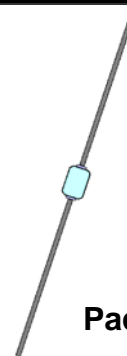


**VOIDLESS-HERMETICALLY SEALED
FAST RECOVERY GLASS RECTIFIERS**
**ALSO
AVAILABLE IN
SURFACE
MOUNT**
DESCRIPTION

This "fast recovery" rectifier diode series is military qualified to MIL-PRF-19500/424 and is ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 3.0 Amp rated rectifiers for working peak reverse voltages from 100 to 600 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. 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

Package E

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

FEATURES

- Popular JEDEC registered 1N5186 to 1N5190 series
- Voidless hermetically sealed glass package
- Triple-Layer Passivation
- Internal "Category I" Metallurgical bonds
- Working Peak Reverse Voltage 100 to 600 Volts.
- JAN, JANTX, and JANTXV available per MIL-PRF-19500/424
- Surface mount equivalents also available in a square end-cap MELF configuration with "US" suffix

APPLICATIONS / BENEFITS

- Fast recovery 3 Amp rectifiers 100 to 600 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°C
- Thermal Resistance: 20°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): 3.0 Amps @ $T_A = 25^\circ\text{C}$ and 0.700 Amps at $T_A = 150^\circ\text{C}$
- Forward Surge Current: 80 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 Tin/Lead (Sn/Pb) over Copper
- 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

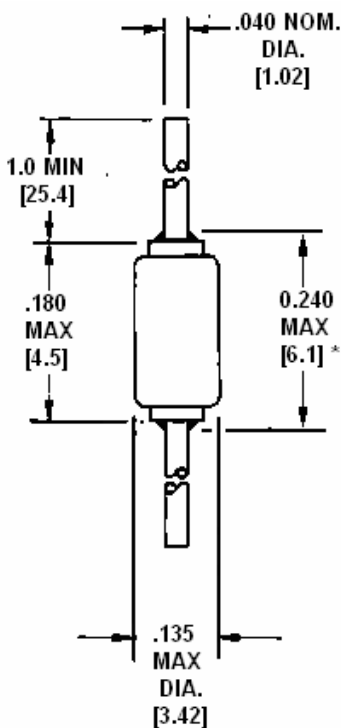
ELECTRICAL CHARACTERISTICS

| TYPE | WORKING PEAK REVERSE VOLTAGE | MINIMUM BREAKDOWN VOLTAGE | FORWARD VOLTAGE | | MAXIMUM REVERSE CURRENT | | MAXIMUM REVERSE RECOVERY TIME | AVERAGE RECTIFIED CURRENT AMPS | |
|--------|------------------------------------|---------------------------------|----------------------------|--------------|-------------------------------|-------------|--|--------------------------------------|---------------|
| | V_{RWM} | $V_{BR} @ 50\mu\text{A}$ | $V_F @ 9\text{A (pulsed)}$ | | $I_R @ V_{RWM}$ | | t_{rr} | I_O | |
| | VOLTS | VOLTS | MIN VOLTS | MAX VOLTS | 25°C μA | 100°C μA | ns | 25°C AMPS | 150°C AMPS |
| 1N5186 | 100V | 120V | 0.9V | 1.5V | 2.0 | 100 | 150 | 3.0 | 0.7 |
| 1N5187 | 200V | 240V | | | | | 200 | 3.0 | 0.7 |
| 1N5188 | 400V | 480V | | | | | 250 | 3.0 | 0.7 |
| 1N5189 | 500V | 550V | | | | | 300 | 3.0 | 0.7 |
| 1N5190 | 600V | 660V | | | | | 400 | 3.0 | 0.7 |

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 decay point after a peak reverse current occurs. |

PACKAGE DIMENSIONS



Lead Tolerance = + .002 -.003 in

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