# **MBRS130T3**

**Preferred Device** 

# **Surface Mount Schottky Power Rectifier**

This device employs the Schottky Barrier principle in a large area metal-to-silicon power diode. State-of-the-art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as free wheeling and polarity protection diodes in surface mount applications where compact size and weight are critical to the system.

# **Features**

- Small Compact Surface Mountable Package with J-Bend Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop (0.6 Volts Max @ 1.0 A,  $T_J = 25$ °C)
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guardring for Stress Protection
- Pb-Free Package is Available

# **Mechanical Characteristics**

- Case: Epoxy, Molded
- Weight: 95 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
- Shipped in 12 mm Tape and Reel, 2500 units per reel
- Cathode Polarity Band

# **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	<b>V</b>
Average Rectified Forward Current (T <sub>L</sub> = 115°C)	I <sub>F(AV)</sub>	1.0	Α
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I <sub>FSM</sub>	40	A
Operating Junction Temperature	TJ	-65 to +125	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

# THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Thermal Resistance, Junction-to-Lead (T <sub>L</sub> = 25°C)	$R_{ heta JL}$	12	°C/W



# ON Semiconductor<sup>™</sup>

http://onsemi.com

# SCHOTTKY BARRIER RECTIFIER 1.0 AMPERE 30 VOLTS



SMB CASE 403A PLASTIC

# **MARKING DIAGRAM**



A = Assembly Location

Y = Year WW = Work Week ■ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
MBRS130T3	SMB	2500/Tape & Reel
MBRS130T3G	SMB (Pb-Free)	2500/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

**Preferred** devices are recommended choices for future use and best overall value.

# **MBRS130T3**

# **ELECTRICAL CHARACTERISTICS**

Rating	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) $(i_F = 1.0 \text{ A}, T_J = 25^{\circ}\text{C})$	V <sub>F</sub>	0.6	V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, $T_J = 25^{\circ}C$ ) (Rated dc Voltage, $T_J = 100^{\circ}C$ )	i <sub>R</sub>	1.0 10	mA

<sup>1.</sup> Pulse Test: Pulse Width = 300  $\mu$ s, Duty Cycle  $\leq$  2.0%.

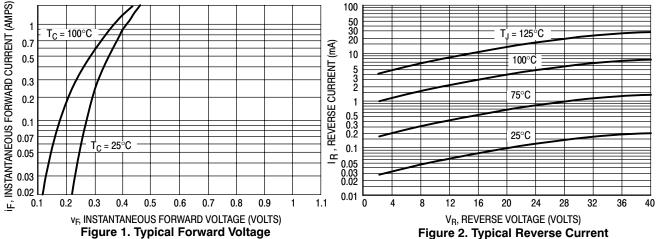


Figure 2. Typical Reverse Current

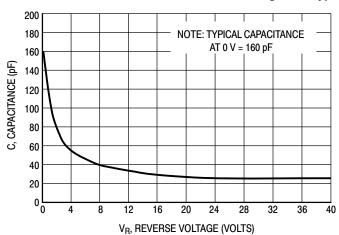
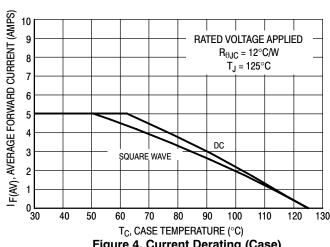
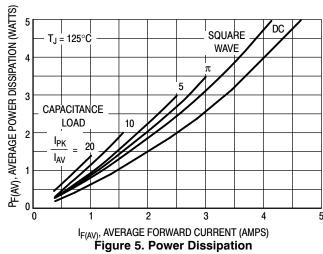


Figure 3. Typical Capacitance

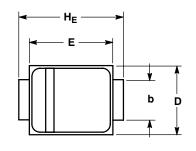


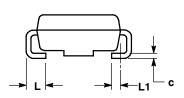


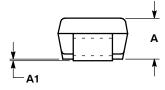
# MBRS130T3

# PACKAGE DIMENSIONS

# **SMB** CASE 403A-03 ISSUE F



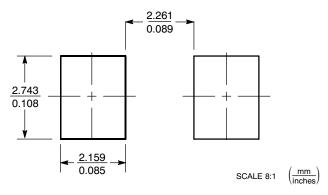




- NOTES:
  1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
   D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	1.90	2.13	2.45	0.075	0.084	0.096
A1	0.05	0.10	0.20	0.002	0.004	0.008
b	1.96	2.03	2.20	0.077	0.080	0.087
C	0.15	0.23	0.31	0.006	0.009	0.012
D	3.30	3.56	3.95	0.130	0.140	0.156
Е	4.06	4.32	4.60	0.160	0.170	0.181
HE	5.21	5.44	5.60	0.205	0.214	0.220
L	0.76	1.02	1.60	0.030	0.040	0.063
L1	0.51 REF				0.020 REF	

# **SOLDERING FOOTPRINT\***



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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