# Surface Mount Schottky Power Rectifier

# **SMA Power Surface Mount Package**

... employing the Schottky Barrier principle in a metal-to-silicon power rectifier. Features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies; free wheeling diodes and polarity protection diodes.

- Compact Package with J–Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over-Voltage Protection
- Low Forward Voltage Drop

## Mechanical Characteristics:

- Case: Molded Epoxy
- Epoxy Meets UL94, VO at 1/8"
- Weight: 70 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Polarity: Cathode Lead Indicated by Either Notch in Plastic Body or Polarity Band
- Available in 12 mm Tape, 5000 Units per 13 inch Reel, Add "T3" Suffix to Part Number
- Marking: B1L3

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	30	V
Average Rectified Forward Current (At Rated V <sub>R</sub> , T <sub>C</sub> = 105°C)	IO	1.0	A
Peak Repetitive Forward Current (At Rated V <sub>R</sub> , Square Wave, 100 kHz, T <sub>C</sub> = 105°C)	IFRM	2.0	A
Non–Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	IFSM	25	A
Storage/Operating Case Temperature	T <sub>stg</sub> , T <sub>C</sub>	-55 to +150	°C
Operating Junction Temperature	Тј	-55 to +125	°C
Voltage Rate of Change (Rated V <sub>R</sub> , T <sub>J</sub> = 25°C)	dv/dt	10,000	V/μs



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## SCHOTTKY BARRIER RECTIFIER 1.0 AMPERES 30 VOLTS



SMA CASE 403D PLASTIC

### MARKING DIAGRAM



B1L3 = Device Code

## ORDERING INFORMATION

Device	Package	Shipping	
MBRA130LT3	SMA	5000/Tape & Reel	

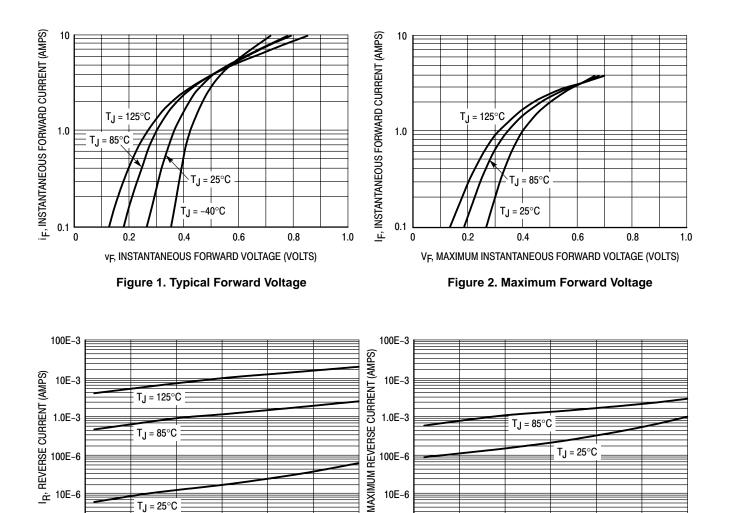
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance — Junction-to-Lead (Note 1.)	R <sub>θJL</sub>	35	°C/W
Thermal Resistance — Junction-to-Ambient (Note 1.)	R <sub>θJA</sub>	86	

### **ELECTRICAL CHARACTERISTICS**

Maximum Instantaneous Forward Voltage (Note 2.)		VF	T <sub>J</sub> = 25°C	T <sub>J</sub> = 100°C	Volts
see Figure 2	(I <sub>F</sub> = 1.0 A) (I <sub>F</sub> = 2.0 A)		0.41 0.47	0.35 0.43	
Maximum Instantaneous Reverse Current	I <sub>R</sub>	T <sub>J</sub> = 25°C	T <sub>J</sub> = 100°C	mA	
see Figure 4	(V <sub>R</sub> = 30 V) (V <sub>R</sub> = 15 V)		1.0 0.4	25 12	

1. Mounted on 2" Square PC Board with 1" Square Total Pad Size, PC Board FR4. 2. Pulse Test: Pulse Width  $\leq$  250 µs, Duty Cycle  $\leq$  2.0%.



#### 30 10 20 VR, REVERSE VOLTAGE (VOLTS)

1.0E-6

0

Figure 3. Typical Reverse Current

VR, REVERSE VOLTAGE (VOLTS) Figure 4. Maximum Reverse Current

20

30

10

\_\_\_\_\_

1.0E-6

0

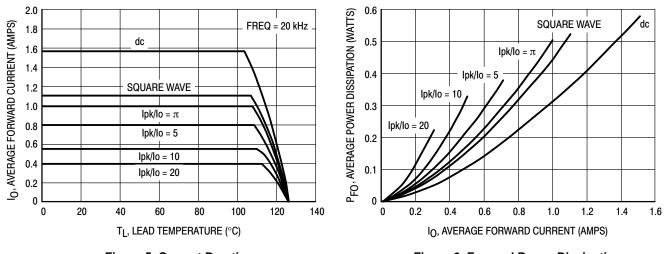
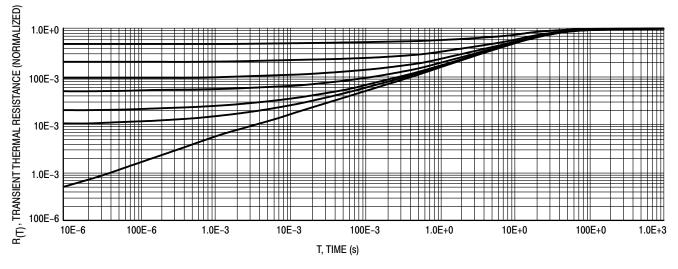




Figure 6. Forward Power Dissipation





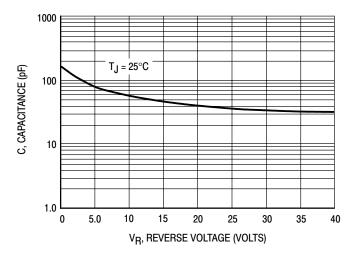
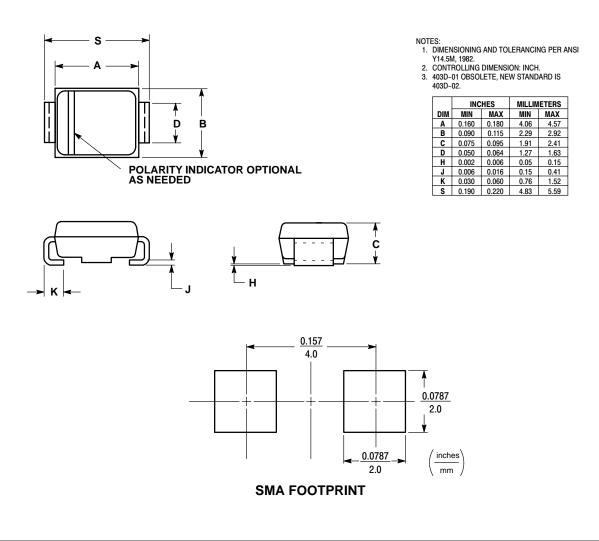


Figure 8. Capacitance

#### PACKAGE DIMENSIONS

SMA CASE 403D–02 ISSUE A



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