

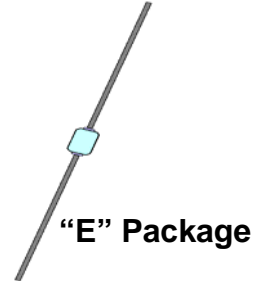
**VOIDLESS-HERMITICALLY-SEALED
STANDARD RECOVERY GLASS
RECTIFIERS**

ALSO
AVAILABLE IN
SURFACE
MOUNT

DESCRIPTION

This "standard recovery" rectifier diode series is military qualified to MIL-PRF-19500/420 and is ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 5.0 Amp rated rectifiers for working peak reverse voltages from 200 to 1000 volts are hermetically sealed with voidless-glass construction using an internal "Category I" metallurgical bond. These devices are also available in surface mount MELF package configurations by adding a "US" suffix (see separate data sheet for 1N5550US thru 1N5554US). Microsemi also offers numerous other rectifier products to meet higher and lower current ratings with various recovery time speed requirements including fast and ultrafast device types in both through-hole and surface mount packages.

APPEARANCE



IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

FEATURES

- Popular JEDEC registered 1N5550 to 1N5554 series
- Voidless hermetically sealed glass package
- Extremely robust construction
- Triple-layer passivation
- Internal "Category I" Metallurgical bonds
- JAN, JANTX, JANTXV, and JANS available per MIL-PRF-19500/420
- Surface mount equivalents also available in a square end-cap MELF configuration with "US" suffix (see separate data sheet)

APPLICATIONS / BENEFITS

- Standard recovery 5 Amp rectifiers series 200 to 1000 V
- Military and other high-reliability applications
- General rectifier applications including bridges, half-bridges, catch diodes, etc.
- High forward surge current capability
- Low thermal resistance
- Controlled avalanche with peak reverse power capability
- Extremely robust construction
- Inherently radiation hard as described in Microsemi MicroNote 050

MAXIMUM RATINGS

- Junction Temperature: -65°C to +200°C
- Storage Temperature: -65°C to +175°C
- Thermal Resistance: 22°C/W junction to lead at 3/8 inch (10 mm) lead length from body
- Thermal Impedance: 1.5°C/W @ 10 ms heating time
- Average Rectified Forward Current (I_o): 5 Amps @ $T_L = 55^\circ\text{C}$ (see Note 1)
- Forward Surge Current (8.3 ms half sine): 100 Amps
- Solder temperatures: 260°C for 10 s (maximum)

MECHANICAL AND PACKAGING

- CASE: Hermetically sealed voidless hard glass with Tungsten slugs
- TERMINATIONS: Axial-leads are Tin/Lead (Sn/Pb) over Copper. Note: Previous JANS inventory had solid Silver axial-leads and no finish.
- MARKING: Body paint and part number, etc.
- POLARITY: Cathode band
- TAPE & REEL option: Standard per EIA-296
- WEIGHT: 750 mg
- See package dimensions on last page

ELECTRICAL CHARACTERISTICS

TYPE	MINIMUM BREAKDOWN VOLTAGE V_{BR} @50 μ A VOLTS	WORKING PEAK REVERSE VOLTAGE V_{RWM} VOLTS	AVERAGE RECTIFIED CURRENT I_{O1} @ $T_L=+55^\circ\text{C}$ Note 1 AMPS	AVERAGE RECTIFIED CURRENT I_{O2} @ $T_A=+55^\circ\text{C}$ Note 2 AMPS	FORWARD VOLTAGE V_F @ 9A (pk)		MAXIMUM REVERSE CURRENT I_R @ V_{RWM} μ A	REVERSE RECOVERY t_{rr} Note 3 μ s
					MIN. VOLTS	MAX. VOLTS		
1N5550	220	200	5	3	0.6V (pk)	1.2V (pk)	1.0	2.0
1N5551	440	400	5	3	0.6V (pk)	1.2V (pk)	1.0	2.0
1N5552	660	600	5	3	0.6V (pk)	1.2V (pk)	1.0	2.0
1N5553	880	800	5	3	0.6V (pk)	1.3V (pk)	1.0	2.0
1N5554	1100	1000	5	3	0.6V (pk)	1.3V (pk)	1.0	2.0

NOTE 1: Rated at $T_L = 55^\circ\text{C}$ at $L = 0.375$ inch from body. Derate linearly at 41.6 mA/°C above $T_L = 55^\circ\text{C}$

