RoHS Available

3 Phase 25 Amp Rectifier Bridge

Qualified per MIL-PRF-19500/483

Qualified Level:
JANTX

DESCRIPTION

This series of high-current three-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 optionally be purchased built with diodes that have been screened and mil-qualified to MIL-PRF-19500/483, making them ideal for applications where failure cannot be tolerated. These 25A rectifier bridges are available with working peak reverse voltage ratings of 200, 400, 600, or 800 V per leg.

ME Package

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

FEATURES

- Voidless hermetically sealed glass packages used internally for each leg.
- Triple-layer passivation.
- Internal "*Category 1"* metallurgical bonds.
- JANTX qualification available per MIL-PRF-19500/483.
  (See part nomenclature for all available options).
- RoHS compliant versions available without Sn/Pb solder dip.

APPLICATIONS / BENEFITS

- Conversion of three phase ac to dc current flow.
- Working peak reverse voltages 200 to 800 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 @ 25 ºC unless otherwise noted

Parameters/Test Conditions		Symbol	Value	Unit
Junction Temperature		T_J	-65 to +175	ºC
Storage Temperature		T_{STG}	-65 to +150	ºC
Working Peak Reverse Voltage	483-01 483-02 483-03 483-04	V_{RWM}	200 400 600 800	V (pk)
Maximum Average DC Output Current @ T_C = +55 ºC		I_{O1} (1)	25	A
Maximum Average DC Output Current @ T_C = +100 ºC		I_{O2} (2)	18.5	A
Forward Surge Current @ $I_O = I_{O1}$, T_C = +55 ºC, tp = 8.3 ms		$I_{F(surge)}$	150	A (pk)
Solder Temperature @ 10 s		T_{SP}	260	°C

Notes: 1. Derate from 25 A at T_C = +55 ºC to 18.5 A at T_C = +100 ºC (144 mA dc/ ºC).
2. Derate from 18.5 A at T_C = +100 ºC to 0 A at T_C = +150 ºC (370 mA dc/ ºC).

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MECHANICAL and PACKAGING

- CASE: Epoxy filled aluminum case with hermetically sealed void-less hard glass rectifiers with tungsten slugs.
- TERMINALS: Nickel plated brass with optional hot tin-lead solder dip. **NOTE:** Solder dip will eliminate RoHS compliance.
- MARKING: Part number on one side of case.
- POLARITY: Marked on body adjacent to terminals (see terminal polarity marking on last page).
- WEIGHT: Approximately 32 grams.
- See Package Dimensions on last page.

PART NOMENCLATURE

JANTX M19500/ 483 -01 (e3)

Reliability Level
JANTX = JANTX level
Blank = Commercial

MIL-PRF-19500
(Only included in JANTX part number)

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

Power Level
(See Electrical Characteristics table)

MIL-PRF slash number

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.

ELECTRICAL CHARACTERISTICS

PART NUMBER	MINIMUM BREAKDOWN VOLTAGE Per Leg $V_{(BR)}$ @ I_R = 50 µA	MAXIMUM REVERSE CURRENT PER LEG I_R @ V_{RWM}			FORWARD VOLTAGE V_F I_F @ 39 A (pk) @ 8.3 ms Duty Cycle ≤ 2%	REVERSE RECOVERY t_{rr} (Note 1)
		T_C = +25 °C	T_C = +100 °C	T_A = -55 °C		
	Volts	µA	µA	µA	Volts (pk)	µs
483-01	220	1.0	200	2.0	1.3	2.5
483-02	440	1.0	200	2.0	1.3	2.5
483-03	660	1.0	200	2.0	1.3	2.5
483-04	880	1.0	200	2.0	1.3	2.5

NOTE 1: I_F = 0.5 A, I_R = 1.0 A, $I_{R(REC)}$ = 0.250 A.
NOTE 4: Point at which T_C is referenced shall be in metal part of case as shown in package dimensions drawing on last page.

