placed in slight misalignment on their bonding pads will reposition themselves during solder reflow until a position of alignment is reached.

Soldering--Surface mount SUPERECTIFIERS are capable of withstanding all present forms of wave and reflow soldering. The following guidelines should be followed, however, in order to ensure overall package integrity:

- ◆ GL34--Maximum temperature at device and terminations not to exceed 400°C for 5 seconds. Complete device submersible temperature not to exceed 260°C for 10 seconds in solder bath.
- ◆ GL41--Maximum temperature at device end terminations not to exceed 450°C for 5 seconds. Complete device submersible temperature not to exceed 265° C for 10 seconds in solder bath.

General Instrument's surface mount SUPERECTIFIERS combine superb electrical performance with unmatched levels of reliability. The construction of the SUPERECTIFIER virtually eliminates all problems associated with high-speed pick and place of MELF components. In addition, SUPERECTIFIER construction ensures that performance and reliability are never compromised when the device is subjected to the demands of surface mount assembly techniques or when other seemingly harmful environments are encountered. Quite simply, no other surface mount rectifier comes close to offering all the advantages of the SUPERECTIFIER MELF.

All surface mount components are small and save space. However, performance and reliability should never be considered necessary trade-offs in order to utilize surface mount technology. Use of General Instrument surface mount SUPERECTIFIERs requires no such sacrifices; no trade-offs.



DIMENSION	GL34	GL41
A	.069	.100
B	.063	.100
C	.069	.100
D	.138	.200
E	.207	.300
F	.016	.025
G	.138	.200
H	.035 to .080	.050 to .125
I	.048 min	.075 min

NOTE: ALL DIMENSIONS IN INCHES

Figure 4

Recommended pad layout

SURFACE MOUNT SUPERECTIFIER AVAILABILITY:

PART NUMBER	CURRENT(A)	VOLTAGE(V)	TRR(ns)	PACKAGE
GENERAL PURPOSE				
GL34A-M	0.5	50-1000	—	GL34
1N6478-84	1.0	50-1000	—	GL41
GL41A-M	1.0	50-1000	—	GL41
FAST RECOVERY				
RGL34A-M	0.5	50-1000	150-500	GL34
RGL41A-M	1.0	50-1000	150-500	GL41
ULTRA FAST RECOVERY				
EGL41A-G	1.0	50-400	50	GL41
EGL34A-G	0.5	50-400	50	GL34

Protection of Power Supply and Data Lines Via Thyristor Surge Suppressor and TVS Devices

by Jon Schleisner

The Power Semiconductor Division of General Instrument (PSD), a mainstay in the arena of axial rectifiers, Schottky diodes, TVS, and surface mount technology, has extended its product line. PSD has entered the exciting and growing market of solid state "crowbar" type protection products.

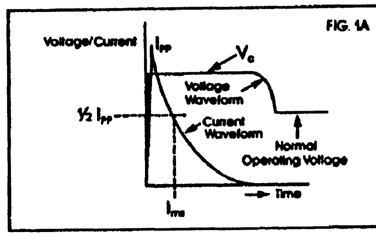
Protection of power supply and data lines against transients is an art still in evolution. The advent of microprocessor- driven telephone systems based on sensitive electronics (instead of charcoal compressive microphones) has changed the criteria for protection. MOVs, gas tubes, and carbon blocks have been the staple components for protection schemes for decades.

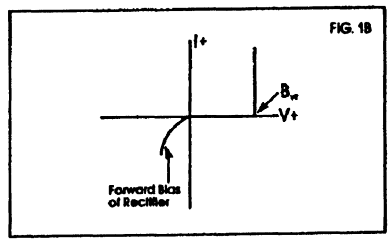
These older protection devices have several advantages and disadvantages versus their solid state counterparts. The common advantages are low cost and the ability to absorb tremendous amounts of energy. The disadvantages include slow turn-on times, lack of totally controllable breakover (gas tube) and avalanche (MOV, carbon block) voltages, and an inherent wear-out mechanism (use them and you lose them).

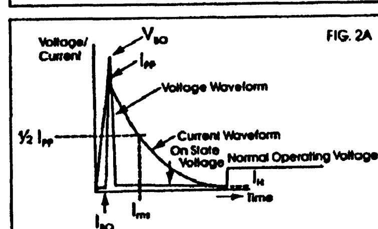
The advantages of the General Instrument's TVS and Thyristor Surge Suppressor devices are speed of response (pico- and nanoseconds), control of avalanche (Zener) voltage, and breakover voltage. Solid state protectors do not shift in parametric value unless stressed beyond their rated limits and driven to destruction The disadvantage of solid state protection are generally lower power handling capacity and higher costs.

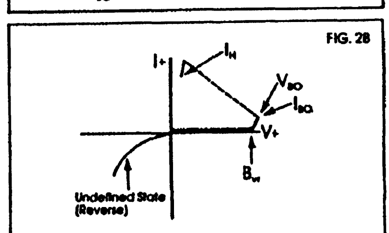
The cost factor is rendered moot if the slow protection device (MOV or gas tube) acts too slowly to protect the system to which it is dedicated.

The power limitations can be overcome. to a great degree, with some imaginative engineering. Thyristor Surge Suppressors and TVS devices are specified differently. Table 1 lists all the pertinent TVS and Thyristor Surge Suppressor device parameters for comparison. While both devices are used for transient protection, their electrical behavior is quite different.









TVS B_{VR} - The voltage at which the part goes into reverse breakdown at a specified test current, usually 1 or 10 milliamps.

Thyristor Surge Suppressor B_{VR} - The voltage at which the Thyristor Surge Suppressor device begins to conduct current, equivalent to the TVS BVR.
Thyristor Surge Suppressor V_{BO}- The voltage at which, when reaching the specified IBO, causes the device to "fire" or "fold back" in the low-voltage forward mode.
Thyristor Surge Suppressor I_{BO} - The required current at VBO that causes the devices to "break over or fold back".
TVS V_{RSM} - The maximum specified voltage at Ipp, the TVS max clamping voltage.
TVS I_{RSM} - The max rated current to test the VC parameter.
Thyristor Surge Suppressor Vt - The voltage drop across the device at the specified It, after the device folds back.
It- The specified current at which Vt is tested.
I_R - This is a leakage spec with VR set to less than BVR or VBR on TVS or Thyristor Surge Suppressor devices.
Thyristor Surge Suppressor IH - This is a spec. that is unique to "Thyristor Surge Suppressor" technology. After the device has been "fired," when the current starts to decay and passes below a critical value (usually several hundred milliamps), the device turns off and resumes its normal high impedance state

There is no TVS equivalent to IH (holding current). This function is important; it places certain critical limitations on application of the Thyristor Surge Suppressor device. Consider a power supply output with a 1-amp current limit. If this line is protected with a Thyristor Surge Suppressor device with an IH=500mA, problems will arise. If the is fired, it will never shut off. The available current from the power supply is greater than IH, hence the part will stay turned on until power is momentarily removed. This classic condition requires attention whenever designing in a Thyristor Surge Suppressor device in a protection system.
This aspect of Thyristor Surge Suppressor device performance makes it ideal for protection of data lines from lightning and other true transient voltage conditions. Typical data lines have current limiting set rather low. The telephone system in North America has a current limit of 250mA, so maintaining IH250mA will ensure device turn-off after the passage of the transient.

Fig. 1 & 2 highlight differences in TVS and Thyristor Surge Suppressor device performance.

