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RoHS Available

Single Phase Ultrafast Bridge Rectifiers

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. These 35A ultrafast 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.

(Actual appearance may vary)

MA and MB Package

FEATURES

- Current ratings to 35 amps
- V_{RWM} from 50 to 150 volts (see part nomenclature for all options)
- 150 ºC junction temperature
- Surge ratings to 25 amps
- Recovery times to 50 ns
- MIL-PRF-19500 similarity
- RoHS compliant versions available

APPLICATIONS / BENEFITS

- Fuse-in-glass diodes design
- Electrically isolated aluminum case

MAXIMUM RATINGS

Parameters/Test Conditions		Symbol	Value	Unit
Junction and Storage Temperature		T_J and T_{STG}	-65 to +150	ºC
Thermal Resistance Junction-to-Case:	802 803	$R_{\Theta JC}$	2.0 4.0	ºC/W
Thermal Resistance Junction-to-Ambient:	802 803	$R_{\Theta JA}$	20 25	ºC/W
Forward Surge Current (Peak): @ T_C = 100 ºC	802 803	I_{FSM}	250 125	A
Maximum Average DC Output Current: @ T_C = 55 ºC	802 803	I_O	35 22.5	A
Maximum Average DC Output Current: @ T_C = 100 ºC	802 803	I_O	20 16	A
Solder Temperature @ 10 s			260	°C

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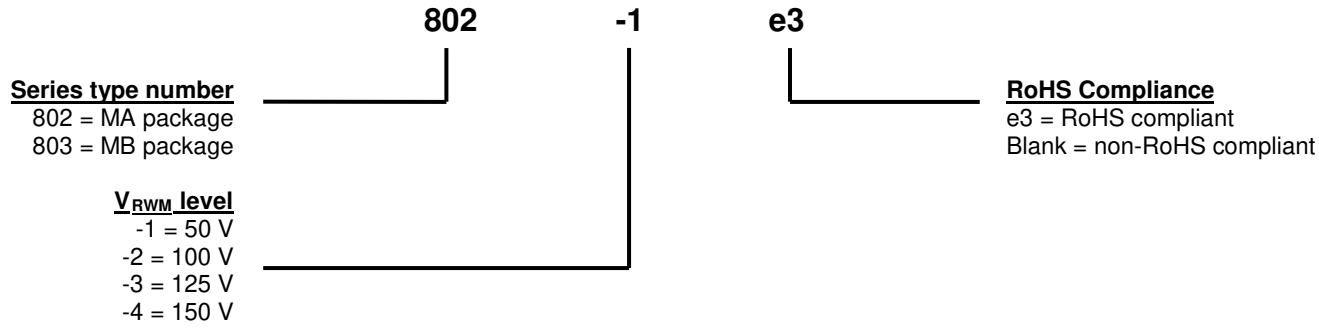
MECHANICAL and PACKAGING

- 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 20 grams for 802 series and 10 grams for 803 series
- See Package Dimensions on last page.

PART NOMENCLATURE



SYMBOLS & DEFINITIONS

Symbol	Definition
I_{FSM}	Surge Peak Forward Current: The forward current including all nonrepetitive transient currents but excluding all repetitive transients (ref JESD282-B)
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_{FM}	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.
I_{RM}	Maximum Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
V_{RWM}	Working Peak Reverse Voltage: The peak voltage excluding all transient voltages (ref JESD282-B). Also sometimes known historically as PIV.
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.

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ELECTRICAL CHARACTERISTICS

PART NUMBER	MAX FORWARD VOLTAGE PER LEG V_{FM} (Note 1)	MAX REVERSE PEAK CURRENT I_{RM} @ V_{RWM}		MAX REVERSE RECOVERY TIME t_{rr} I_F = 0.5 A, I_{RM} = 1.0 A, $I_{R(REC)}$ = 0.250 A
	@ 25 ºC	@ 25 ºC	@ 100 ºC	
	Volts	µA	µA	ns
802	0.95 @ 10 A	20	1000	50
803	0.95 @ 6 A	10	300	50

NOTES: 1. Pulse test: Pulse width 300 µsec, duty cycle 2%.

