

**VOIDLESS-HERMETICALLY-SEALED
 STANDARD RECOVERY GLASS**
Qualified per MIL-PRF-19500/286

DEVICES

1N4245 thru 1N4249

**LEVELS
 JAN
 JANTX
 JANTXV**

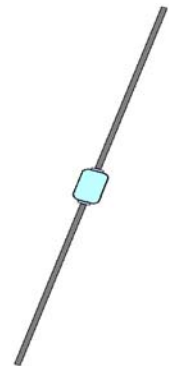
DESCRIPTION

This “standard recovery” rectifier diode series is military qualified to MIL-PRF-19500/286 and is ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 1.0 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 similar in ratings to the 1N5614 thru 1N5622 series where surface mount MELF package configurations are available by adding a “US” suffix (see separate data sheet for 1N5614US thru 1N5622US). 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.

IMPORTANT: For the most current data, consult *MICROSEMI’s* website:

<http://www.microsemi.com>

“A” Package



FEATURES

- Popular JEDEC registered 1N4245 to 1N4249 series
- Voidless hermetically sealed glass package
- Internal “*Category I*” Metallurgical bonds
- Working Peak Reverse Voltage 200 to 1000 Volts.
- JAN, JANTX, and JANTXV available per MIL-PRF-19500/286 (for JANS, see 1N5614-5622 series)
- Surface mount equivalents also available in a square end-cap MELF configuration with “US” suffix (see separate data sheet for 1N5614US thru 1N5622US)

APPLICATIONS / BENEFITS

- Standard recovery 1 Amp rectifiers 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
- Extremely robust construction
- Low thermal resistance
- Controlled avalanche with peak reverse power capability
- Inherently radiation hard as described in Microsemi MicroNote 050

MAXIMUM RATINGS

- Junction & Storage Temperature: -65°C to $+175^{\circ}\text{C}$
- Thermal Resistance: 42°C/W junction to lead at 3/8 inch (10 mm) lead length from body
- Thermal Impedance: 4.5°C/W @ 10 ms
- Average Rectified Forward Current (I_{O}): 1.0 Amps @ $T_{\text{A}} = 55^{\circ}\text{C}$
- Forward Surge Current: 25 Amps @ 8.3 ms half-sine
- Solder Temperatures: 260°C for 10 s (maximum)

MECHANICAL AND PACKAGING

- CASE: Hermetically sealed voidless hard glass with Tungsten slugs
- TERMINATIONS: Axial leads are copper with Tin/Lead (Sn/Pb) finish
- MARKING: Body paint and part number, etc.
- POLARITY: Cathode band
- TAPE & REEL option: Standard per EIA-296
- WEIGHT: 340 mg
- See package dimensions on last page

ELECTRICAL CHARACTERISTICS @ 30oC Case Temperature

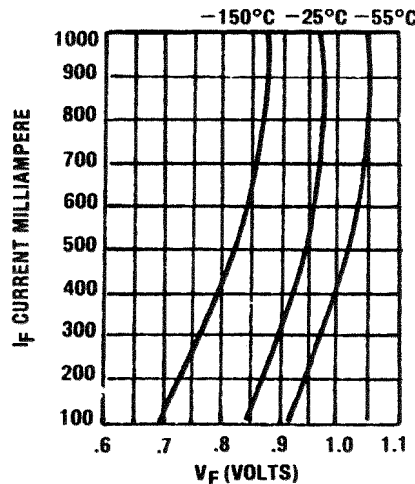
| TYPE | WORKING PEAK REVERSE VOLTAGE V_{RWM} | MINIMUM BREAKDOWN VOLTAGE V_{BR} @ 100 μ A | AVERAGE RECTIFIED CURRENT I_O @ $T_A = 55^\circ$ C | MAXIMUM FORWARD VOLTAGE V_F @ 3A | MAXIMUM REVERSE CURRENT I_R @ V_{RWM} | | MAXIMUM SURGE CURRENT (NOTE 1) I_{FSM} | MAXIMUM REVERSE RECOVERY (NOTE 2) t_{rr} |
|--------|--|---|---|---|--|----------------|--|--|
| | | | | | μ A | | | |
| | VOLTS | VOLTS | AMPS | VOLTS | 25 $^\circ$ C | 150 $^\circ$ C | AMPS | μ Sec. |
| | | | 55 $^\circ$ C | | | | | |
| 1N4245 | 200 | 240 | 1.00 | 1.3 | 1.0 | 150 | 25 | 5.0 |
| 1N4246 | 400 | 480 | 1.00 | 1.3 | 1.0 | 150 | 25 | 5.0 |
| 1N4247 | 600 | 720 | 1.00 | 1.3 | 1.0 | 150 | 25 | 5.0 |
| 1N4248 | 800 | 960 | 1.00 | 1.3 | 1.0 | 150 | 25 | 5.0 |
| 1N4249 | 1000 | 1150 | 1.00 | 1.3 | 1.0 | 150 | 25 | 5.0 |

NOTE 1: $I_O = 1A$, 8 ms surge

NOTE 2: $I_F = 0.5A$, $I_{RM} = 1A$, $I_{R(REC)} = .250A$

GRAPHS

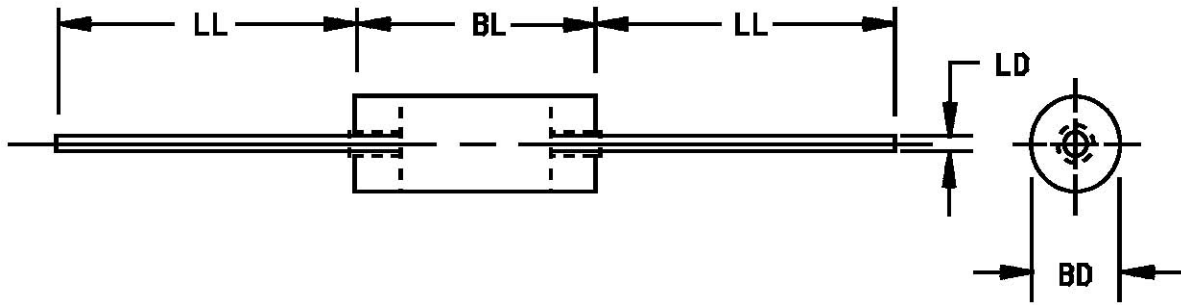
FIGURE 1
 TYPICAL FORWARD CONDUCTANCE CURVE



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. |
| V_F | Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current. |
| I_R | Maximum Leakage Current: The maximum 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 recovery decay point after a peak reverse current is reached. |

PACKAGE DIMENSIONS



NOTE:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension BD shall be measured at the largest diameter.
4. The BL dimension shall include the entire body including slugs and sections of the leads over which the diameter is uncontrolled. This uncontrolled area is defined as the zone between the edge of the diode body and extending .050 inch (1.27 mm) onto the leads
5. The shape of the body, within the bounds of the dimensions is optional.
6. In accordance with ASME Y14.5M, diameters are equivalent to ϕ x symbology.

| Ltr | Dimensions | | | | Notes |
|-----|------------|------|-------------|-------|-------|
| | Inches | | Millimeters | | |
| | Min | Max | Min | Max | |
| BD | .065 | .110 | 1.65 | 2.79 | |
| BL | .125 | .250 | 3.30 | 5.21 | |
| LD | .027 | .032 | 0.66 | 0.84 | |
| LL | .70 | 1.30 | 25.4 | 38.10 | |

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