The following figures provide an explanation of circuit applications:

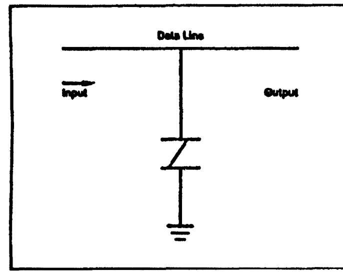


FIGURE 1.

The simplest and most direct application of a Thyristor Surge Suppressor device across a medium to slow data line. If a positive transient strike exceeds VBO with sufficient IBO, the Thyristor Surge Suppressor device will fire, absorbing the transient.

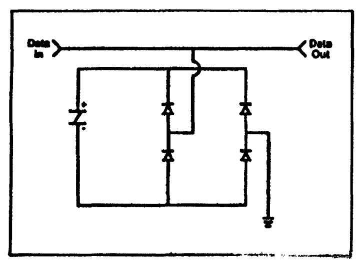


Figure 2

The same approach as Figure 1 with the addition of steering diodes to absorb bidirectional transients. Most transients are bidirectional in nature.

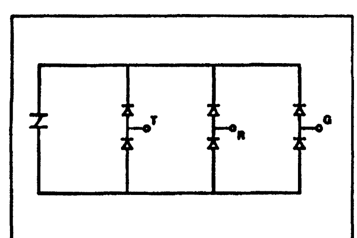


Figure 3

This is a further extension of Figure 2. With the terminals marked T (Tip), R (Ring), and G (Ground), this becomes the classic telephone line protection scheme.

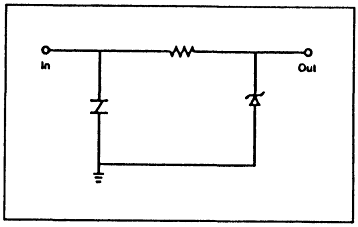


Figure 4

This is data line protection where the turn on transient approaching VBO (225 -260V) cannot be tolerated. The resistor limits the current through the TVS to VBO - VC/R, the duration of this pulse is typically less than 1 usec, so a small TVS can be used.

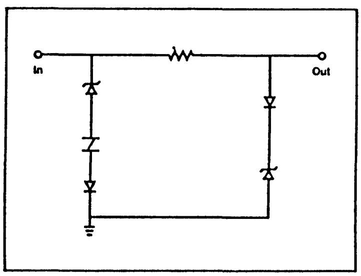


Figure 5

Similar to Figure 4, but designed to have reduced parasitic capacitance across the data line.

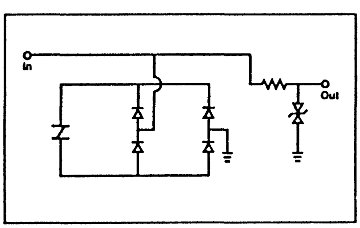


Figure 6

This circuit is a bidirectional version of Figure 4 with the low capacitance benefits of Figure 5.

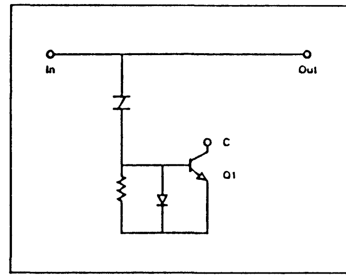


Figure 7

This is a power supply protection circuit. The open collector of Q1 is connected to the power source at the input and should be used to shut off the power supply output for a few milliseconds. This permits the current through the Thyristor Surge Suppressor device to fall below IH before restart begins.

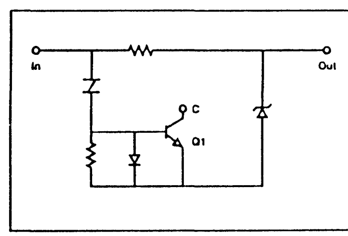


Figure 8

This circuit is equivalent to Figure 7 with the addition of TVS clamp at the output. This prevents VBO from appearing at the protection circuit's output.

General Instrument's Power Semiconductor Division will support your design efforts and assist in applying these new solid state protection devices. More protection performance for your dollar– that is our goal.

Using Rectifiers In Voltage MultiplierCircuits

By Joseph M. Beck
Sr. Applications Engineer

Systems designs frequently call for a high voltage, low current power source that needs only minimal regulation. A few familiar examples are CRT circuits, electrostatic copiers, and photoflash applications. Required voltages typically range from 10 to 30KV and the current demand rarely exceeds 5 milliamperes.

When your design requires this type of power source, you may want to consider a voltage multiplier circuit. They are inexpensive, easy to design, versatile, and can provide virtually any output voltage that is an odd or even multiple of the input voltage.

This article explores the basic operation of multiplier circuits and discusses guidelines for electronic component selection. Since General Instrument Corporation is the industry's leading manufacturer of rectifier products, we will place special emphasis on selecting rectifier diodes for multiplier circuits.

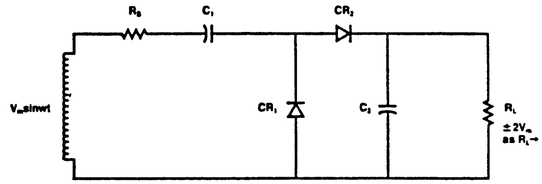


Figure 1A

Basic multiplier circuits.Half-wave Voltage Doubler

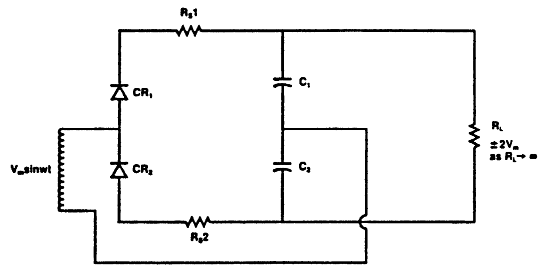


Figure 1B

Basic multiplier circuits.Full-wave Voltage Doubler

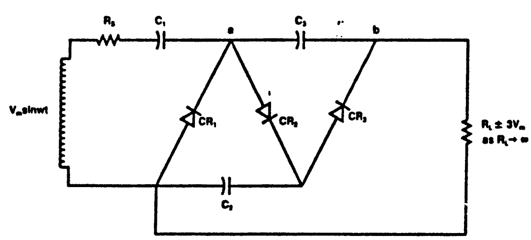


Figure 1C

Basic multiplier circuits.Half-wave Voltage Tripler

BASIC OPERATING PRINCIPLES

Most voltage multiplier circuits, regardless of their topology, consist chiefly of rectifiers and capacitors. Figure 1 shows three basic multiplier circuits.

The operating principle of all three circuits is essentially the same. Capacitors connected in series are charged and discharged on alternate half-cycles of the supply voltage. Rectifiers and additional capacitors are used to force equal voltage increments across each of these series capacitors. The multiplier circuit's output voltage is simply the sum of these series capacitor voltages.

A wide variety of alternating signal inputs are used with multiplier circuits. The most popular are sine and square wave inputs. For simplicity, this discussion will be limited to sine wave inputs; the calculations become somewhat more involved with asymmetrical signals.

Voltage Doublers - Figure 1A shows a half-wave voltage doubler circuit. It functions as follows. On the negative half-cycle of the input voltage, capacitor C1 charges, through rectifier CR1, to a voltage of Vm. On the positive half-cycle, the input voltage, in series with the voltage of C1 (Vc1=Vm), charges capacitor C2

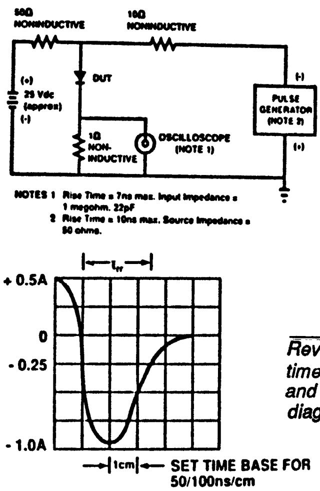


Figure 2
Reverse recovery time characteristic and test circuit diagram

through rectifier CR2 to the desired output voltage of 2Vm. Capacitor C1, which aides in the charging of capacitor C2, sees alternating current ("AC Cap") while C2 sees only direct current ("DC cap"). In this circuit, the output voltage and the input signal have the same ripple frequency.

