Surface Mount Schottky Power Rectifier

SMB Power Surface Mount Package

This device employs 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.

Features

- Compact Package with J-Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guard-Ring for Over-Voltage Protection
- Low Forward Voltage Drop
- Pb-Free Package is Available

Mechanical Characteristics

- Case: Molded Epoxy
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 95 mg (Approximately)
- Cathode Polarity Band
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- ESD Ratings: Machine Model = C
 - Human Body Model = 3B

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 (At Rated V_R , $T_L = 95$ °C)	I _O	2.0	Α			
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I _{FSM}	60	Α			
Storage Temperature Range	T _{stg}	-55 to +150	°C			
Operating Junction Temperature	TJ	-55 to +125	°C			
Voltage Rate of Change (Rated V_R , $T_J = 25$ °C)	dv/dt	10,000	V/μs			

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.

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SCHOTTKY BARRIER RECTIFIER 2.0 AMPERES, 60 VOLTS



SMB CASE 403A PLASTIC

MARKING DIAGRAM



B26 = 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 [†]
MBRS260T3	SMB	2500/Tape & Reel
MBRS260T3G	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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Lead (Note 1)	$R_{ heta JL}$	24	°C/W
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	80	

ELECTRICAL CHARACTERISTICS

Ī	Maximum Instantaneous Forward Voltage (Note 3)	٧F	T _J = 25°C	T _J = 125°C	V
	$(i_F = 1.0 \text{ A})$ $(i_F = 2.0 \text{ A})$		0.51 0.63	0.475 0.55	
Ī	Maximum Instantaneous Reverse Current (Note 3)	I _R	T _J = 25°C	T _J = 125°C	mA
	(V _R = 60 V		0.2	20	

- 1. Mounted with minimum recommended pad size, PC Board FR4.
- 2. 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.
- 3. Pulse Test: Pulse Width \leq 250 μ s, Duty Cycle \leq 2.0%.

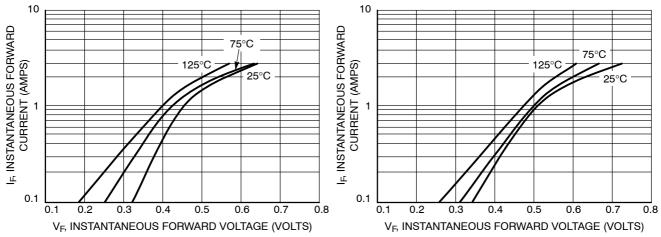


Figure 1. Typical Forward Voltage

Figure 2. Maximum Forward Voltage

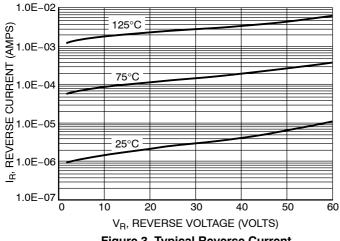


Figure 3. Typical Reverse Current

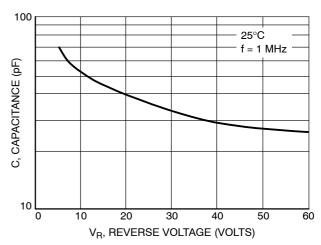
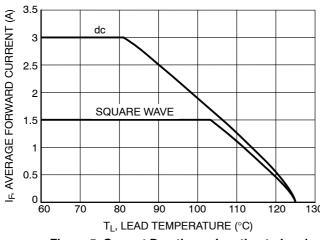


Figure 4. Typical Capacitance



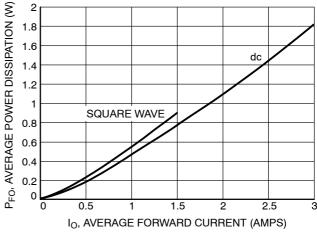


Figure 5. Current Derating - Junction to Lead

Figure 6. Forward Power Dissipation

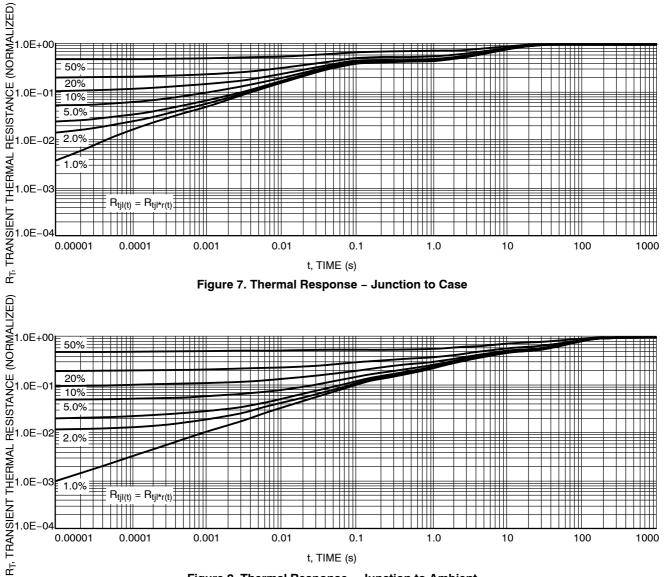


Figure 7. Thermal Response - Junction to Case

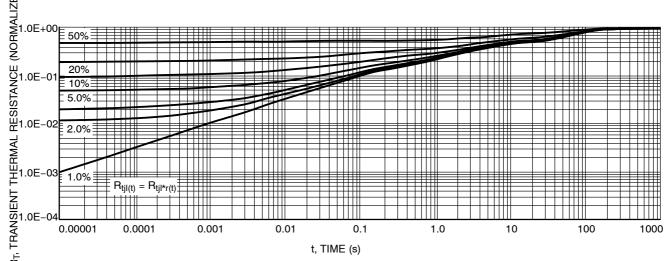
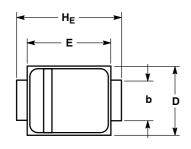


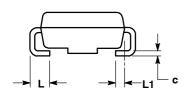
Figure 8. Thermal Response - Junction to Ambient

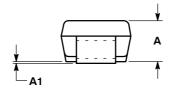
PACKAGE DIMENSIONS

SMB

CASE 403A-03 ISSUE G





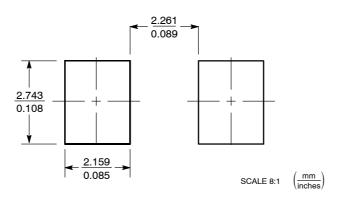


NOTES:

- 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
С	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
E	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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