



## 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>.

### FEATURES

- Current ratings to 35 amps
- $V_{RWM}$  from 50 to 150 volts (see [part nomenclature](#) for all options)
- 150 °C 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	°C	
Thermal Resistance Junction-to-Case:	802	$R_{\theta JC}$	2.0	°C/W
	803		4.0	
Thermal Resistance Junction-to-Ambient:	802	$R_{\theta JA}$	20	°C/W
	803		25	
Forward Surge Current (Peak): @ $T_C = 100$ °C	802	$I_{FSM}$	250	A
	803		125	
Maximum Average DC Output Current: @ $T_C = 55$ °C	802	$I_O$	35	A
	803		22.5	
Maximum Average DC Output Current: @ $T_C = 100$ °C	802	$I_O$	20	A
	803		16	
Solder Temperature @ 10 s			260	°C



(Actual appearance may vary)

### MA and MB Package

#### MSC – Lawrence

6 Lake Street,  
Lawrence, MA 01841  
Tel: 1-800-446-1158 or  
(978) 620-2600  
Fax: (978) 689-0803

#### MSC – Ireland

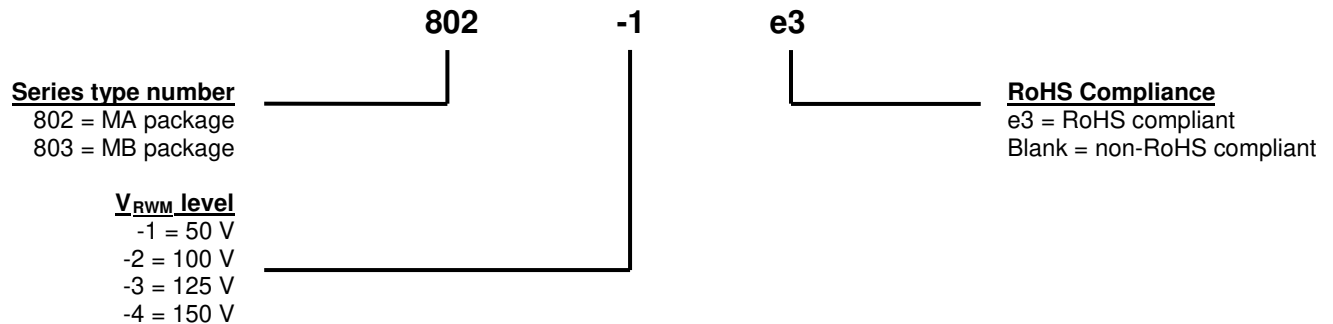
Gort Road Business Park,  
Ennis, Co. Clare, Ireland  
Tel: +353 (0) 65 6840044  
Fax: +353 (0) 65 6822298

#### Website:

[www.microsemi.com](http://www.microsemi.com)

**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**

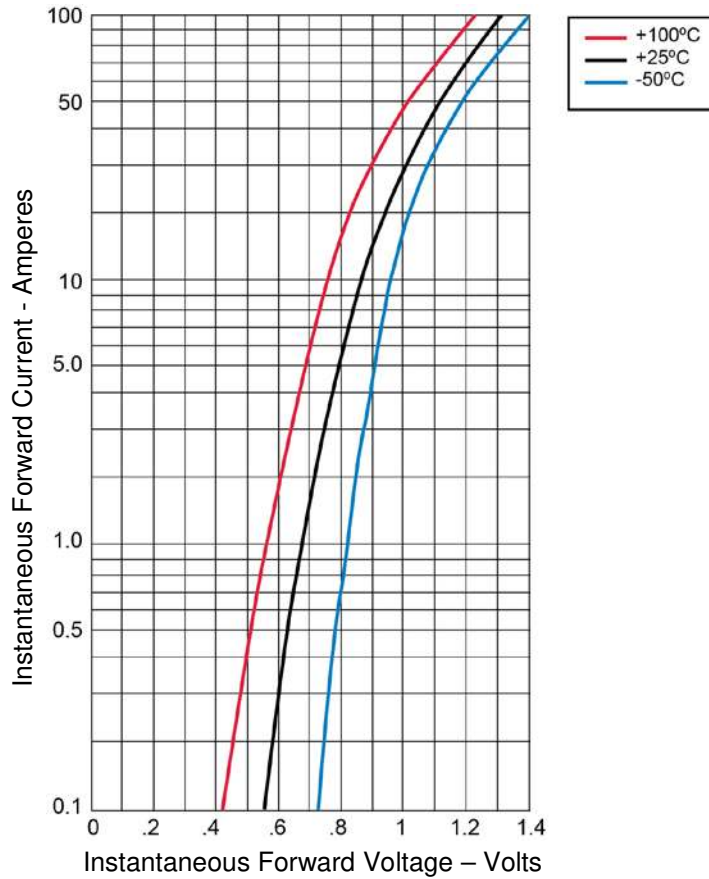
Symbol	Definition
$I_{FSM}$	Surge Peak Forward Current: The forward current including all nonrepetitive transient currents but excluding all repetitive transients (ref JESD282-B)
$I_O$	Average Rectified Output Current: The Output Current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input 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.