The same operating principle extends to the full-wave voltage doubler circuit of figure 1B. On the negative half-cycle of the input voltage, capacitor C2 is charged through rectifier CR2 to a voltage of Vm. On the positive half-cycle, capacitor C1 is also charged to a voltage of Vm, through rectifier CR1. The series voltages of capacitors C1 and C2 (Vc1=Vc2=Vm) yield the desired output voltage: 2Vm. In this case, capacitors C1 and C2 are "DC capacitors"; they see no alternating current. The output ripple frequency of the full-wave doubler is twice that of the input signal.

Voltage Tripler - Higher output voltages are possible through the use of a half-wave voltage tripler circuit, shown in figure 1C. This circuit operates as follows. On the negative half- cycle of the input voltage, capacitor C1 charges through rectifier CR1 to a voltage of Vm. On the positive half-cycle, the input voltage, in series with the stored voltage on C1 (Vc1=Vm), charges capacitor C2 through rectifier CR2 to a voltage of 2Vm. On the next negative half-cycle, the charge on C1 is replenished. At the same time, the input voltage, in series with the stored voltage on C2 (Vc2=2Vm), charges capacitor C3 through CR3 to a voltage of 2Vm (Vc3=Vb-Va=(Vm +Vc2)-Vc1=2Vm). Vc1 and Vc3, in series, provide the output voltage of 3Vm. In this case, the output ripple frequency is equal to that of the input signal.

Although half-wave and full-wave multiplier circuits can provide equivalent output voltages, there are some fundamental differences that should be considered. First, the full-wave circuit has the advantage of higher output ripple frequency (twice that of the half-wave circuit). In addition, the full-wave circuit provides better voltage regulation than the half-wave circuit, since the latter relies upon one capacitor (C1 in figure 1A) to provide the charging energy to a single DC load capacitor (C2 in figure 1A). The full-wave circuit, however, requires that the secondary side of the transformer be capable of withstanding high voltages (approximately 1/2 of the output voltage). For this reason, the half-wave multiplier is usually the preferred circuit when high voltage outputs (Vo=kilovolts) are required.

DESIGN GUIDELINES

Capacitor selection - The size of capacitors used in multiplier circuits is directly proportional to the frequency of the input signal. Capacitors used in off-line, 60Hz applications are usually in the range of 1.0 to 20uF while those used in higher frequency applications, say 10KHz, are typically in the range of .02 to .06uF. In practice, it is usually easier, and less costly, to use the same large capacitance value for all capacitors, both "AC" and "DC" type. The overall capacitive reactance of the circuit must be considered, however, to determine the largest permissible value.

The voltage rating of capacitors is determined solely by the type of multiplier circuit. In the half-wave doubler circuit of figure 1A, C1 must be capable of withstanding a maximum voltage of Vm, while C2 must withstand a voltage of 2Vm. In the full-wave doubler circuit of figure 1B, both C1 and C2 must withstand voltages of Vm. The half-wave voltage tripler of figure 1C requires C1 to withstand a voltage of Vm, and both C2 and C3 to withstand voltages of 2Vm. A good rule of thumb is to select capacitors whose voltage rating is approximately twice that of the actual peak applied voltage. For example, a capacitor which will see a peak voltage of 2Vm should have a voltage rating of approximately 4Vm.

Rectifier Diode Selection

Several basic device parameters should be considered:

Repetitive Peak Reverse Voltage (Vrrm) - Repetitive peak reverse voltage is the maximum allowable instantaneous value of reverse voltage across the rectifier diode. Applied reverse voltages below this maximum value will produce only negligible leakage currents through the device. Voltages in excess of this maximum value, however, can cause circuit malfunction --- and even permanent component damage --- because significant reverse currents will flow through the device. For example, General Instrument's GP02-40 rectifier diode has a peak reverse voltage rating (Vrrm) of 4,000 volts, maximum. Applied reverse voltages of 4KV or less will produce a maximum reverse leakage current, I_R, of 5 microamperes through the device when operated at room temperature (25 ° C). In most cases, this leakage current is considered negligible, and the device is said to be completely blocking (I_R=0).

In the case of the three circuits of figure 1, the maximum reverse voltage seen by each rectifier diode is 2Vm. So devices must be selected with reverse voltage (Vrrm) ratings of at least 2Vm.

Reverse Recovery Time (trr) - In general terms, reverse recovery time is a measure of the time needed for a rectifier diode to reach a state of complete blocking (I_R=0) upon the application of a reverse bias. Ideally, this time should be zero. In reality, however, there's a finite period of time in which a stored charge at the diode junction must be "swept away" before the device can enter its blocking mode. This stored charge is directly related to the amount of forward current flowing through the device just prior to the application of the reverse bias. Fortunately, since operating currents are very low in multiplier circuits, reverse recovery times are kept to a minimum. Nevertheless, trr plays an important role in multiplier design.

When selecting rectifier diodes, the frequency of the input signal to the multiplier network must be considered. For symmetrical signal inputs, the device chosen must be capable of switching at speeds faster than the rise and fall times of the input. If the reverse recovery time of the rectifier is too long, the efficiency and regulation of the circuit will suffer. In the worst case, insufficient recovery speeds will result in excessive device heating, as reverse power loses in the rectifier become significant. Continued operation in this mode usually results in permanent damage to the device.

The reverse recovery time (trr) specification is very dependent upon the circuit and the conditions being used to make the measurement. Several industry standard trr test circuits exist (figure 2 is the test circuit used for the GP02-40). Therefore, it's very important to note which test circuit is being referenced, as the same device may measure differently on different test circuits. Furthermore, the trr specification should be used for qualitative, not quantitative purposes, since conditions specified for trr measurement rarely reflect those found in actual "real life" circuit operation. The trr specification is most valuable when comparing two or more devices that are measured on the same circuit, under the same conditions.

Figure 3 shows the relationship between forward current and trr in the GP02-40. As you can see, decreasing current flow in the multiplier circuit makes it possible to use higher input frequencies. An increase in current flow has the opposite effect. Ideally, the multiplier network load should draw no current.

Peak Forward Surge Current (Ifsm) - A peak forward surge current rating is given for most rectifier diodes. Most often, this rating corresponds to the maximum peak value of a single half- sine wave (50 or 60Hz) which, when superimposed upon the devices rated load current (JEDEC method), can be conducted, without damage by the rectifier. This rating becomes important when considering the large capacitance associated with multiplier circuitry.

Surge currents can develop in multiplier circuits, due to capacitive loading effects. The large step-up turns ratio between primary and secondary of most high voltage transformers causes the first multiplier capacitor (C1, secondary side) to be reflected as a much larger capacitance into the primary. For example, a transformer with a turns ratio of 25 will cause a 1.0 uF capacitance to be reflected into the primary circuitry as a capacitance of (1.0)(25) uF, or 625uF. At circuit turn-on, large currents will be developed in the primary side as this effective capacitance begins charging.

