



## Three Phase Ultrafast Bridge Rectifiers

### 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. These 25 A & 40 A ultrafast rectifier bridges are available with working peak reverse voltage ratings up to 150 V per leg.

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

### FEATURES

- Current ratings to 40 amps
- $V_{RWM}$  from 50 to 150 volts (see [part nomenclature](#) for all options)
- 150 °C junction temperature
- Surge ratings to 250 amps
- Recovery times to 25 ns
- MIL-PRF-19500 similarity
- RoHS compliant versions available

### APPLICATIONS / BENEFITS

- Fused-in voidless glass diodes used in each leg
- Electrically isolated aluminum heat sink 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:	$R_{\theta JC}$	800	°C/W
		801	
Thermal Resistance Junction-to-Ambient:	$R_{\theta JA}$	20	°C/W
Forward Surge Current (Peak):	$I_{FSM}$	800	A
		801	
Maximum Average DC Output Current:	$I_O$	800	A
@ $T_C = 55$ °C		801	
Maximum Average DC Output Current:	$I_O$	800	A
@ $T_C = 100$ °C		801	
Solder Temperature @ 10 s		260	°C



(Actual appearance may vary)

### ME Package

#### MSC – Lawrence

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

#### MSC – Ireland

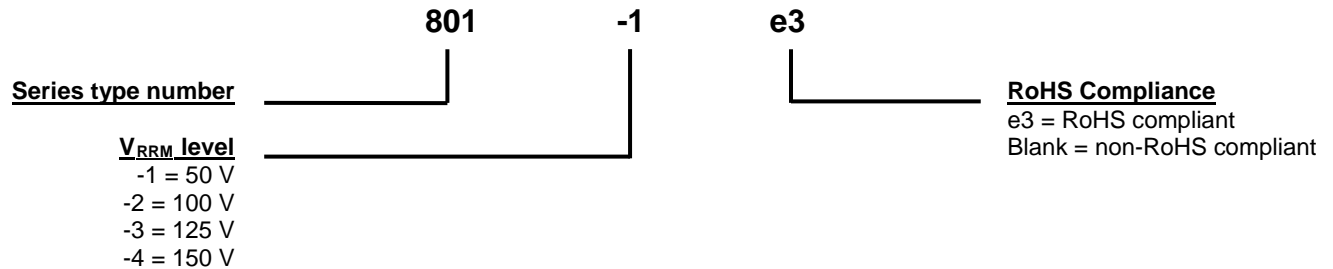
Gort Road Business Park,  
Ennis, Co. Clare, Ireland  
Tel: +353 (0) 65 6840044  
Fax: +353 (0) 65 6822298

#### Website:

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

**MECHANICAL and PACKAGING**

- CASE: Aluminum
- TERMINALS: Tin/lead or RoHS compliant matte tin
- MARKING: Alternating current input: AC  
Cathode positive output: +  
Anode negative: -  
Part number is printed on the body
- WEIGHT: Approximately 30 grams
- 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.
$V_F$	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.
$V_{RWM}$	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.