**ELECTRICAL CHARACTERISTICS**

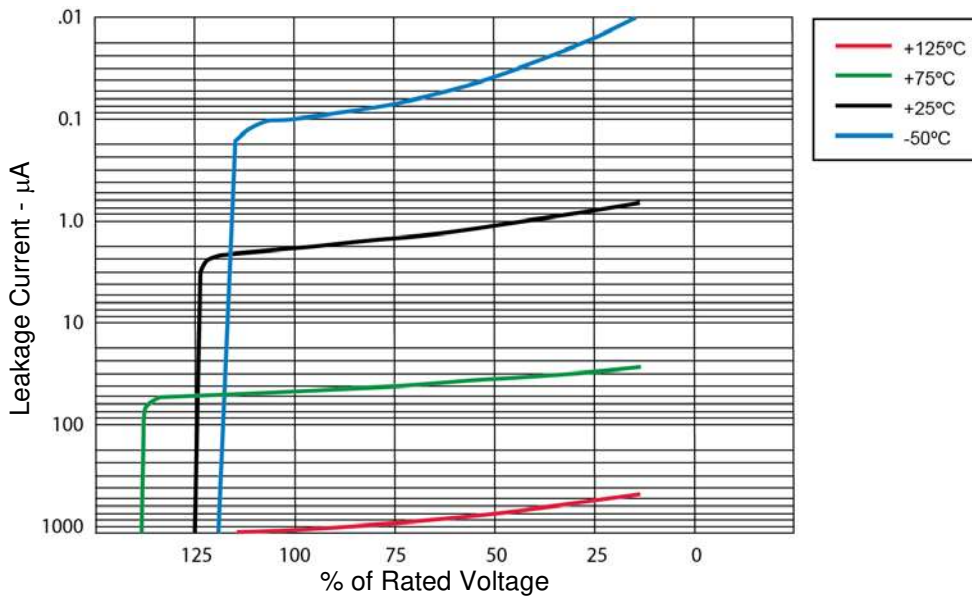
PART NUMBER	MAX FORWARD VOLTAGE PER LEG $V_{FM}$ (Note 1)	MAX REVERSE PEAK CURRENT $I_{RM}$ @ $V_{RWM}$		MAX REVERSE RECOVERY TIME $t_{rr}$ $I_F = 0.5$ A, $I_{RM} = 1.0$ A, $I_{R(REC)} = 0.250$ A
	@ 25 °C	@ 25 °C	@ 100 °C	
	Volts	$\mu$ A	$\mu$ A	ns
802	0.95 @ 10 A	20	1000	50
803	0.95 @ 6 A	10	300	50

**NOTES:** 1. Pulse test: Pulse width 300  $\mu$ sec, duty cycle 2%.

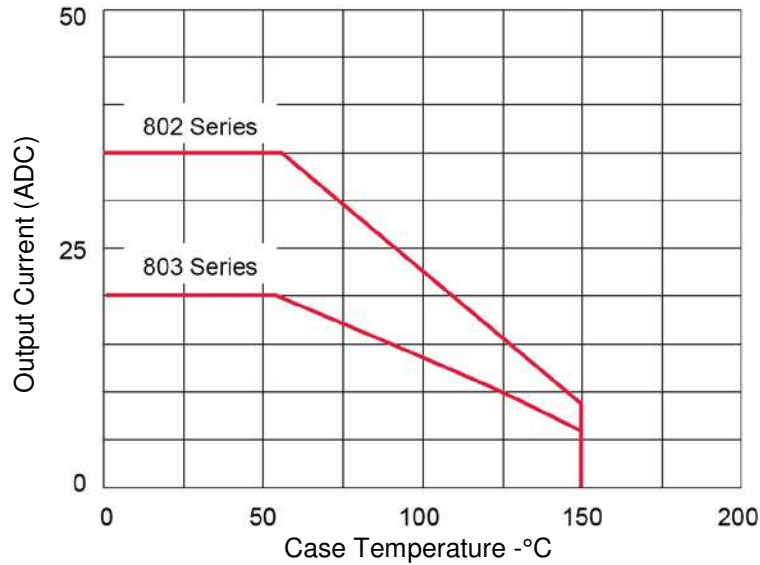
PART NUMBER		WORKING PEAK REVERSE VOLTAGE $V_{RWM}$	MINIMUM BREAKDOWN VOLTAGE $V_{(BR)}$
		Volts	Volts
802-1	803-1	50	55.0
802-2	803-2	100	110.0
802-3	803-3	125	137.5
802-4	803-4	150	165.0