On the secondary side, significant surge currents can flow through the rectifiers during initial capacitor charging at turn-on. The addition of a series resistance (Rs in figure 1) can greatly reduce these current surges, as well

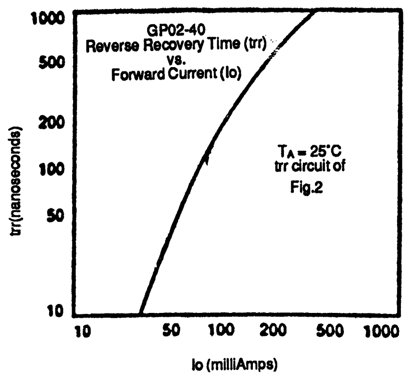


Figure 3

Trr as a function of forward current

as those in the primary circuitry. For example, the GP02-40 has a forward surge rating, Ifsm, of 15 amperes. Considering a maximum secondary voltage of 260 Vrms, 60Hz, the calculation of Rs is as follows:

$$RS \geq Vpeak/Ifsm \quad eq.1$$
$$RS \geq (1.41)(260)/15$$
$$RS \geq 24.4 \text{ ohm}$$

Other Parameters - Of lesser significance are the forward current rating, Io, and maximum forward voltage, Vf.

Forward current, Io - As stated earlier, in the ideal multiplier configuration the load will draw no current. Ideally, the only significant current flow through the rectifiers occurs during capacitor charging. Therefore, devices with very low current ratings (hundreds of milliamperes) can be used. It must be noted, however, that the forward current and forward surge current ratings are related, since both are a function of silicon die area. Generally speaking, devices with a high surge current rating, Ifsm, will also have a high forward current, Io, rating, and vice versa.

Forward Voltage, Vf - In practice, the forward voltage drop, Vf, of the rectifiers does not have a significant effect on the multiplier network's overall efficiency. For instance, the GP02-40 has a typical forward drop of 2.0 volts when measured at a current of 100 milliamperes. A half wave doubler with an 8KV output will have less than .05 percent (2x2V/8KV) loss in efficiency due to the forward voltage drops.

HIGHER ORDER CASCADE MULTIPLIER

Still higher voltages are possible by using the cascade multiplier circuit shown in figure 4. The output voltage is calculated as:

$$V_o = (n)(V_m), \text{ as } I_L \text{ -- } 0 \quad eq.2$$

where n = number of capacitors or diodes, assuming equal value capacitors, ideal diodes and symmetrical signal input.

In theory, one can obtain any incremental output voltage increasing the value of n. In practice, however, voltage regulation and efficiency become increasingly poor as n increases. The potential for voltage arcing must also be considered as the value of n increases, and when higher output voltages are required. Careful mechanical design can minimize arcing, to a large extent.

From a pure circuits standpoint, voltage multipliers are relatively easy to design. The selection of circuit components, however, is one facet of the "overall design" that should not be taken for granted or trivialized. Careful consideration of all component parameters is the only way to ensure both reliable and predictable circuit performance. Put another way, ideal circuits require ideal circuit components.

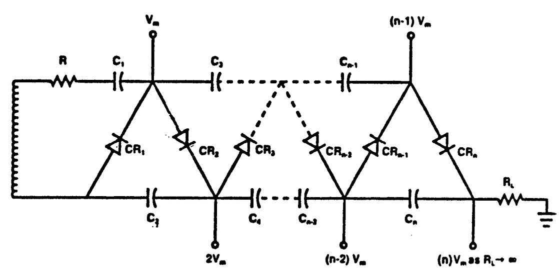


Figure 4

Cascade multiplier

To find the ideal rectifier for your voltage multiplier, consult the ***General Instrument Power Semiconductor Division Data Book. You can obtain a copy by phoning 516-933-3165, or by writing to General Instrument Corp., Power Semiconductor Division, 600 West John Street, Hicksville, NY 11802.***

Transient Voltage Suppressors Ideally Suited for Automotive Applications or Harsh Environments

Gloria M. Luna
Automotive Applications Engineer

The combination of durability and high temperature performance has come together in the form of General Instrument's new, patented PAR (Passivated Anisotropic Rectifier)* process. Transient voltage suppressors produced by this process exhibit high temperature reverse bias stability, excellent transient energy capability, and low dynamic impedance, and are ideally suited for the harsh environments of automotive applications. In a standard diffused junction process, there are several conditions present that could affect the integrity of a device. These conditions become critical to the performance of the device as the junction temperature is increased and the device is stressed to the limits of its operation. They include the presence of a high field at the surface of the junction when a voltage is applied. The electric field (V/cm) that occurs over the depletion layer of a device determines the voltage capability of the device:

$$E(x)= \frac{dV(x)}{dx}$$

This field is not only present in the bulk of the device but also at the surface. When this electric field sees ionic contaminants on top of the surface and along the edge of the die, the contaminants will ionize and the resulting charge will distort the original field. This distortion can increase local leakage current and cause localized breakdown as well as thermal runaway. By growing an oxide directly on the surface of the junction layer, these contaminants can be eliminated. In addition, by employing a positive bevel angle construction, the field at the surface would be diminished to a point where it could not contribute to device degradation. General Instrument engineers have combined these features in a process that provides reliable devices under the high temperature conditions of the automotive environment as well as one that lends itself to state-of-the-art semiconductor manufacturing processes. Thus came the development of the PAR process.

*patented by General Instrument

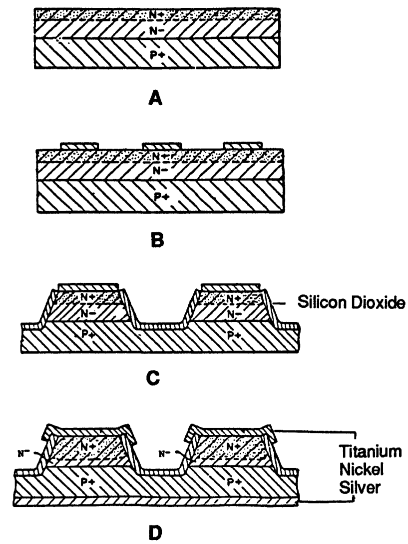


Figure 1

PROCESS TECHNOLOGY

As illustrated in Figure 1(A), we begin with a P+ device and an N- surface layer. We then diffuse in a shallow N+ layer, deposit and subsequently etch a silicon nitride layer that functions as a mask as shown in Figure 1(B). The resulting pattern is then anisotropically etched to form a mesa structure on the top side of the wafer. By utilizing this anisotropic process we are able to achieve a uniform 45 degree angle all around each die. We oxidize the silicon surface where there is no nitride, which results in a grown silicon dioxide layer that is ten times as thick as the silicon nitride. This oxide layer forms around the mesas but not on the original nitride as shown in Figure 1(C). As the N+ layer is driven deeper into the junction, a phenomenon occurs which results in a curvature between the N+ and the N- surface layers as illustrated by Figure 1(D). This curvature is essential in achieving higher breakdown voltages. The final step includes the removal of the top silicon nitride layer and the sintering of a metalization layer composed of titanium, nickel, and silver deposited on the top and bottom surfaces. This is also illustrated in Figure 1(D).

