MBRS3100P

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
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guard−Ring for Stress Protection
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 217 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
- Cathode Polarity Band
- ESD Ratings:
  - Machine Model = C
  - Human Body Model = 3B

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SCHOTTKY BARRIER RECTIFIERS
3.0 AMPERES, 100 VOLTS

SMC 2−LEAD
CASE 403AC

MARKING DIAGRAM

B310	= Specific Device Code
A	= Assembly Location*
Y	= Year
WW	= Work Week
▪	= Pb−Free Package

(Note: Microdot may be in either location)

* The Assembly Location code (A) is front side optional. In cases where the Assembly Location is stamped in the package, the front side assembly code may be blank.

ORDERING INFORMATION

Device	Package	Shipping†
MBRS3100PT3G	SMC 2−Lead (Pb−Free)	2,500 / 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.

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August, 2017 − Rev. 2

Publication Order Number:
MBRS3100P/D

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
Average Rectified Forward Current (At Rated V_R, T_L = 100°C)	$I_{F(AV)}$	3.0	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	130	A
Operating Junction Temperature Range (Note 1)	T_J	– 65 to +175	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. The heat generated must be less than the thermal conductivity from Junction−to−Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	11	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) (i_F = 3.0 A, T_J = 25°C) (i_F = 6.0 A, T_J = 25°C) (i_F = 3.0 A, T_J = 125°C) (i_F = 6.0 A, T_J = 125°C)	V_F	 0.79 0.90 0.62 0.70	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 125°C)	i_R	 0.2 5.0	mA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