**GRAPHS**


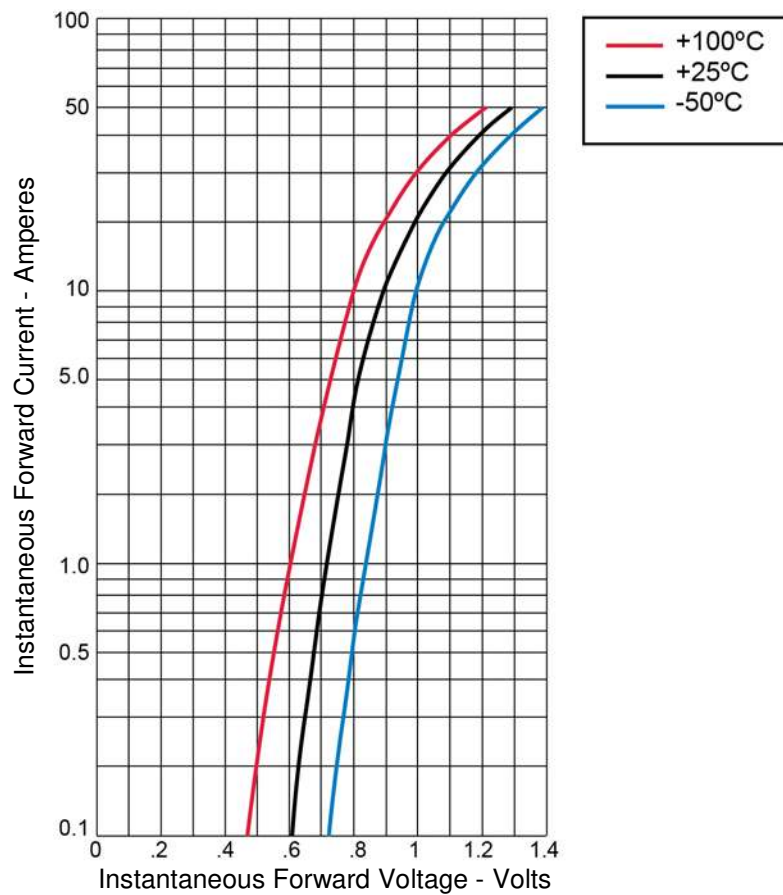
**FIGURE 1**  
**Typical Forward Characteristics – Per Leg 802 Series**



