RoHS
Available

Single Phase 10 Amp Rectifier Bridge
Qualified per MIL-PRF-19500/469

Qualified Level:
JANTX and JANTXV

DESCRIPTION

This series of high-current single-phase bridge rectifiers are constructed with hermetically sealed rectifiers built with the same design and construction techniques used in military applications for the upmost in reliability. These include voidless glass encapsulation and internal "Category 1" metallurgical bonds. They can be purchased screened and mil-qualified to MIL-PRF-19500/469, making them ideal for applications where failure cannot be tolerated. These 10A rectifier bridges are available in multiple working peak reverse voltage ratings per leg.

Important: For the latest information, visit our website http://www.microsemi.com.

MD Package

FEATURES

- Voidless hermetically sealed glass packages used internally for each leg
- Electrically isolated aluminum case
- Triple-layer passivation
- Internal "*Category 1*" metallurgical bonds
- JANTX and JANTXV qualifications available per MIL-PRF-19500/469
  (See part nomenclature for all available options)
- RoHS compliant versions available without Sn/Pb solder dip

APPLICATIONS / BENEFITS

- Controlled avalanche characteristics
- Working peak reverse voltages 200 to 1,000 volts
- 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 @ T_A = 25 ºC unless otherwise noted

Parameters/Test Conditions		Symbol	Value	Unit
Junction and Storage Temperature		T_J & T_{STG}	-65 to +150	ºC
Thermal Resistance Junction-to-Case		$R_{\theta JC}$	5	ºC/W
Thermal Resistance Junction-to-Ambient		$R_{\theta JA}$	25	ºC/W
Working Peak Reverse Voltage (per leg)	483-01	V_{RWM}	200	V (pk)
	483-02		400	
	483-03		600	
	483-04		800	
	483-05		1,000	
Maximum Average DC Output Current @ T_C = +55 ºC		I_{O1} [(1)]	10	A
Maximum Average DC Output Current @ T_C = +100 ºC		I_{O2} [(2)]	6	A
Forward Surge Current @ $I_O = I_{O1}$, T_C = +55 ºC, tp = 8.3 ms		$I_{F(surge)}$	100	A (pk)
Isolation Voltage @ 10 µA DC Max for 10 secs @ 25°C		V_{ISO}	2800	V
Solder Temperature @ 10 s			260	ºC

Notes: 1. Derate from 10 A at T_C = +55 ºC to 6 A at T_C = +100 ºC (88 mA dc/ ºC).
2. Derate from 6 A at T_C = +100 ºC to 0 A at T_C = +150 ºC (120 mA dc/ ºC). t_{rr} = 2.5 µs at I_F = 0.5 A, I_R = 1.0 A, I_{rec} = 0.25 A.

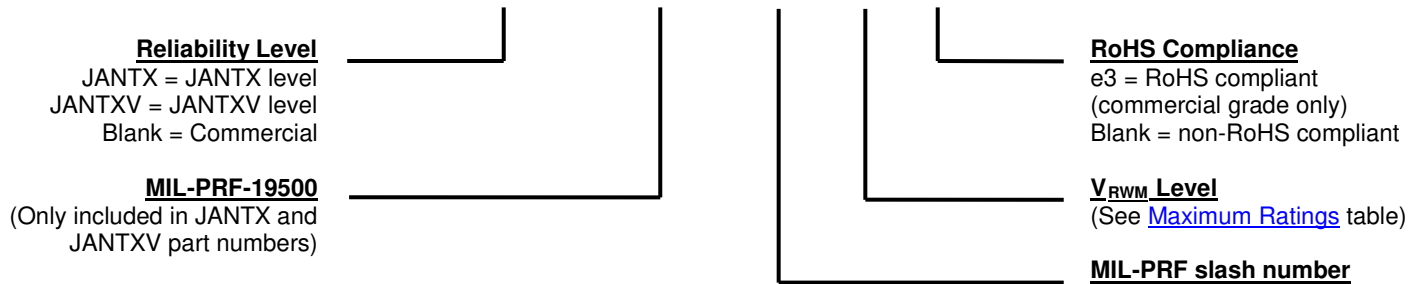## MECHANICAL and PACKAGING

- CASE: Aluminum
- TERMINALS: Tin/lead (Sn/Pb) or RoHS compliant matte tin
- MARKING: Alternating current input: AC
  - Cathode positive output: +
  - Anode negative: -
  - Part number is printed on the body
- WEIGHT: Approximately 10 grams
- See Package Dimensions on last page.