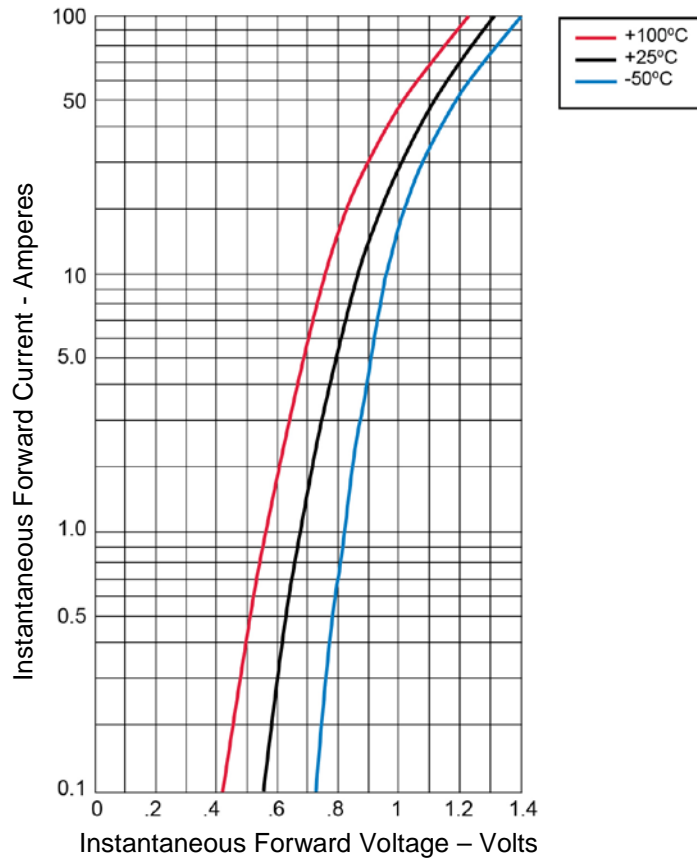
**ELECTRICAL CHARACTERISTICS**

PART NUMBER	MAX FORWARD VOLTAGE PER LEG $V_F$ (Note 1)	MAX REVERSE PEAK CURRENT $I_R @ V_{RRM}$		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
800	0.95 @ 10 A	20	1000	50
801	0.95 @ 6 A	10	300	50

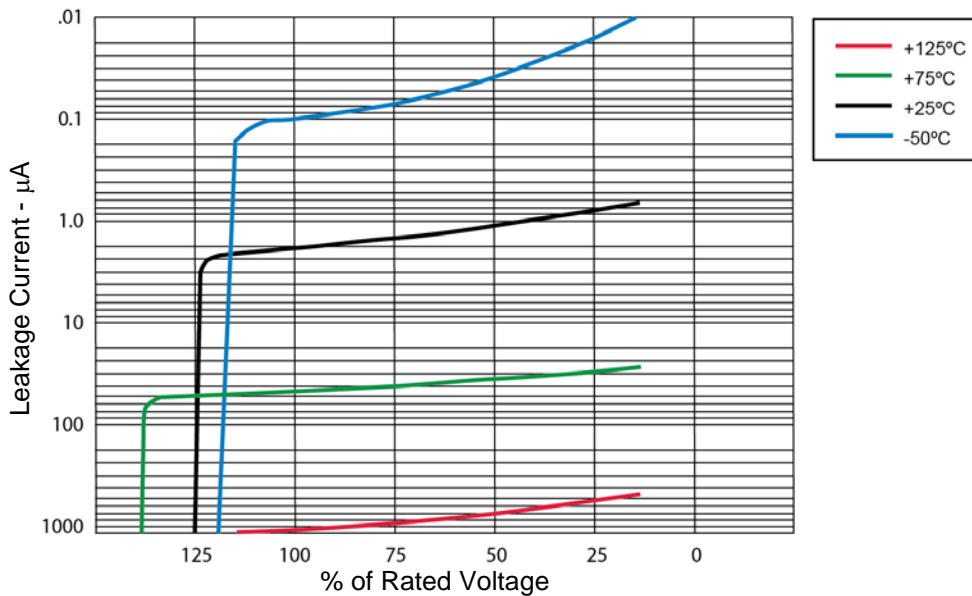
**NOTES:** 1. MAX WORKING PEAK REVERSE VOLTAGE ( $V_{RWM}$ ) numbering:

PART NUMBER		WORKING PEAK REVERSE VOLTAGE $V_{RWM}$	MINIMUM BREAKDOWN VOLTAGE $V_{(BR)}$
		Volts	Volts
800-1	801-1	50	55.0
800-2	801-2	100	110.0
800-3	801-3	125	137.5
800-4	801-4	150	165.0