TYPICAL CHARACTERISTICS

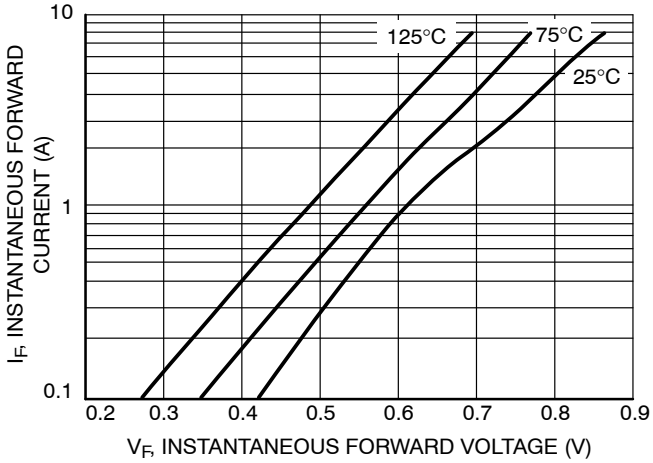


Figure 1. Typical Forward Voltage

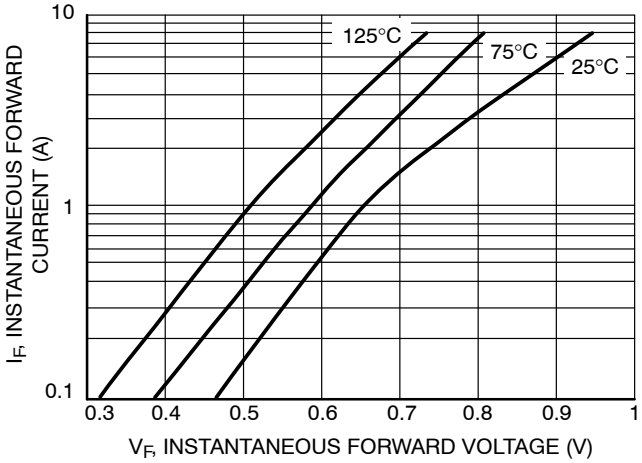


Figure 2. Maximum Forward Voltage

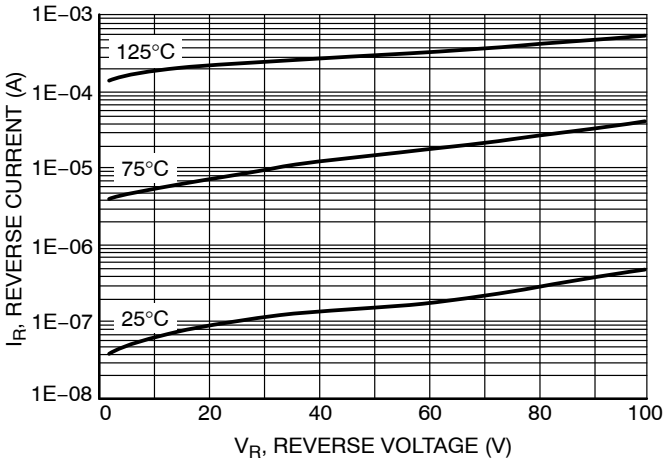


Figure 3. Typical Reverse Current

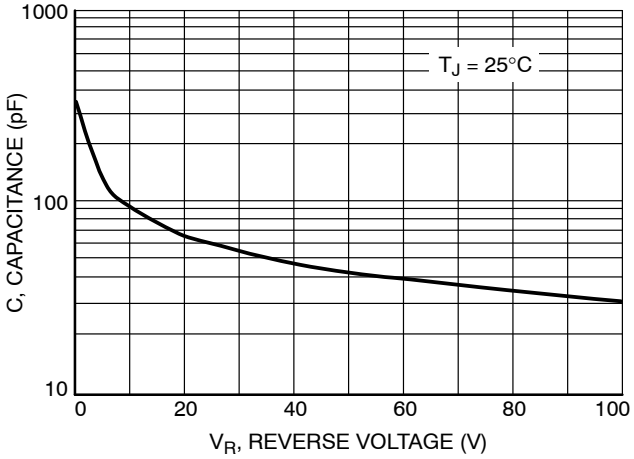


Figure 4. Typical Capacitance

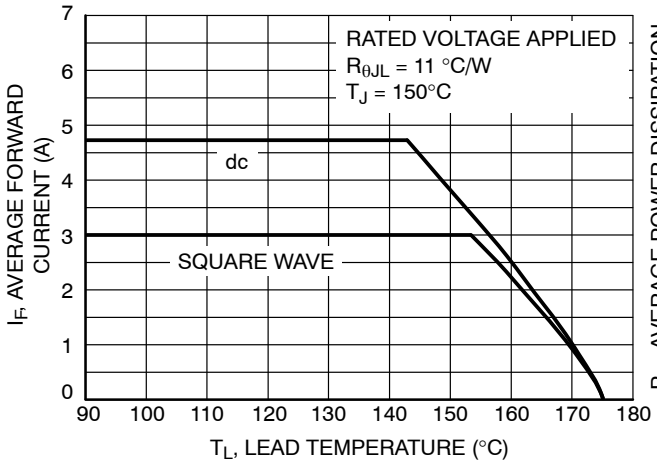


Figure 5. Current Derating − Lead

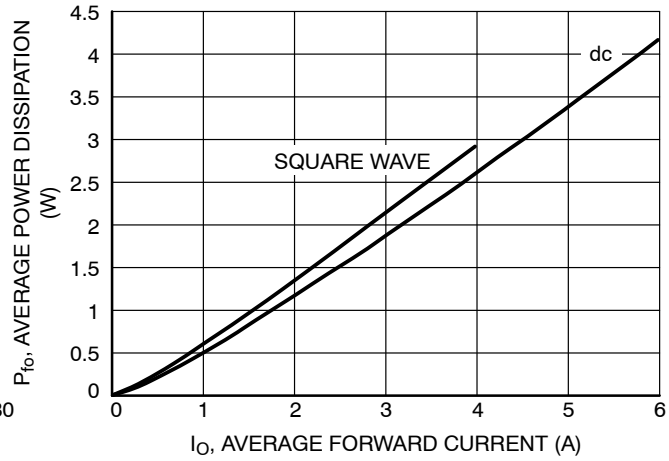
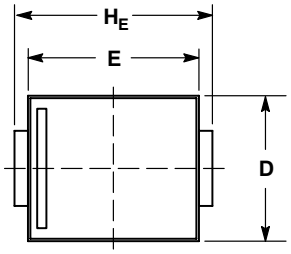


Figure 6. Forward Power Dissipation

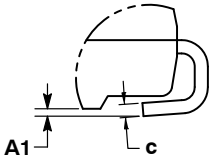
SCALE 1:1

SMC 2−LEAD
CASE 403AC
ISSUE B

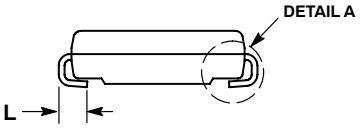
DATE 27 JUL 2017



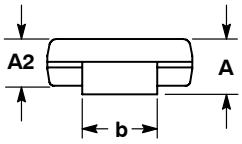
TOP VIEW



DETAIL A



SIDE VIEW

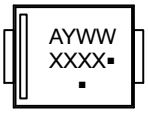


END VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.254mm PER SIDE.
4. DIMENSIONS D AND E TO BE DETERMINED AT DATUM H.
5. DIMENSION b SHALL BE MEASURED WITHIN THE AREA DETERMINED BY DIMENSION L.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	1.95	2.61	0.077	0.103
A1	0.05	0.20	0.002	0.008
A2	1.90	2.41	0.075	0.095
b	2.90	3.20	0.114	0.126
c	0.15	0.41	0.006	0.016
D	5.55	6.25	0.219	0.246
E	6.60	7.15	0.260	0.281
H_E	7.75	8.15	0.305	0.321
L	0.75	1.60	0.030	0.063

GENERIC MARKING DIAGRAM*

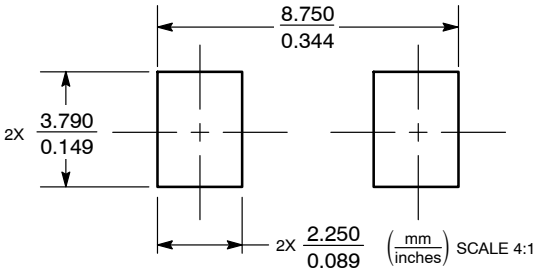


XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

RECOMMENDED SOLDERING FOOTPRINT*



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

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DESCRIPTION:	**SMC 2−LEAD**	**PAGE 1 OF 1**

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