PART NOMENCLATURE

JANTX   M19500/   469   -01   (e3)

Reliability Level
JANTX = JANTX level
JANTXV = JANTXV level
Blank = Commercial

MIL-PRF-19500
(Only included in JANTX and JANTXV part numbers)

RoHS Compliance
e3 = RoHS compliant
(commercial grade only)
Blank = non-RoHS compliant

V_{RWM} Level
(See Maximum Ratings table)

MIL-PRF slash number

SYMBOLS & DEFINITIONS

Symbol	Definition
$V_{(BR)}$	Breakdown Voltage: A voltage in the breakdown region.
V_{RWM}	Working Peak Reverse Voltage: The peak voltage excluding all transient voltages (ref JESD282-B). Also sometimes known historically 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	Forward Voltage: A positive dc anode-cathode voltage the device will exhibit at a specified forward current.
I_R	Reverse Current: The dc current flowing from the external circuit into the cathode terminal at the specified voltage V_R.
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.

ELECTRICAL CHARACTERISTICS

PART NUMBER	MINIMUM BREAKDOWN VOLTAGE Per Leg $V_{(BR)}$ @ I_R = 50 µA	MAXIMUM REVERSE CURRENT I_R @ V_{RWM} (Note 1)		FORWARD VOLTAGE V_F I_F @ 15.7 A (pk) @ 8.3 ms Duty Cycle ≤ 2% (Note 1)	REVERSE RECOVERY t_{rr} (I_F = 0.5 A, I_{RM} = 1.0 A, $I_{R(REC)}$ = 0.250 A)
	Volts	T_C = +25 °C	T_C = +100 °C		
		µA	µA	Volts (pk)	µs
483-01	220	2.0	125	1.35	2.5
483-02	440	2.0	125	1.35	2.5
483-03	660	2.0	125	1.35	2.5
483-04	880	2.0	125	1.35	2.5
483-05	1,100	2.0	125	1.35	2.5

NOTE 1: Applies to each discrete diode and each bridge leg.