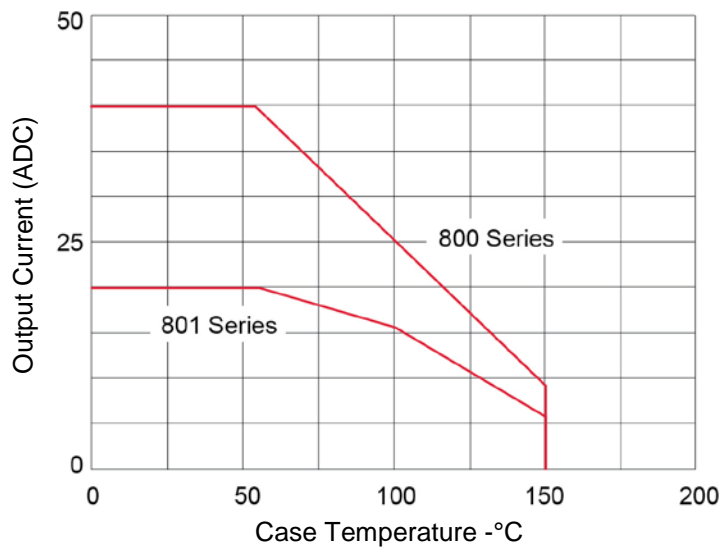
2. Pulse test: Pulse width 300  $\mu$ sec, duty cycle 2%.

**GRAPHS**


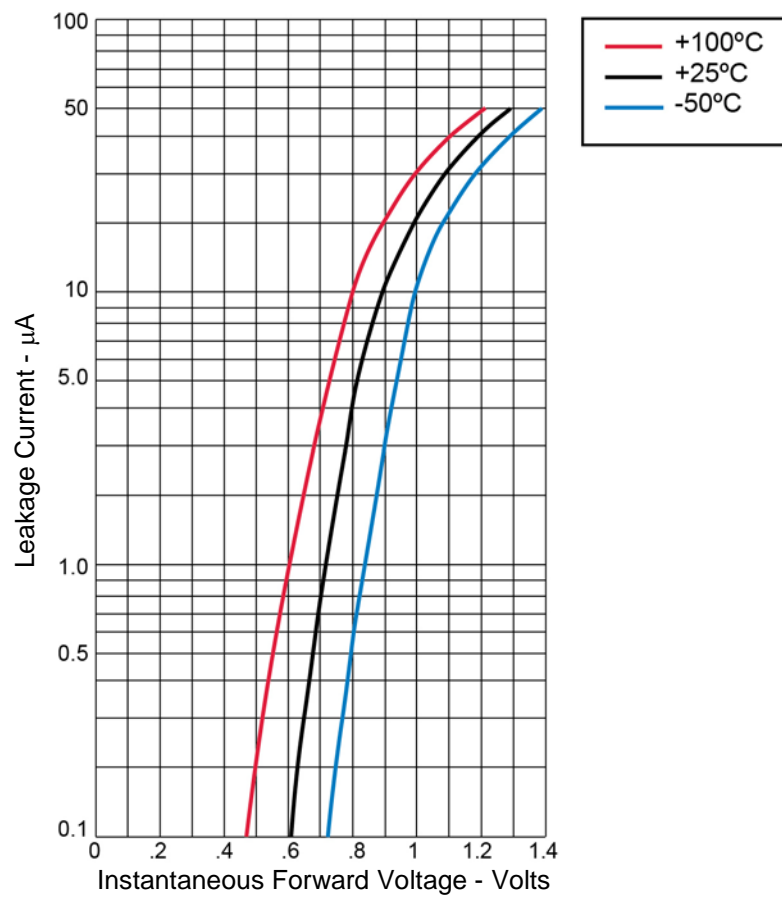
**FIGURE 1**  
**Typical Forward Characteristics – Per Leg 800 Series**



