



SCOTTSDALE DIVISION

469-01, 469-02, and 469-03

SINGLE PHASE 10 AMP
RECTIFIER BRIDGES

DESCRIPTION

This series of high-current single-phase bridge rectifiers are constructed with hermetically sealed rectifiers with the same design and construction as used in military applications for the utmost in reliability. They can also be optionally obtained with formal military screened diodes that have been subjected to 100% screening and military qualified to MIL-PRF-19500/469 that are ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 10 Amp rated rectifier bridges with working peak reverse voltages from 200 to 600 volts for each leg use diodes that are hermetically sealed with voidless-glass construction using an internal "Category I" metallurgical bond. 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>

FEATURES

- Voidless hermetically sealed glass packages used internally for each leg
- Triple-layer passivation
- Internal "Category I" Metallurgical bonds
- JANTX and JANTXV available per MIL-PRF-19500/469
- Controlled Avalanche Characteristics
- Surge ratings of 100 Amps

APPLICATIONS / BENEFITS

- Conversion of single phase ac to dc current flow
- Working Peak Reverse Voltages 200 to 600 V
- Military and other high-reliability applications
- High forward surge current capability
- Low thermal resistance
- Extremely robust construction
- Inherently radiation hard as described in Microsemi MicroNote 050

MAXIMUM RATINGS

- Junction Temperature: -65°C to +150°C
- Storage Temperature: -65°C to +150°C
- Maximum Avg Output Current: 10 Amps @ $T_c = 55^\circ C$ and 6 Amps @ $T_c = 100^\circ C$. Derate @ 88 mA / °C between 55°C and 100°C. Derate @ 120 mA / °C above 100°C.
- Non-repetitive Forward Surge Current (8.3 ms half sine): 100 Amps @ $T_c = 55^\circ C$
- Solder temperatures (terminals): 260°C for 10 s (maximum)

MECHANICAL AND PACKAGING

- CASE: Epoxy filled case with hermetically sealed void-less hard glass rectifiers with Tungsten slugs
- TERMINALS: Nickel plated brass with optional hot Tin-Lead solder dip
- MARKING: Part number on one side of case
- POLARITY: Marked on body adjacent to terminals (see terminal polarity marking on last page and flattened corner on case for pin 1)
- WEIGHT: 7.7 grams
- See package dimensions on last page

ELECTRICAL CHARACTERISTICS

| TYPE | MINIMUM BREAKDOWN VOLTAGE Per Leg V_{BR} @50μA | WORKING PEAK REVERSE VOLTAGE V_{RWM} | AVERAGE RECTIFIED CURRENT I_{01} @ $T_c = +55^\circ C$ Note 1 | AVERAGE RECTIFIED CURRENT I_{02} @ $T_c = +100^\circ C$ Note 2 | MAXIMUM REVERSE CURRENT PER LEG I_R @ V_{RWM} | | FORWARD VOLTAGE V_F @ 15.7 A (pk) @ 8.3 ms Duty Cycle ≤ 2% | REVERSE RECOVERY t_{rr} Note 3 |
|--------|---|--|--|---|---|---------------------|---|---|
| | | | | | $T_c = 25^\circ C$ | $T_c = 100^\circ C$ | | |
| 469-01 | 240 | 200 | 10 | 6 | 2 | 125 | 1.35 | 2.5 |
| 469-02 | 460 | 400 | 10 | 6 | 2 | 125 | 1.35 | 2.5 |
| 469-03 | 660 | 600 | 10 | 6 | 2 | 125 | 1.35 | 2.5 |

NOTE 1: Rated at $T_c = 55^\circ C$ with reference to metal case. Derate linearly at 88 mA/°C between $T_c = 55^\circ C$ and $T_c = 100^\circ C$

NOTE 2: Derate linearly at 120 mA/°C above $T_c = 100^\circ C$.

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

NOTE 4: Point at which T_c is referenced shall be in metal part of case as shown in drawing on last page.



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▶ 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). Also sometimes known as PIV. |
| 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