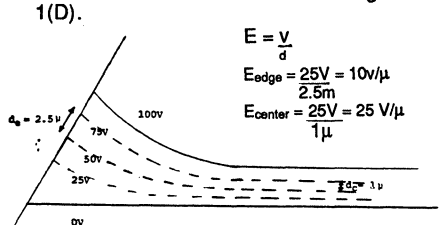


Figure 2(A)

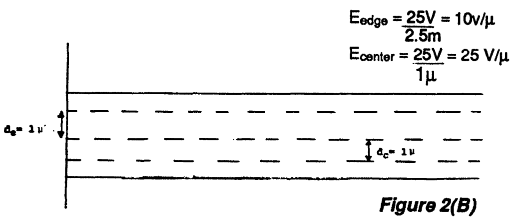


Figure 2(B)

This process is notable for the following reasons:

1. Reverse current measurements remain stable and uniform.

2. Complete stability during high temperature reverse bias and thermal cycling

3. Low electrical contact resistance.

This process results in several important features unique to the PAR construction. First, particle contamination is virtually eliminated by the use of a grown oxide to passivate the junction. Second, by utilizing a positive bevel angle construction, we are able to lower the field at the surface. Due to the fact that the reverse breakdown voltage of a device is determined by the width of the high ohmic region, the curvature of the N+/N- junction becomes an important design criteria in obtaining higher breakdown voltages at the surface of the silicon. This promotes a breakdown along the bulk of the junction rather than at the edge. As illustrated in Figure 2(A), the curviture of the junction results in an increase in the distances of the equipotential lines at the surface. By calculation, all of the breakdown occurs at the bulk of the device rather than at the edge because the field at the edge does not excede the critical value of the layers of material outside of the silicon near the junction (greater than 10V/u). In contrast, the equipotential lines for a standard diffused junction device are illustrated in Figure 2(B). With the breakdown occurring at the edge of the junction, the incidence of high leakage and localized breakdown associated with field distortion is increased, particularly when the device is exposed to extreme environmental and operating conditions. In addition, this tailored junction affords the following advantages:

1. By having the breakdown occur over the large bulk area of the device, large energy surges can be safely handled without damage or deterioration to the device.
2. By modifying the edge of the device, the results under high temperature reverse bias are excellent.

AUTOMOTIVE TRANSIENTS

Electronic devices that operate in the automotive environment are subjected to very extreme conditions. Temperature, humidity, exposure to various liquids, vibration, voltage changes, and surge voltages are just some of the factors to be considered in the automotive environment. Temperatures can rise to as high as 200 degrees C in the engine compartment and as low as -20 degrees C. As a result, it is necessary that any electronic device be able to withstand these conditions and operate within reasonable limits so as not to degrade the performance of any system it may be operating in. Transients in the automotive environment cover a wide range of energy levels and time durations, as illustrated in Figure 3. These transients are distributed throughout the electrical system of an automobile and can occur at any time.

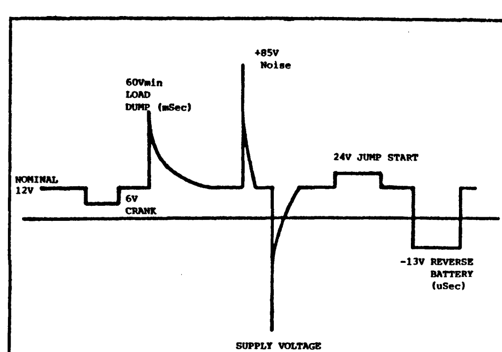


Figure 3

Possible automotive supply voltage variations

Some of the most serious types of transients are:

1. A load dump transient occurs when the alternator load is suddenly dropped due to battery disconnection. Voltages can range from 30 to 125V for up to 400 ms. This is considered the worst of all types of transients and was made a test requirement for all electrical systems and modules designed for the automotive industry back in the 1970's. See Figure 4

2. Transient voltages generated when the inductive loads (relays, solenoids, and switches) are turned off. See Figure 5.

3. Transient voltages generated when the ignition switch is turned off.4. Transient voltages generated by inductive or capacitive coupling when electrical equipment (such as the ignition system) is turned on.

By connecting a transient voltage suppressor across the output of a circuit or connecting them within the circuit, you can protect delicate components and systems by clamping these transient voltages. Because the failure threshold level of a system is determined by its weakest component, it is wise to insure that a TVS would be able to withstand all of these conditions.

RELIABILITY

Due to this increased focus on reliability under harsh environmental conditions, the ability to quantify reliability has become an important criteria in selecting components.Failure modes fall into two broad categories--those related to defects in the silicon die, and those related to packaging of the die.Die defects relate to field distortion, oxide defects, surface charge or microcracking. By using devices manufactured with the PAR process, the incidence of these types of failures is greatly reduced. These failures can be provoked by high temperature reverse bias testing. In this test, the devices are reverse biased by applying 80% of the rated reverse voltage to the device and heating the device to at least 150 degrees C. This test can run anywhere from 250 to 1000 hours to insure device durability.Shown in Figure 6 are the results of HTRB testing on PAR produced transient voltage suppressors

LOAD LOAD DUMP TRANSIENT

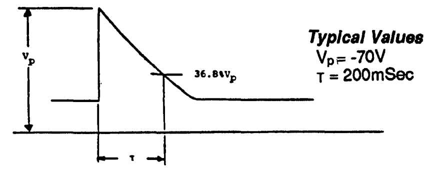


Figure 4

INDUCTIVE LOAD TRANSIENT

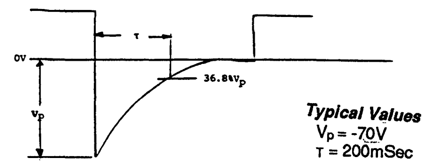


Figure 5

RESULTS OF HTRB TESTING
AT 80% RATED VOLTAGE

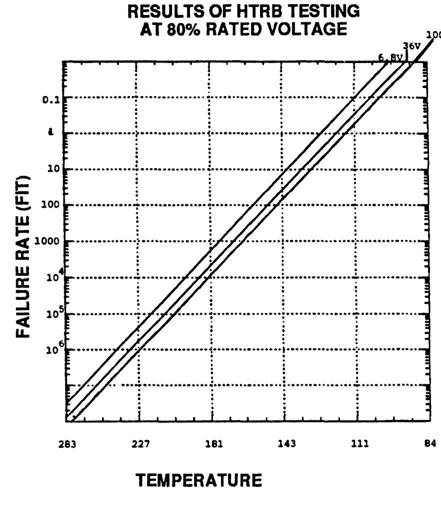
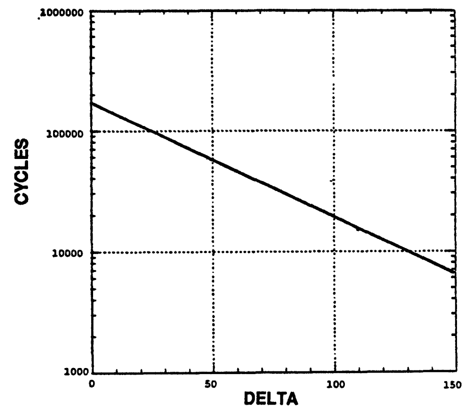


Figure 6

Definition: Failures > 5μA I_R at 25°C
Failure Rate = - fails / 10^9hi

rated at 6.8V, 36V, and 100V. In addition, reverse leakage remains within a very tight distribution and very little drift is observed in values before and after test.Packaging defects can occur from fatiguing of the bond or the presence of atmospheric vapor onto the die surface. Particularly in the automotive environment, semiconductor devices can be subject to thermal and electrical stress causing cracking, separation or voiding of the bond between the die and the lead. These conditions can lead to degrading operation and eventually, thermal runaway.By thermally cycling the device from low (typically -65 degrees C) to elevated temperatures (typically 150 degrees to 170 degrees C) with a dwell time of 5 minutes at each temperature, the bond can be stressed to the point of failure to insure the integrity of the device. The results of temperature cycling for PAR devices is shown in Figure 7.