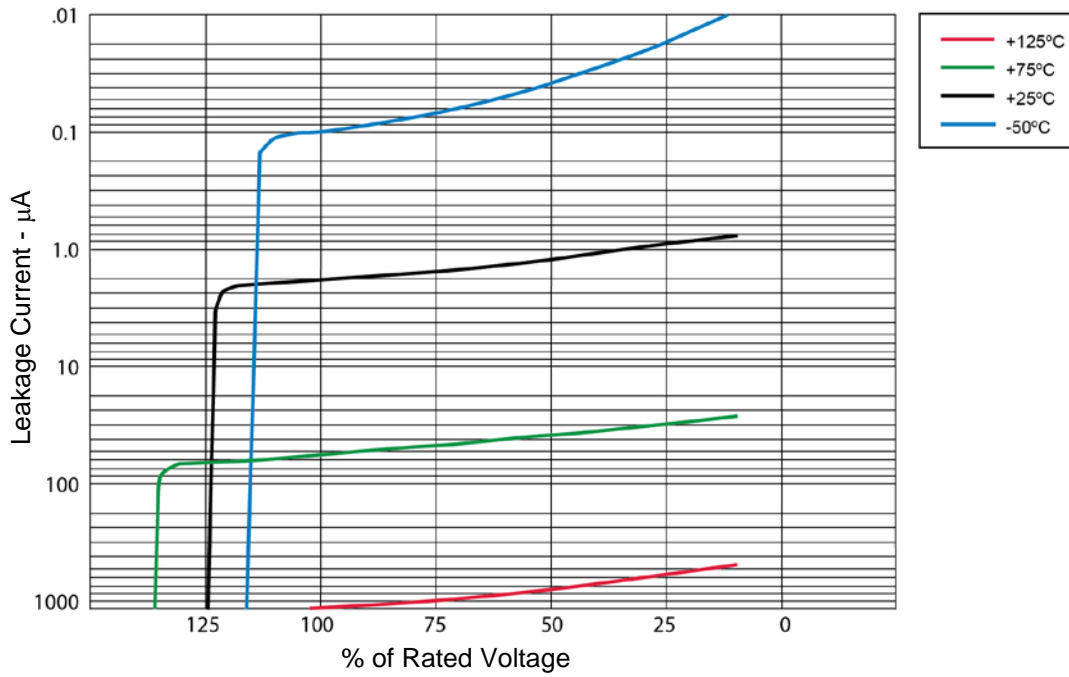
**FIGURE 2**  
**Typical Reverse Leakage Current – Per Leg 800 Series**

**GRAPHS (continued)**


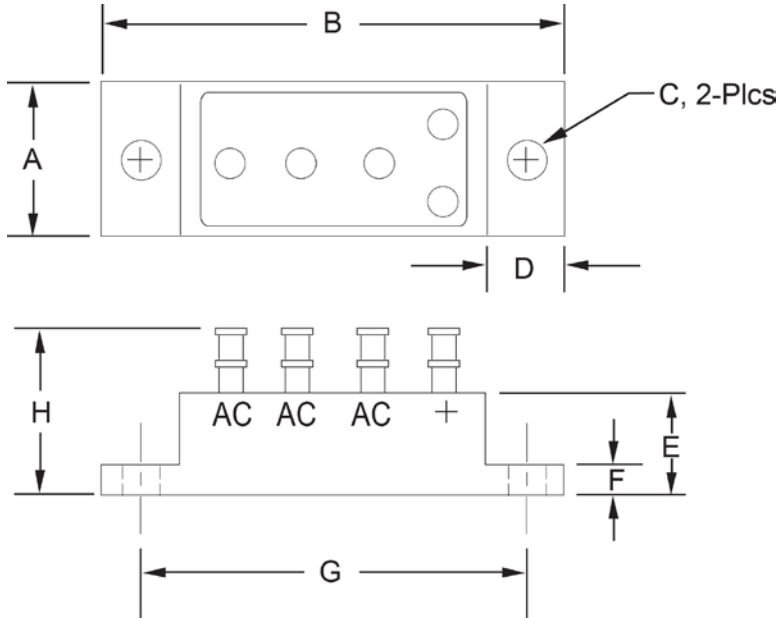
**FIGURE 3**  
**Current Derating**



**FIGURE 4**  
**Typical Forward Characteristics – Per Leg 801 Series**

**GRAPHS (continued)**


**FIGURE 5**  
**Typical Reverse Leakage Current – Per Leg 801 Series**

**PACKAGE DIMENSIONS**


Ltr	Dimensions			
	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.740	0.760	18.80	19.30
B	2.240	2.260	56.90	57.40
C (dia)	0.164	0.174	4.17	4.42
D	0.370	0.390	9.40	9.91
E	0.486	0.506	12.34	12.85
F	0.115	0.135	2.92	3.43
G	1.870	1.880	47.50	47.75
H	-	0.820	-	20.83