GRAPHS
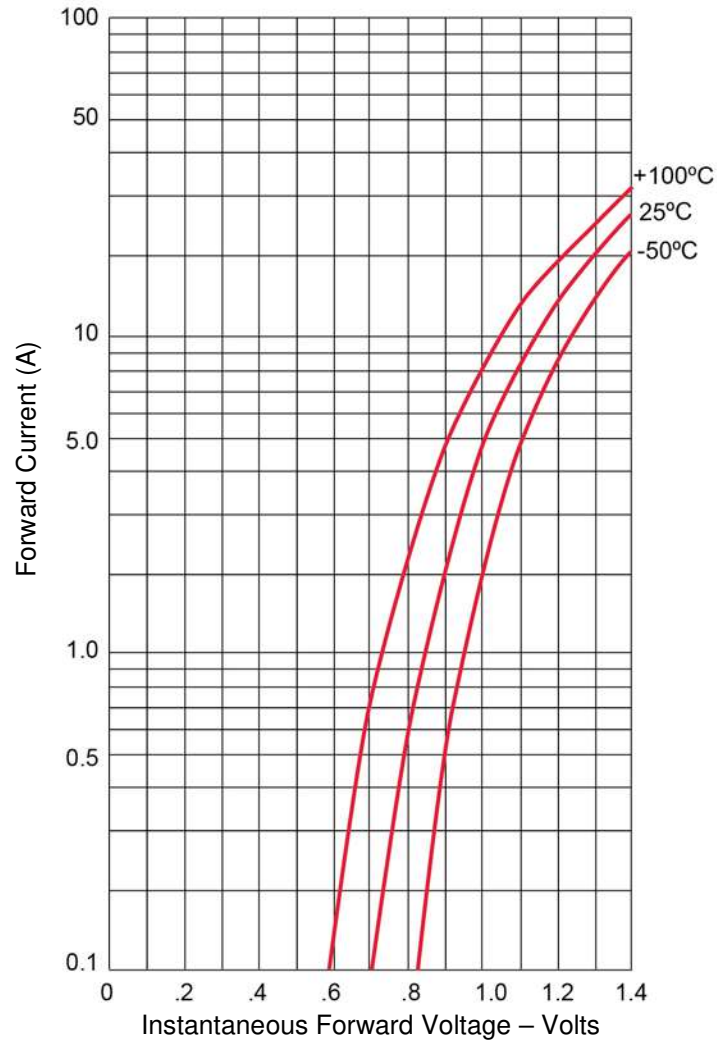
FIGURE 1
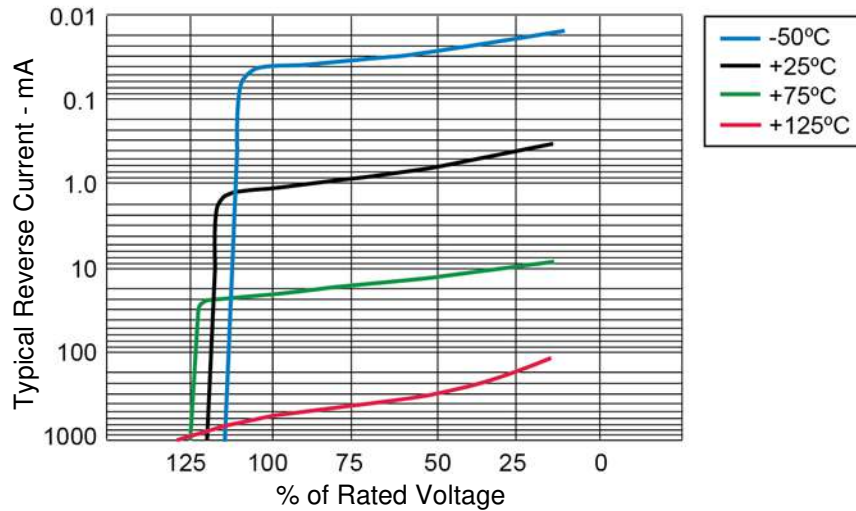Typical Forward Voltage Per Leg vs Forward Current

---

     ©2013 Microsemi Corporation

One Enterprise, Aliso Viejo, CA 92656   Ph: 949-380-6100   sales.support@microsemi.com

GRAPHS

FIGURE 2
Typical Reverse Leakage Current – Per Leg
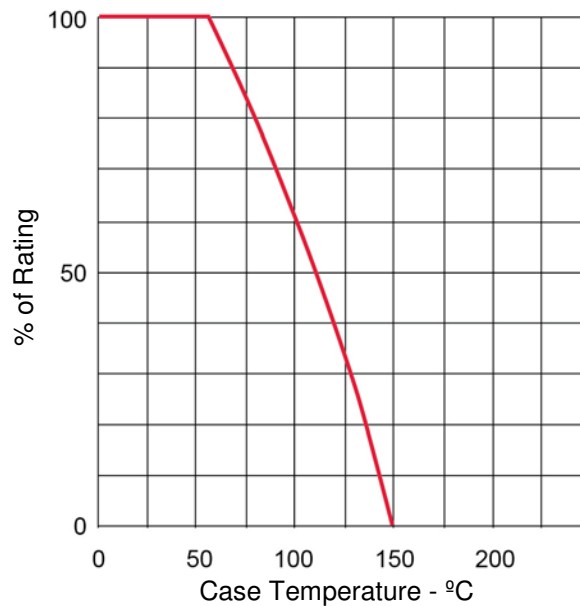
FIGURE 3
Current Derating Curve

PACKAGE DIMENSIONS

Notes:
1. Terminals are tinned.

