MBRS360P

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 are Pb−Free Devices

Mechanical Characteristics

- Case: Epoxy, Molded, Epoxy Meets UL 94 V−0
- 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
- Device Meets MSL 1 Requirements
- ESD Ratings:
  - Machine Model, C
  - Human Body Model, 3B

ON Semiconductor®

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SCHOTTKY BARRIER RECTIFIERS 3.0 AMPERES, 60 VOLTS

SMC
CASE 403AC

MARKING DIAGRAM

B36	= Specific Device Code
A	= Assembly Location
Y	= Year
WW	= Work Week
▪	= Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MBRS360PT3G	SMC (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 Specification Brochure, BRD8011/D.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	60	V
Average Rectified Forward Current	$I_{F(AV)}$	3.0 @ T_L = 137°C 4.0 @ T_L = 127°C	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	125	A
Storage Temperature Range	T_{stg}	− 65 to +175	°C
Operating Junction Temperature (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 (Note 2)	$R_{\theta JL}$	11	°C/W
Thermal Resistance, Junction−to−Ambient (Note 2)	$R_{\theta JA}$	136	°C/W
Thermal Resistance, Junction−to−Ambient (Note 3)	$R_{\theta JA}$	71	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 4) (i_F = 3.0 A, T_J = 25°C)	V_F	0.63	V
Maximum Instantaneous Reverse Current (Note 4) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 100°C)	i_R	0.03 3.0	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. Mounted with minimum recommended pad size, PC Board FR4.
3. 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.
4. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