GRAPHS

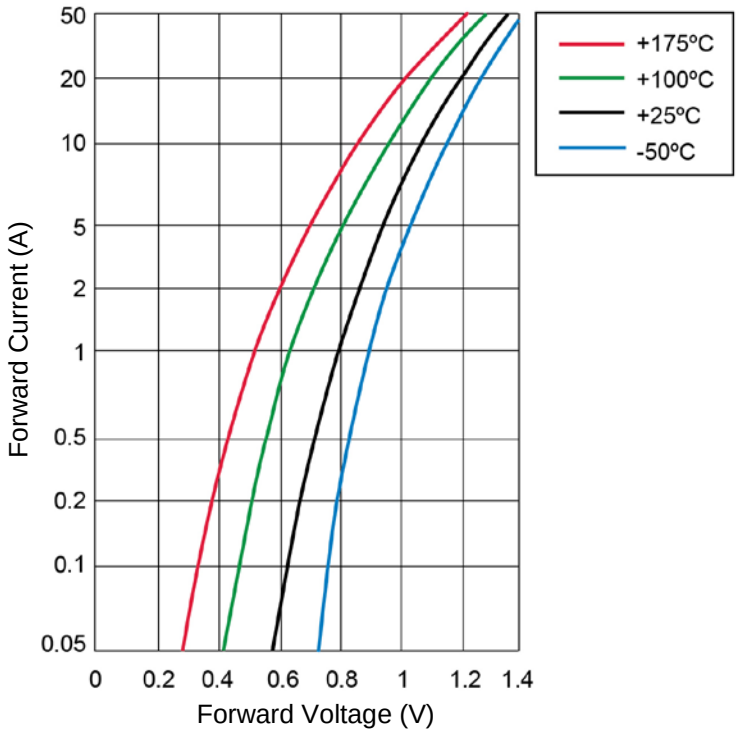


FIGURE 1
Typical Forward Voltage Per Leg vs. Forward Current

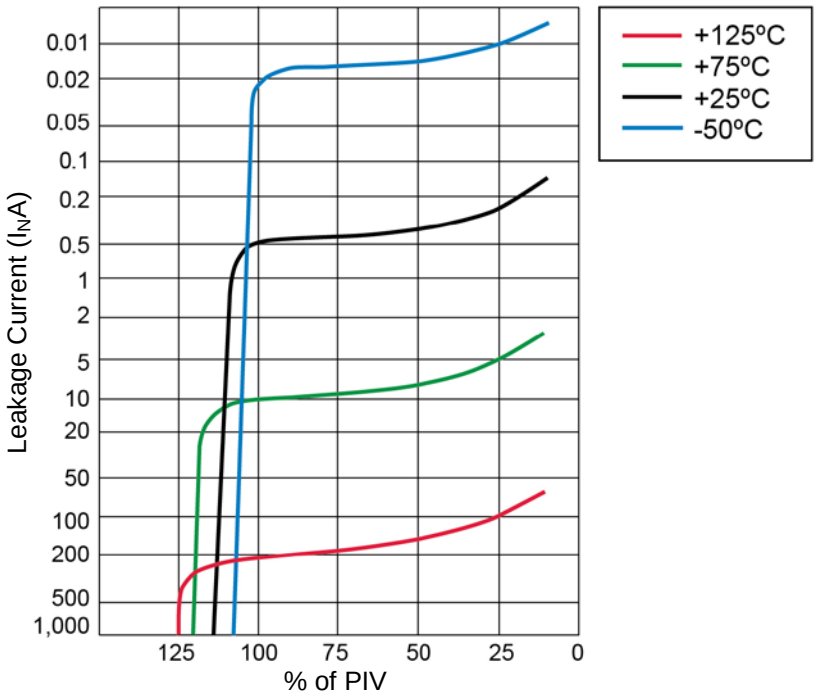


FIGURE 2
Typical Leakage Current vs. PIV

GRAPHS

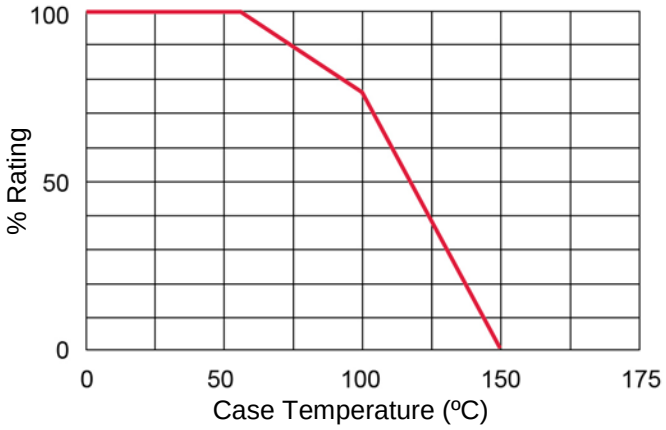
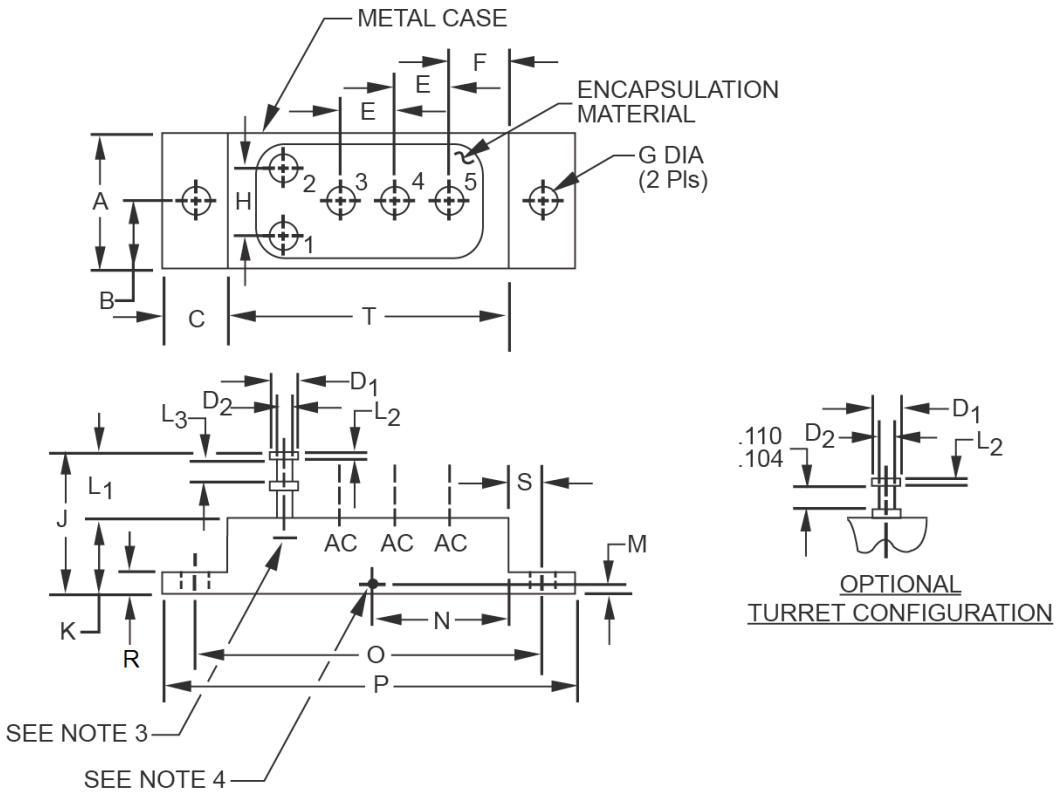


FIGURE 3
Current Derating Curve

PACKAGE DIMENSIONS



Dimensions									
Ltr	Inches		Millimeters		Ltr	Inches		Millimeters	
	Min	Max	Min	Max		Min	Max	Min	Max
A	0.710	0.770	18.03	19.56	L_1	0.130	0.320	3.30	8.13
B	0.355	0.395	9.02	10.03	L_2	0.015	0.030	0.38	0.76
C	0.355	0.395	9.02	10.03	L_3	0.100	0.125	2.54	3.18
D_1	0.141	0.151	3.58	3.84	M	0.040	0.060	1.02	1.52
D_2	0.108	0.118	2.74	3.00	N	0.720	0.780	18.29	19.81
E	0.355	0.395	9.02	10.03	O	1.84	1.90	46.74	48.26
F	0.230	0.270	5.84	6.86	P	2.22	2.28	56.39	57.91
G	0.149	0.189	3.78	4.80	R	0.090	0.150	2.29	3.81
H	0.355	0.395	9.02	10.03	S	0.168	0.208	4.27	5.28
J	-	0.820	-	20.83	T	1.47	1.53	37.34	38.86
K	0.390	0.590	9.91	14.99					

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Polarity shall be marked as shown on drawing.
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.

See schematic on next page.

SCHEMATIC