TERMINAL POLARITY
1 = AC
2 = -
3 = AC
4 = +
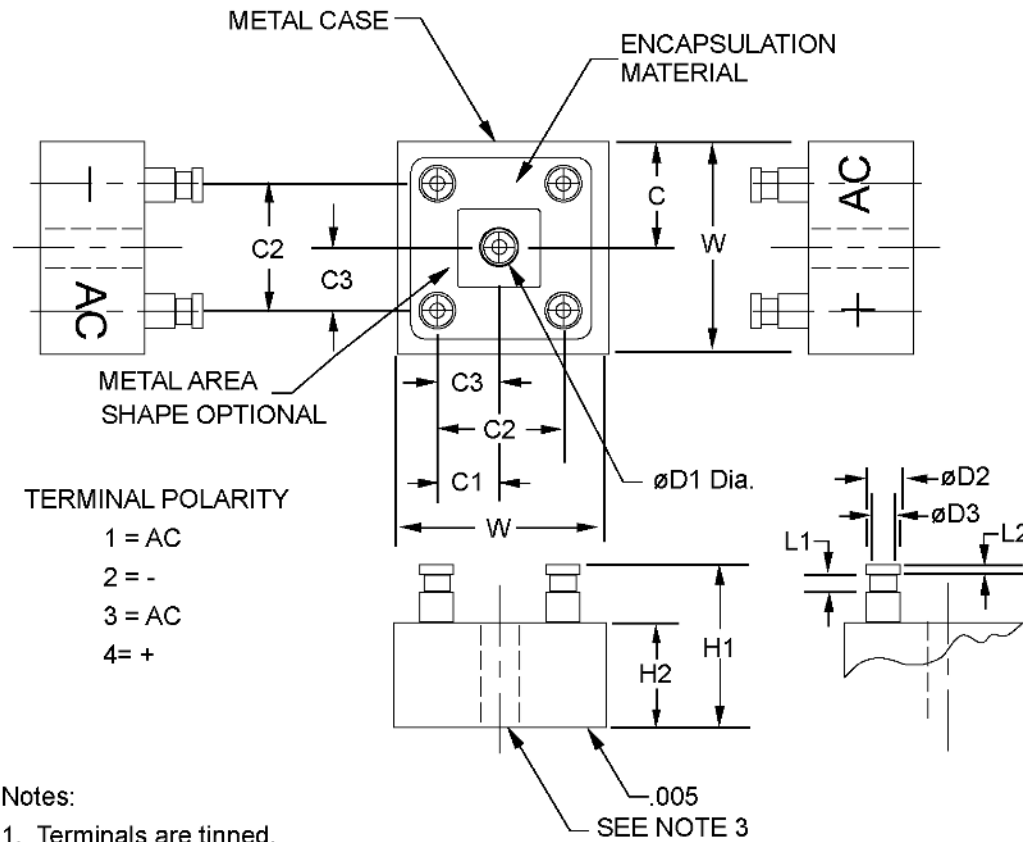
Notes:
1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Polarity shall be marked on the bridge body adjacent to terminals. Terminal numbers are for reference and are not required to be marked on the bridge; however, terminal 1 shall be indicated by a mechanical index such as a line or flattened corner, visible from the top (terminal surface) of the device.
4. Point at which T_C is read shall be in metal part of case as shown on drawing.
5. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

Ltr	Dimensions			
	Inches		Millimeters	
	MIN	MAX	MIN	MAX
C1	0.367	0.375	9.32	9.53
C2	0.350	0.450	8.89	11.43
C3	0.175	0.225	4.45	5.72
ΦD1	0.139	0.149	3.53	3.78
ΦD2	0.091	0.101	2.31	2.57
ΦD3	0.066	0.076	1.68	1.93
H1	-	0.570	-	14.48
H2	-	0.370	-	9.40
L1	0.088	0.098	2.24	2.49
L2	0.020	0.030	0.51	0.76
W	0.735	0.750	18.67	19.05