PART NUMBER		WORKING PEAK REVERSE VOLTAGE V_{RWM}	MINIMUM BREAKDOWN VOLTAGE $V_{(BR)}$
		Volts	Volts
802-1	803-1	50	55.0
802-2	803-2	100	110.0
802-3	803-3	125	137.5
802-4	803-4	150	165.0

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GRAPHS

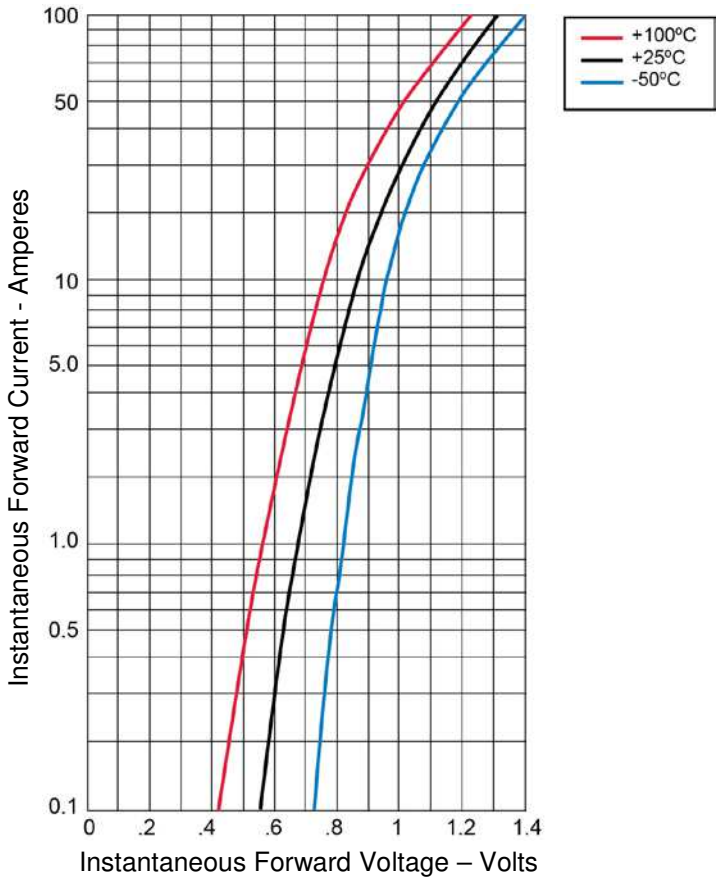

FIGURE 1

Typical Forward Characteristics – **Per Leg 802 Series**

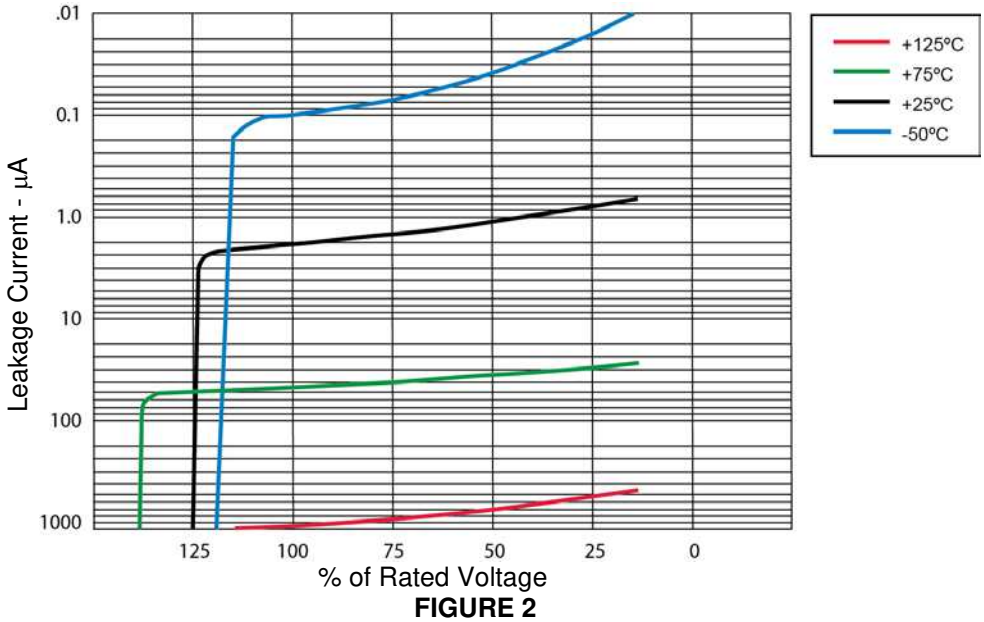

FIGURE 2

Typical Reverse Leakage Current – **Per Leg 802 Series**

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GRAPHS (continued)