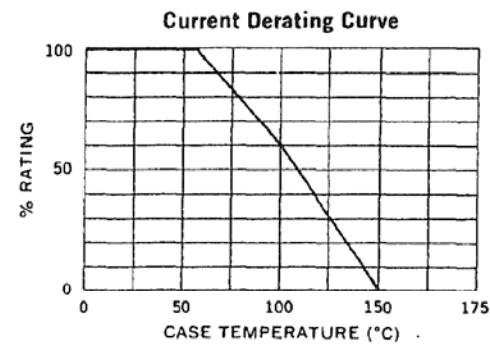
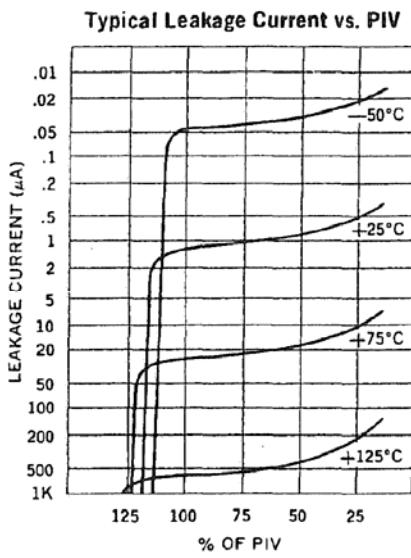
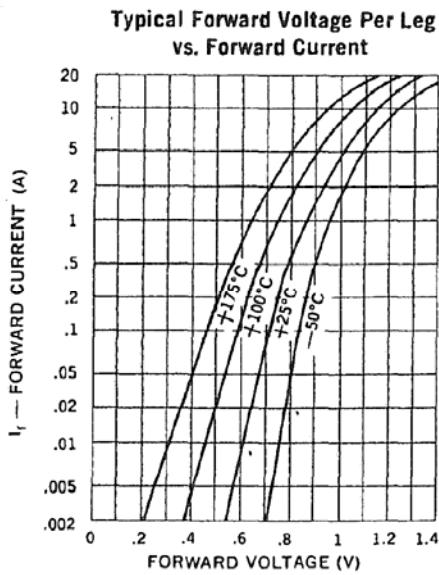


FIGURE 1



SCOTTSDALE DIVISION

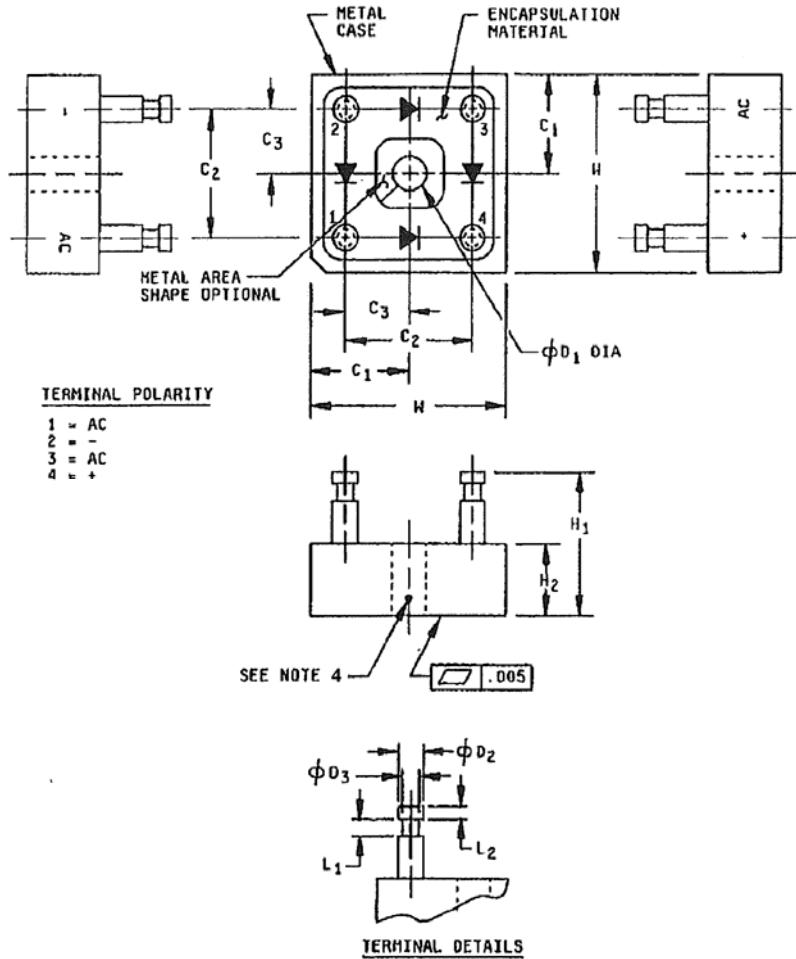
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PACKAGE DIMENSIONS



| Ltr | Dimensions | | | |
|-----------------|------------|------|-------------|-------|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| C ₁ | .367 | .375 | 9.32 | 9.53 |
| C ₂ | .350 | .450 | 8.89 | 11.43 |
| C ₃ | .175 | .225 | 4.45 | 5.72 |
| φD ₁ | .139 | .149 | 3.53 | 3.78 |
| φD ₂ | .091 | .101 | 2.31 | 2.57 |
| φD ₃ | .066 | .076 | 1.68 | 1.93 |
| H ₁ | | .570 | | 14.48 |
| H ₂ | | .370 | | 9.40 |
| L ₁ | .088 | .098 | 2.24 | 2.49 |
| L ₂ | .020 | .030 | 0.51 | 0.76 |
| W | .735 | .750 | 18.67 | 19.05 |