RESULTS OF TEMPERATURE CYCLING TESTING



ATj = 25°C
130°C

FIT = 100 parts/millic
failure rate

Figure 7

PART NUMBERS

The devices are available in three different power ranges utilizing the following part numbers:

P4KA (400 Watts) **P6KA** (600 Watts)
6.8V to 43V 6.8V to 43V

1.5KA (1500 Watts)
6.8V to 43V

TAGL41 (400 Watts Surface Mount)
6.8V to 43V

PACKAGING
BULK - TAPE AND REEL

GENERAL INSTRUMENT

PKG. CODE	PACKAGING DESCRIPTION
1	Bulk
3	26MM Horizontal Taping and Ammo Packing
4	Standard Horizontal Reel, Class 1 (Metric 52.4MM)
6	Avisert, Cathode Up, Cathode First Off Reel
8	Avisert, Cathode Up, Cathode First Off Ammo Pack
10	Avisert, Cathode Down, Anode First Off Reel
12	Avisert, Cathode Down, Anode First Off Ammo Pack
14	Panasert, Cathode Up, Cathode First Off Reel
15	Panasert, Cathode Up, Anode Off First, Ammo Pack
16	Panasert, Cathode Up, Cathode First Off Ammo Pack
18	Panasert, Cathode Down, Anode First Off Reel
20	Panasert, Cathode Down, Anode First Off Ammo Pack
22	Bulk Pack for Special Axial-Leaded Formed Devices
23	Standard Horizontal Ammo Pack, Class I (Metric 52.4mm)
25	GL41 SMD 12MM Tape, 7" Diameter Paper Reel
26	GL41 SMD 12MM Tape, 13" Diameter Paper Reel
27	SMD, 16 MM Tape, 7" Diameter Reel
28	Special Carton Packing method for Tube Packaging Products
32	GL34 SMD, 8MM Tape, 7" Diameter Paper Reel
33	GL34 SMD, 8MM Tape, 13" Diameter Paper Reel
34	Tab Mounted EFR8 Chip, 16MM, 13" Diameter Reel
35	Bulk, Axial-Leaded Conductive Packaging
36	Standard Horizontal Reel, Class 1 (Metric 52.4MM) **Conductive Packaging**
37	Bulk, TO-220, TO3P Conductive Tubes
38	Bulk, Conductive Packaging for Bridge Rectifier
39	Miscellaneous Non-Standard T&R Packaging
40	Euroform, Reel, Cathode First Off Reel, Lead Coated
42	Euroform, Reel, Cathode Last Off Reel, Lead Coated
44	Standard Horizontal Reel (Metric) 5MM Component Spacing for DO-201 Packages
45	Tube Packaging for TO-220, TO-3P, and In Line Bridge Rectifier
46	GL41 SMD 12MM Tape, 7" Diameter Plastic Reels
47	GL41 SMD 12MM Tape, 13" Diameter Plastic Reels
48	GL34 SMD 8MM Tape, 7 " Diameter Plastic Reels
49	GL34 SMD 8MM Tape, 13" Diameter Plastic Reels

Also available for all packaging Electro-Static-Protection by adding the number "50" to the existing codes. For example, "51" would be Bulk, Electro-Static Packaging. "54" would be T/R, Electro-Static Packaging.

Axial leaded devices are packed in accordance with EIA Standard RS-296-E and the diagrams given below which refer to these specifications.

Table 1

COMPONENT CASE TYPE	UNITS PER REEL	COMPONENT SPACING "A" FIG. 1		TAPE SPACING "B" FIG. 1		REEL DIMENSION "D" FIG.2		MAX. OFF ALIGNMENT "E"FIG. 1		GROSS WEIGHT PER REEL	
	ea.	In.	mm	In.	mm	In.	mm	In.	mm	lbs.	kg.
1.5KA (PAR)	2000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	7.1	3.2
DO15	3500	.200	5.0	2.06	52.4	12.0	305	.047	1.2	4.00	1.81
DO201AD	1200	.395	10.0	2.06	52.4	12.0	305	.047	1.2	3.60	1.63
DO204AP	4000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	5.80	2.60
DO204MB	4000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	3.74	1.70
DO41	5000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	4.80	2.20
G3/G4	1500	.395	10.0	2.06	52.4	12.0	305	.047	1.2	4.80/4.40	2.20/2.00
GL34 Surface Mount	2500/7000	.157	4.0	—	—	7/13	178/330	See Fig. 6		.471/1.49	.214/.68
GL41 Surface Mount	1500/5000	.157	4.0	—	—	7/13	178/330	See Fig . 6		.471/1.49	.214/.68
GP10E Vertical	2000	.500	12.7	—	—	12.0	305	.079	2.0	2.29	1.04
GP10E Horizontal	4000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	3.04	1.38
GP20	1200	.395	10.0	2.06	52.4	12.0	305	.047	1.2	4.40	2.00
MPG06	5000	.200	5.0	2.06	52.4	12.0	305	.047	1.2	3.74	1.70
P600	700	.395	10.0	2.06	52.4	12.0	305	.047	1.2	5.00	2.30

Table 2
Metric Spec

Component Body Diameter	Components Spacing "A"(Lead to Lead)	Inside Tape Spacing "B"	Cumulative Pitch Tolerance
0mm to 5mm (0" to .197")	5.0mm+0.5mm (.197"+.020")	26mm+0.75mm (1.024"+.030")	Not to
0mm to 5mm (0"to.197")	5.0mm+0.5mm (.197"+.020"	52.4mm+1.5mm (2.062"+.059")	Exceed 1.5mm (.059") over
5.01mm to 10mm (.197" to .394")	10mm+0.5mm (.394" ± .020")	52.4mm+1.5mm (2.062"±.059")	6 Consecutive

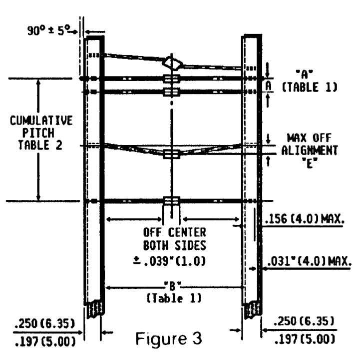
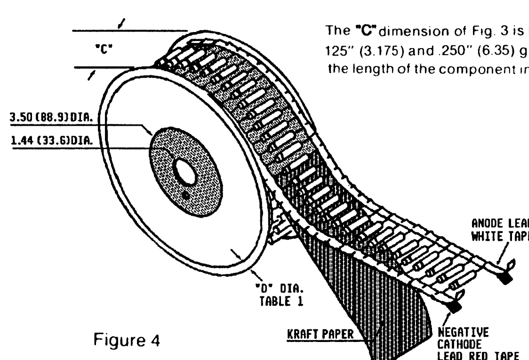


Figure 3



The "C" dimension of Fig. 3 is between 125" (3.175) and .250" (6.35) greater than the length of the component involved.