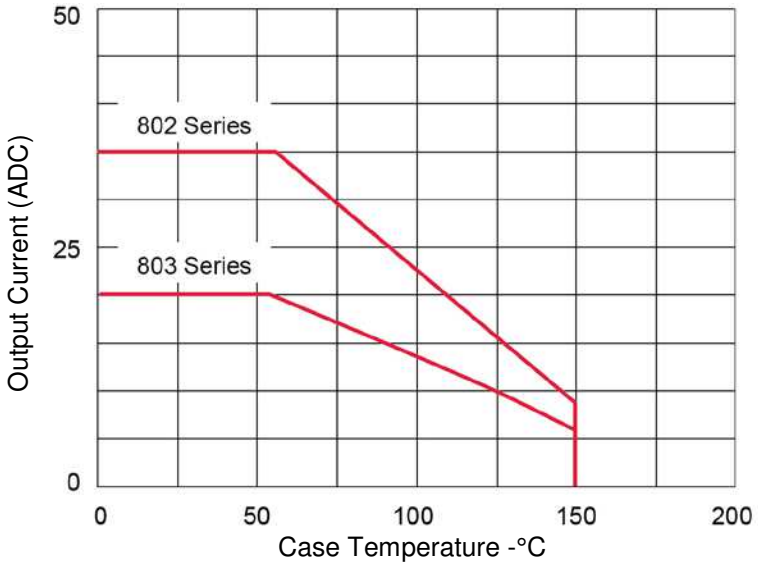

FIGURE 3
Current Derating

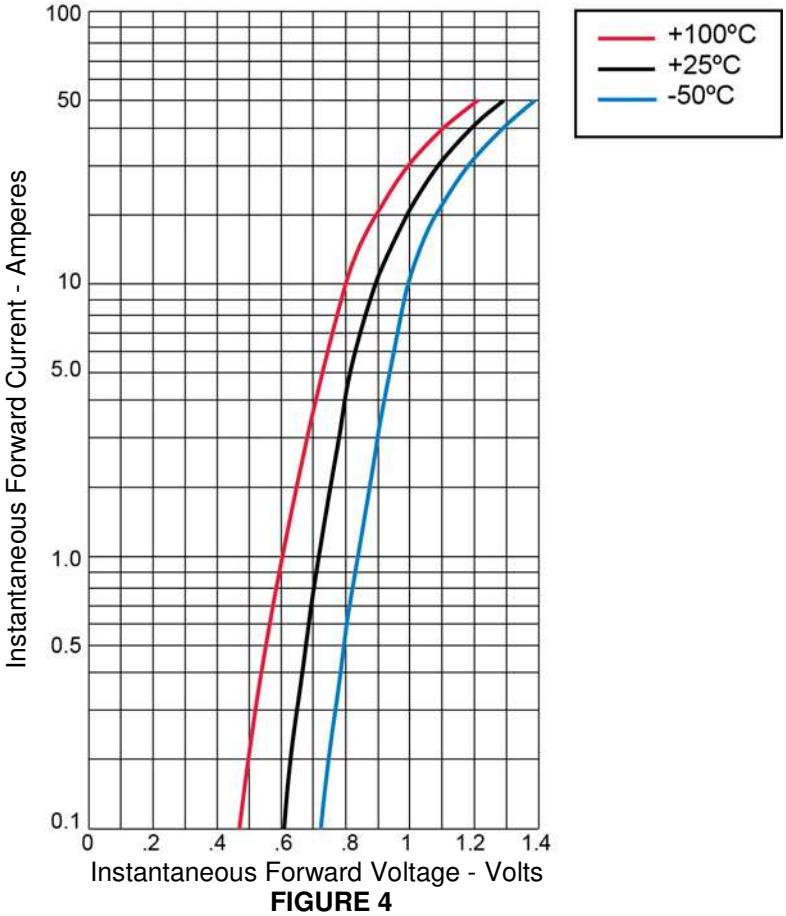

FIGURE 4
Typical Forward Characteristics – **Per Leg 803 Series**

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GRAPHS (continued)