**FIGURE 2**  
**Typical Reverse Leakage Current – Per Leg 802 Series**

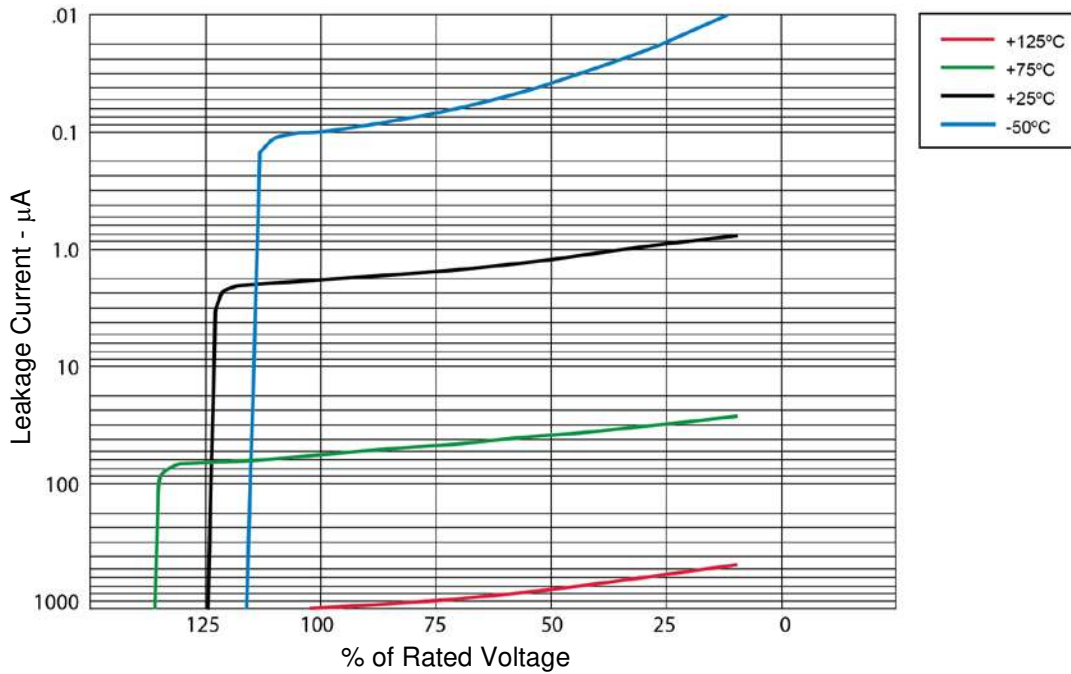
**GRAPHS (continued)**


**FIGURE 3**  
Current Derating

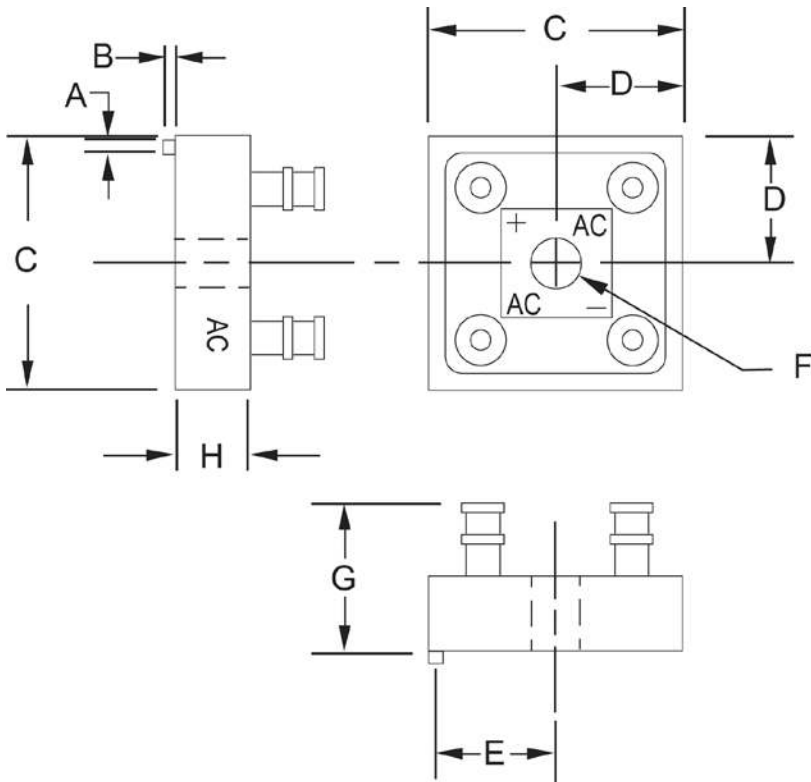
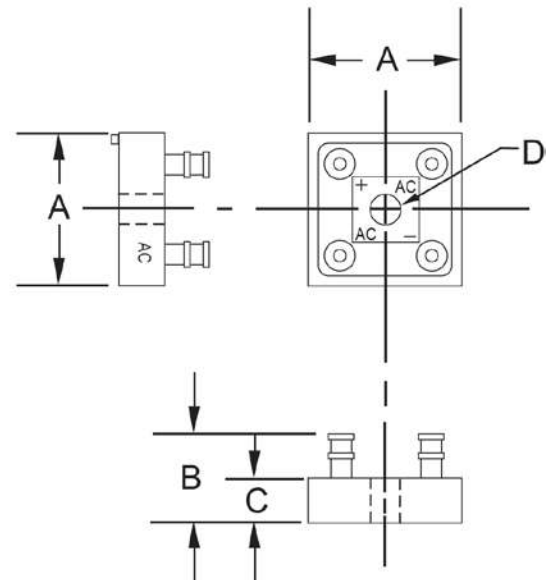


**FIGURE 4**  
Typical Forward Characteristics – Per Leg 803 Series

GRAPHS (continued)



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

**PACKAGE DIMENSIONS**
**802 SERIES**

**803 SERIES**


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

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