Figure 4

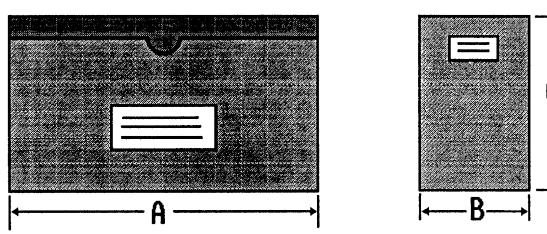
Dimensions in inches and (millimeters)

GENERAL INSTRUMENT

NEW BULK PACKAGES

DEVICE TYPE		BOX SIZE INCHES	BOX SIZE CM	QUANTITY EA.	GROSS WEIGHT LBS.	GROSS WEIGHT KG
GL34 SURFACE MOUNT		8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	8000	0.55	0.25
GL41 SURFACE MOUNT		8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	4000	1.03	0.47
DO15		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	4000	3.85	1.75
DO201AD		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	1500	4.41	2.0
DO204AP		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	4000	3.75	1.7
DO204MB		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	5000	3.15	1.45
DO41/MPG06		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	5000	2.38/2.20	1.08/1.0
G4/G3		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	3000/2000	5.07 / 5.29	2.3/2.4
GP20		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	1500	3.75	1.7
J,JTX1N483B, 1N645, 1N645-1		8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	1000	0.77	0.35
J, JTX1N3611, 1N4245, 1N5614		8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	500	0.55	0.25
J, JTX1N4942, 1N5615, 1N5802		8.0 x 3.5 x 1.0	20.3 x 8.8 x 2.54	500	0.55	0.25
J, JTX1N5415, 1N5550, 1N5625, 1N5807		12.0 x 3.6 x 2.5	30.4 x 9.1 x 6.3	1000	2.50	1.1
P600		11.75 x 5.125 x 2.5	29.8 x 13.0 x 6.3	750	3.72	1.69
P6KE		11.75 x 3.5 x 1.0	29.8 x 8.8 x 2.54	2000	1.93	0.87
DF-M/DF-S	ANTI-STATIC PLASTIC TUBES	19.0 LENGTH	48.2 LENGTH	50	0.12	0.05
TO-220, CT	ANTI-STATIC PLASTIC TUBES	20.5 LENGTH	52.0 LENGTH	50	0.306	0.14
TO3P	ANTI-STATIC PLASTIC TUBES	20.5 LENGTH	52.0 LENGTH	30	0.572	0.26
KBPM/2KBPM	ANTI-STATIC PLASTIC TUBES	18.5 LENGTH	47.0 LENGTH	30	0.21	0.09
AR,ARS	PLASTIC BAGS			200	0.84	0.38
WM, WG	PLASTIC BAGS			100	0.37	0.17
GPP1, EFR1, 3, 5	CHP TRAY	2.0 x 2.0 x .35	5.1 x 5.1 x 0.9	100	0.042	0.019
GPP5, EFR8	CHIP TRAY	2.0 x 2.0 x .35	5.1 x 5.1 x 0.9	100	0.044	0.020
BC	PAPER BOX	9.2 x 5.0 x 2.5	23.4 x 12.7 x 6.3	100	3.08	1..4
KBU4,6,8	PVC TRAY	12.2 x 6.1 x 1.5	30.9 x 15.5 x 3.8	250	4.63	2.1
KBL	PVC TRAY	12.2 x 6.1 x 1.5	30.9 x 15.5 x 3.8	300	4.19	1.9
KBPC1035W	PVC TRAY	12.4 x 12.4 x 1.4	31.4 x 31.4 x 3.6	100	5.07	2.3
KBPC8	PVC TRAY	12.4 x 12.4 x 1.1	31.4 x 31.4 x 2.9	200	3.31	1.5
KBPC1,KBPC6	PVC TRAY	12.4 x 12.4 x .88	31.4 x 31.4 x 2.2	250	1.94/2.64	.88/1.2
KBPC 10/35	PVC TRAY	12.4 x 12.4 x 1.4	31.4 x 31.4 x 3.6	100	5.29	2.4

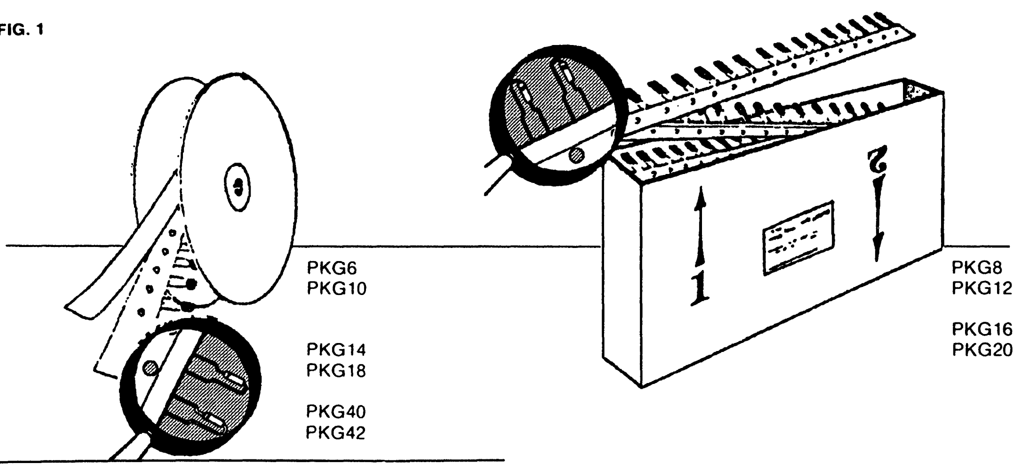
AMMO BOX PACKAGING



Packaging	Available Product Outlines	Packaging Codes	Dimension "A"	Dimension "B"	Dimension "C"	Quantity Box
26MM Horizontal Ammo Pack	DO-41 GI, DO-15	PKG 3	9.7" (247MM)	1.7" (44MM)	3.7" (95MM)	3K 1.5K
52MM Horizontal Ammo Pack	G1, DO-41 DO15 DO201AD, G3 P600	PKG 23	10.0" (254MM)	3.1" (79MM)	4.3" (110MM)	3K 2K 1K 3K
Vertical (Avisert, Panasert) Ammo Pack	GP10-E, RGP10-E 0.25" (0.65MM) Lead Diameter Only	PKG 8, 9 12, 13, 16 17, 20, 21	12.9" (328MM)	1.7" (42MM)	7.9" (200MM)	2K

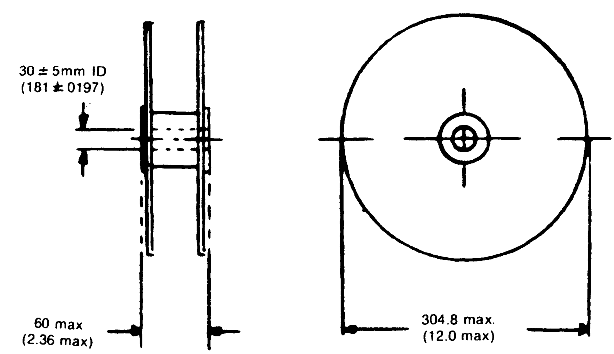
GENERAL INSTRUMENT

FIG. 1



Avisert: PKG6	Panasert: PKG14	Euroform: PKG40
PKG8	PKG16	PKG41
PKG10	PKG18	PKG42
PKG12	PKG20	PKG43

FIG. 2



ALL DIMENSIONS IN MILLIMETERS AND INCHES

Package per EIA JEDEC standard RS-468 Available on reels or fan fold box (ammo pack)

Available only for DO41 case style products utilizing 0.65mm (.025") or 0.76mm (.30") diameter leads for Panasert and Avisert Tape and Reeling.