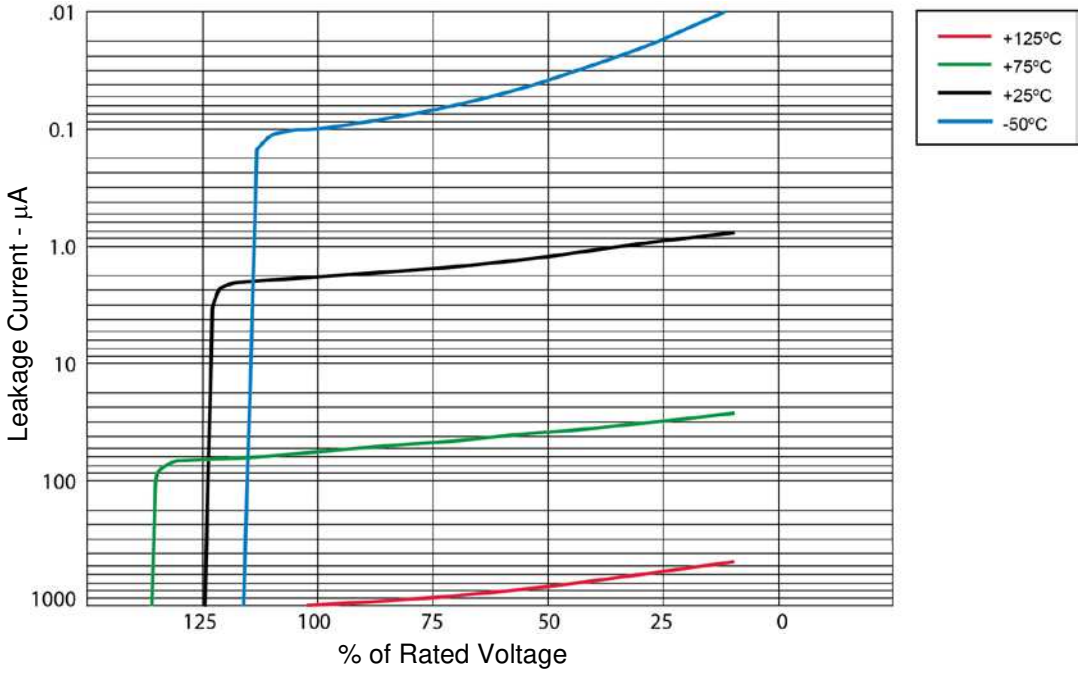

FIGURE 5
Typical Reverse Leakage Current – **Per Leg 803 Series**

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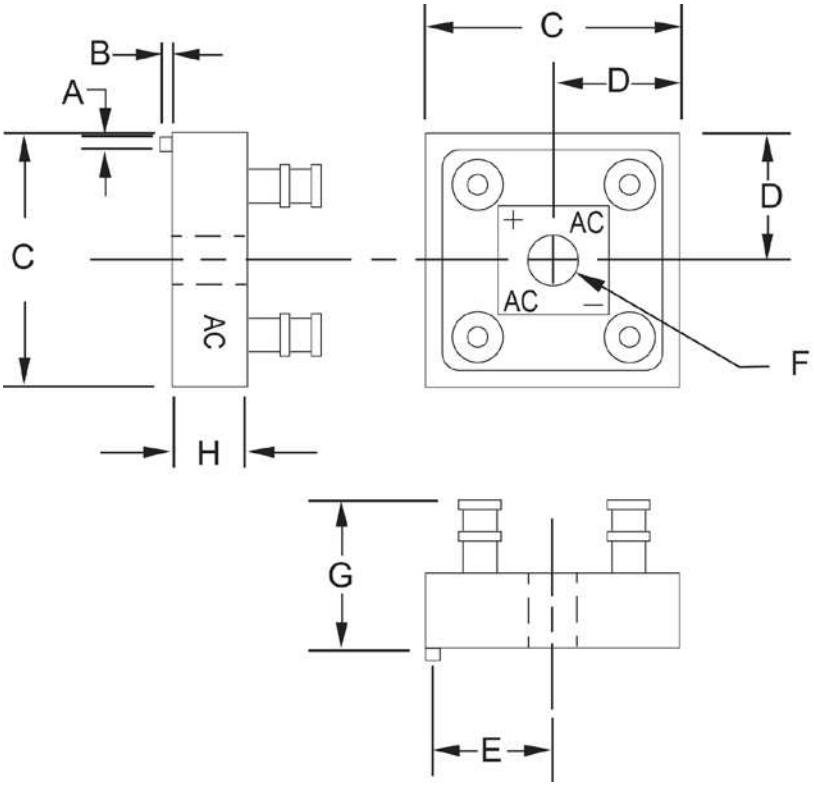
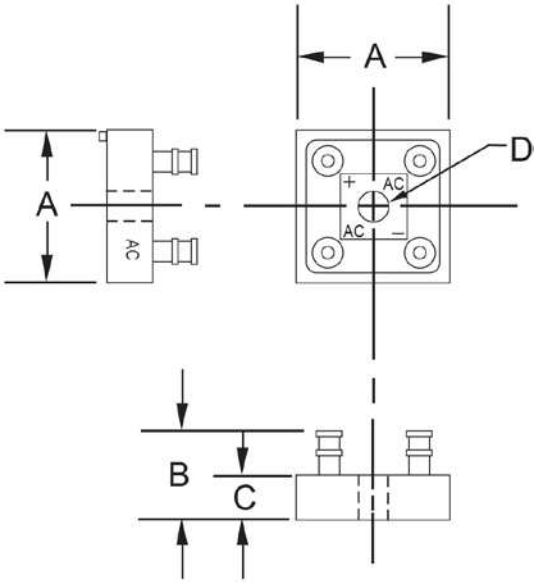
PACKAGE DIMENSIONS

802 SERIES



803 SERIES



Ltr	Dimensions			
	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.056	0.066	1.412	1.68
B	0.052	0.072	1.32	1.83
C	1.115	1.135	28.32	28.83
D	0.552	0.572	14.02	14.53
E	0.490	0.510	12.45	12.95
F	0.180	0.200	4.57	5.08
G	-	0.750	-	19.05
H	0.302	0.322	7.67	8.18

Ltr	Dimensions			
	Inch		Millimeters	
	MIN	MAX	MIN	MAX
A	0.735	0.755	18.67	19.18
B	-	0.570	-	14.48
C	0.230	0.250	5.74	6.25
D	0.139	0.149	3.30	3.81

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