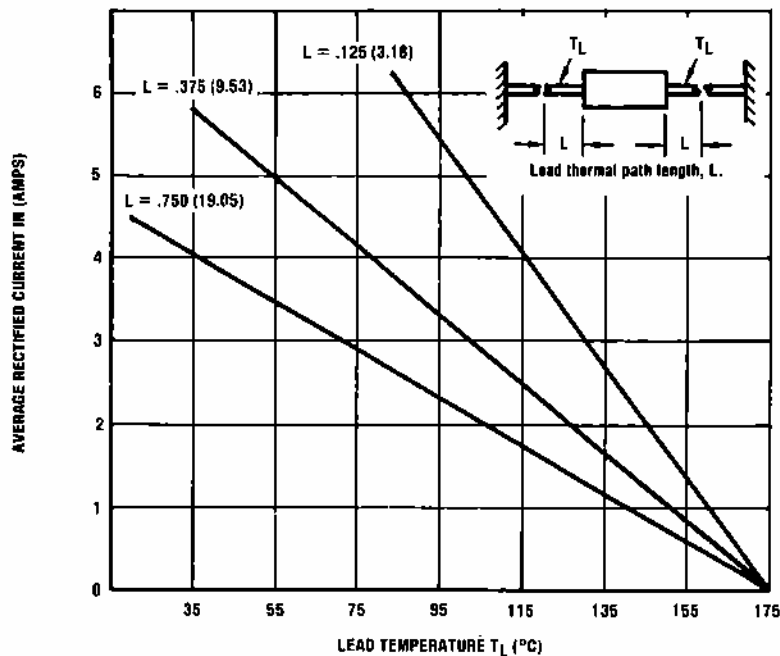
NOTE 2: Derate linearly at 25 mA/°C above $T_A = 55^\circ\text{C}$. This rating is typical for PC boards where thermal resistance from mounting point to ambient is sufficiently controlled where $T_{J(MAX)}$ rating is not exceeded.

NOTE 3: $I_F = 0.5$ A, $I_{RM} = 1.0$ A, $I_{R(REC)} = .250$ A

SYMBOLS & DEFINITIONS

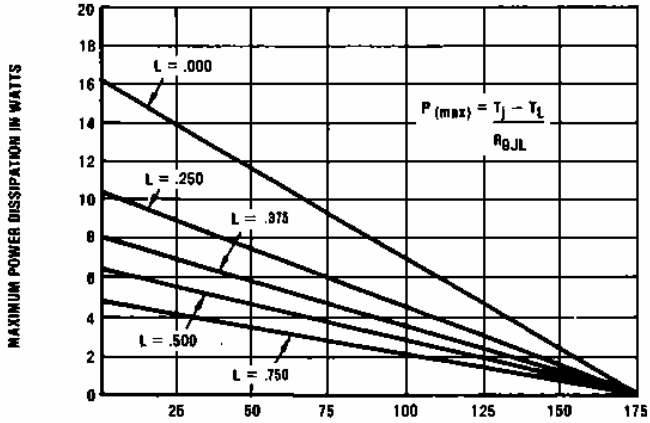
Symbol	Definition
V_{BR}	Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specified current.
V_{RWM}	Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range excluding all transient voltages (ref JESD282-B).
I_O	Average Rectified Output Current: The Output Current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.
V_F	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.
I_R	Maximum Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
t_{rr}	Reverse Recovery Time: The time interval between the instant the current passes through zero when changing from the forward direction to the reverse direction and a specified decay point after a peak reverse current occurs.

GRAPHS



**FIGURE 1
MAXIMUM CURRENT vs. LEAD TEMPERATURE**

- NOTES:**
1. Dimensions are in inches.
 2. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.



L	R _{θJL}
INCHES	°C/W
.000	11
.250 (6.35)	16.5
.375 (9.53)	22
.500 (12.70)	26
.750 (19.05)	35.5

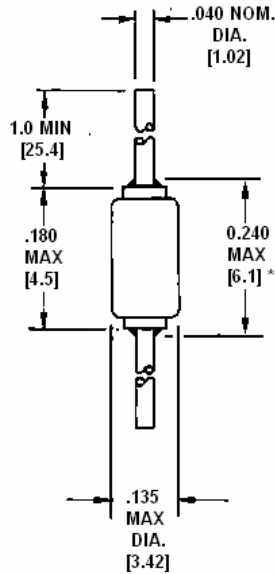
Maximum lead temperature in °C (T_L) at point "L" from body (For maximum operating junction temperature of 175°C with equal two-lead conditions).

FIGURE 2

MAXIMUM POWER IN WATTS vs. LEAD TEMPERATURE

- NOTES:**
1. Dimensions are in inches.
 2. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.

PACKAGE DIMENSIONS



Lead Tolerance = + .002 - .003 in

*Includes sections of the lead or fillet over which the lead diameter is uncontrolled.

PACKAGE E