Available only for GP10 productsonly utilizinq 0.65mm (.025") diameter leads for Euroform Tape and Reeling by adding suffix "E" (GP10GE, 1N4004GPE)

ALL DIMENSIONS
IN MILLIMETERS AND (INCHES)

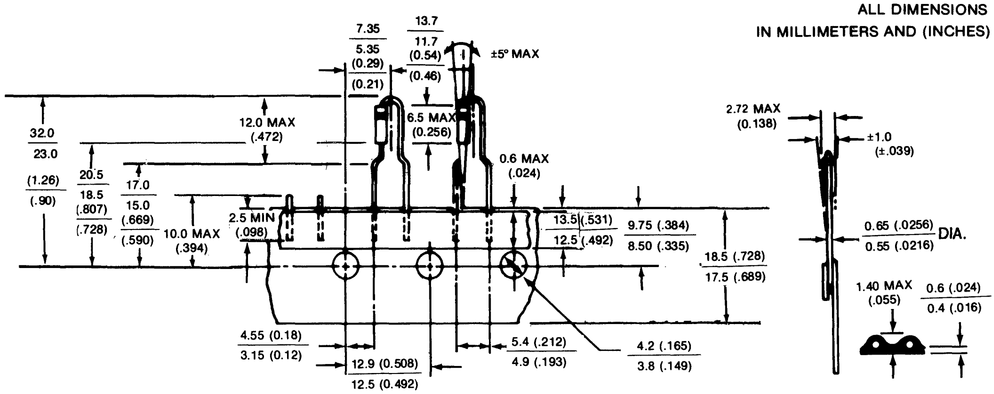
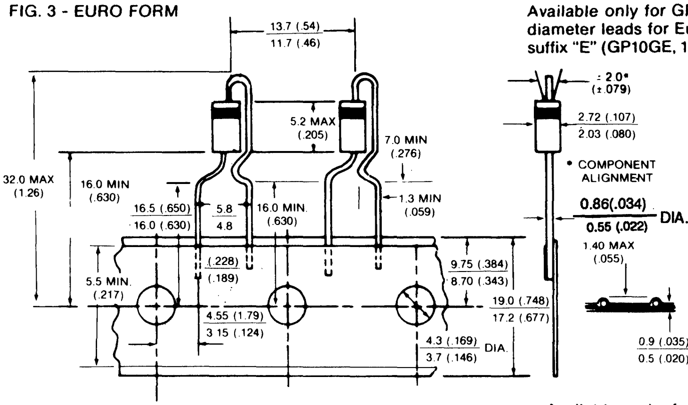


FIG. 3 - EURO FORM

Available only for GP10 products utilizing 0.65mm (.025) diameter leads for Euroform Tape and Reeling by adding suffix "E" (GP10GE, 1N4004GPE). Lead coating is standard.



User Direction Feed

FIG 4 — PANASERT

Available only for DO41 case style products utilizing 0.65mm (.025) or 0.76mm (.30) diameter leads for Panasert and Avisert Tape and Reeling. Lead coating is not available.

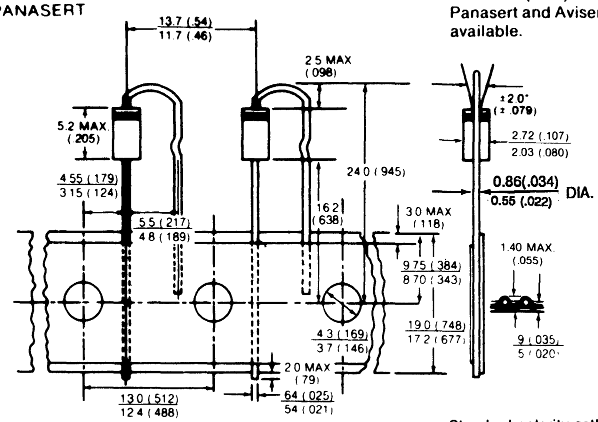


FIG. 5 — AVISERT

Standard polarity cathode oriented away from sproket holes
(Optional polarity cathode oriented toward sproket holes)

GENERAL INSTRUMENT

Packed per EIA/JEDEC Standard RS-481

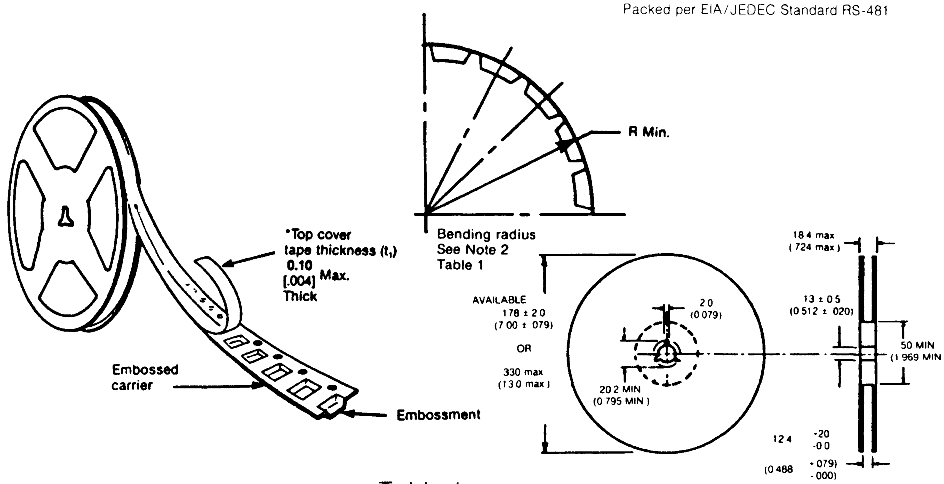


Table 1

8, 12, 16, MM Embossed Tape — All Dimensions in Millimeters and (Inches)

Tape Size	D	E	Po	t	Ao Bo Ko				
8, 12, MM	1.5 (.059)	1.75±0.10 (.069±.004)	4.0±.10 (.157 ±.004)	0.400 (.016)	See Note 1 Table 2				Constant Dimensions

Product Type	Tape Size	Max. B1	Min. D1	F	Max. K	P2	Min. R	W	P	
GL34	8MM	4.2 (.165)	1.0 (.039)	3.5±0.05 (.138±.002)	2.4 (.094)	2.0±0.05 (.079±.002)	25 (.984)	8.0±.30 (.315±.012)	4.0±0.10	Variable Dimensions
GL41	12MM	8.2 (.323)	1.5 (.059)	5.5±0.05 (.217±.002)	4.5 (.177)		30 (1.181)	12.0±.30 (.472±.012)		

Notes:
1. Ao Bo Ko are determined by component size. The clearance between the component and the cavity must be within 0.05 min. to 0.5 max. for 8MM tape and 0.05 min to 0.650 max. for 12 MM tape.
In addition the components cannot rotate more than 20° within the determined cavity.
2. Tape and components will pass around radius "R" without damage.

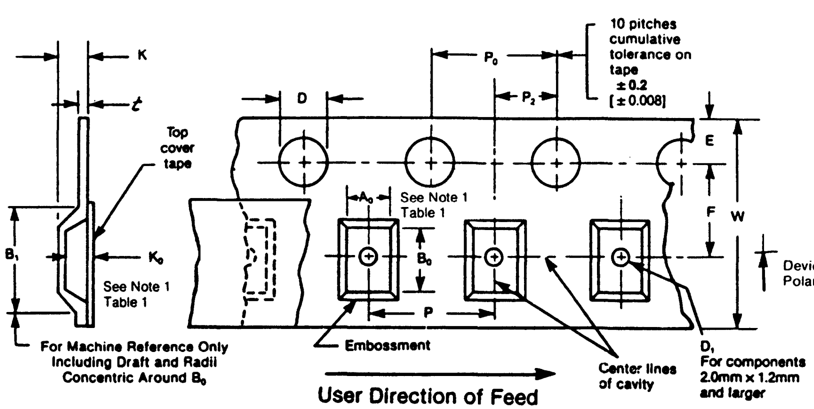


FIG. 6

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