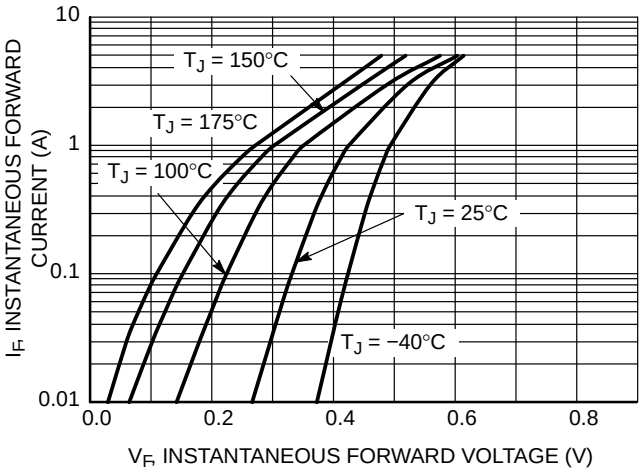


Figure 1. Typical Forward Voltage

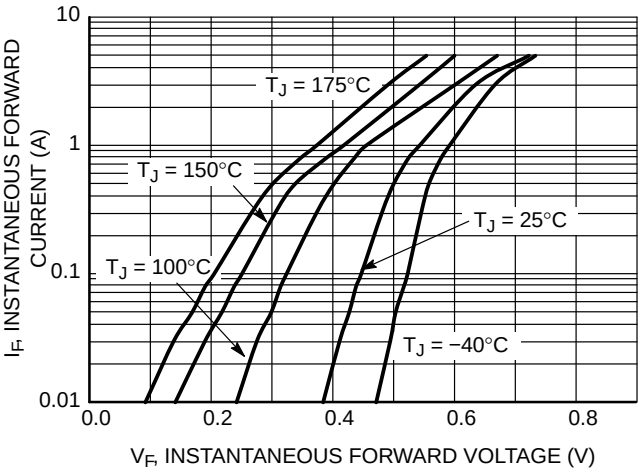


Figure 2. Maximum Forward Voltage

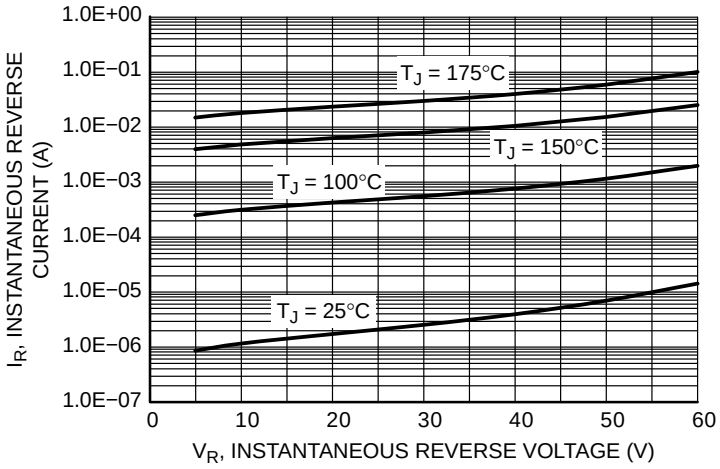


Figure 3. Typical Reverse Current

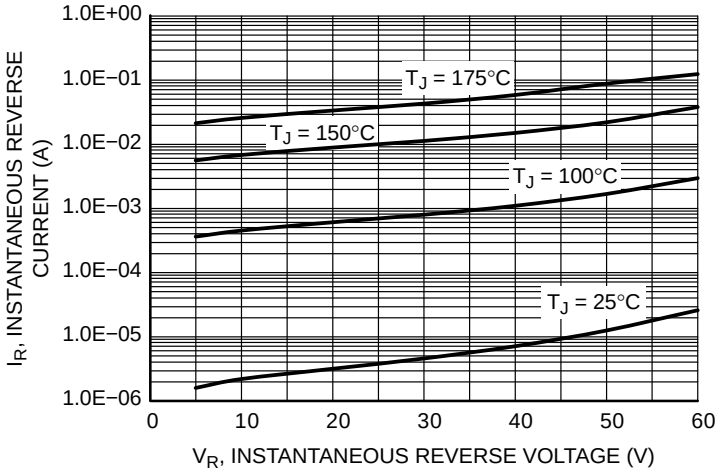


Figure 4. Maximum Reverse Current

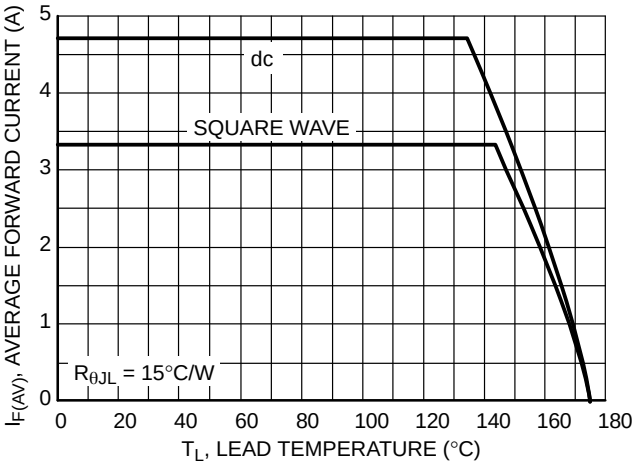


Figure 5. Current Derating

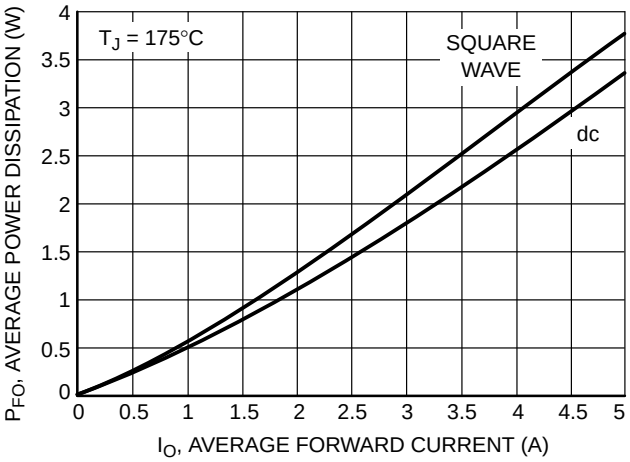


Figure 6. Forward Power Dissipation

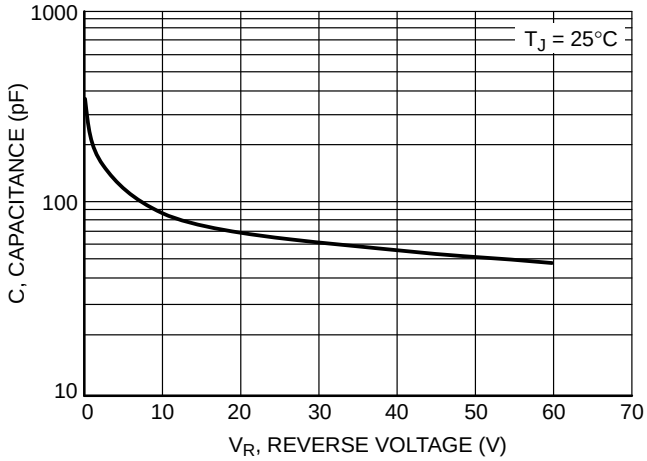


Figure 7. Typical Capacitance

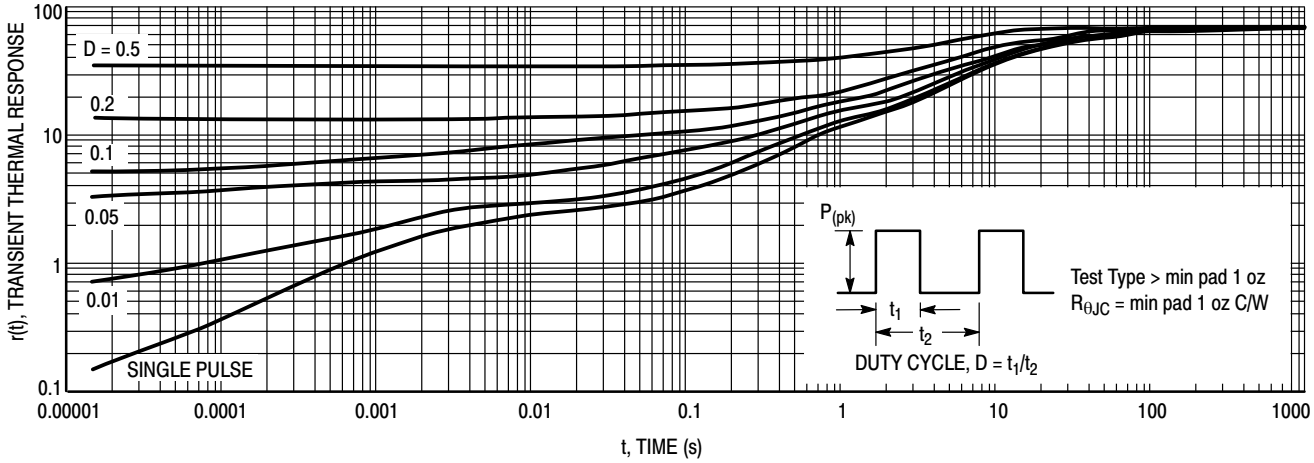
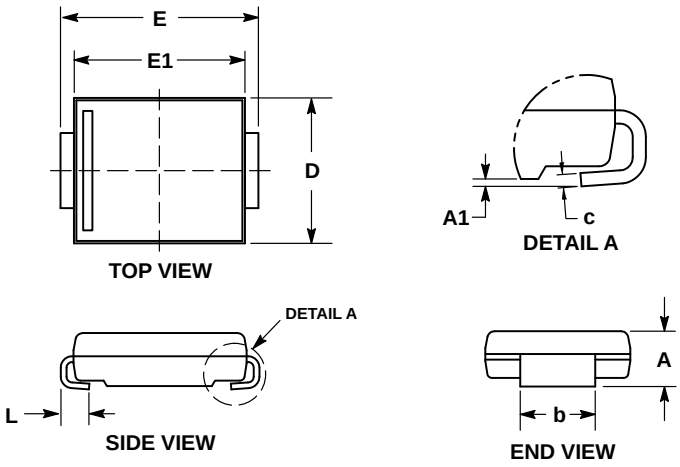


Figure 8. Thermal Response, Junction−to−Ambient, SMC Package

PACKAGE DIMENSIONS

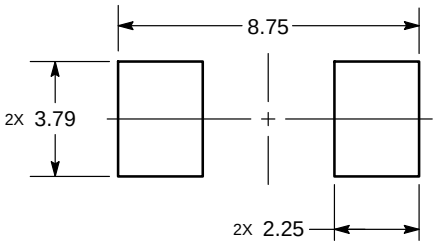
SMC 2−LEAD
CASE 403AC
ISSUE O



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.13 PER SIDE.
4. DIMENSIONS D AND E1 TO BE DETERMINED AT DATUM H.
5. DIMENSION b SHALL BE MEASURED WITHIN THE AREA DETERMINED BY DIMENSION L.

	MILLIMETERS	
DIM	MIN	MAX
A	1.95	2.65
A1	0.05	0.20
b	2.90	3.20
c	0.15	0.41
D	5.55	6.25
E	7.75	8.15
E1	6.60	7.15
L	0.75	1.60

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
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Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
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