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 (0.55 Volts Max @ 1.0 A, $T_I = 25$ °C)
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guard-Ring 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
- Cathode Polarity Band

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	20	٧
Average Rectified Forward Current (T _L = 115°C)	I _{F(AV)}	1.0	Α
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I _{FSM}	40	Α
Operating Junction Temperature	TJ	-65 to +125	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



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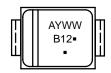
http://onsemi.com

SCHOTTKY BARRIER RECTIFIER 1.0 AMPERE, 20 VOLTS



SMB CASE 403A PLASTIC

MARKING DIAGRAM



B12 = 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 [†]
MBRS120T3	SMB	2500/Tape & Reel
MBRS120T3G	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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction–to–Lead (T _L = 25°C)	$R_{ heta JL}$	12	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1) (i _F = 1.0 A, T _J = 25°C)	V _F	0.6	V
Maximum Instantaneous Reverse Current (Note 1)	i _R		mA
(Rated dc Voltage, $T_J = 25^{\circ}C$)		1.0	
(Rated dc Voltage, $T_J = 100^{\circ}C$)		10	

^{1.} Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

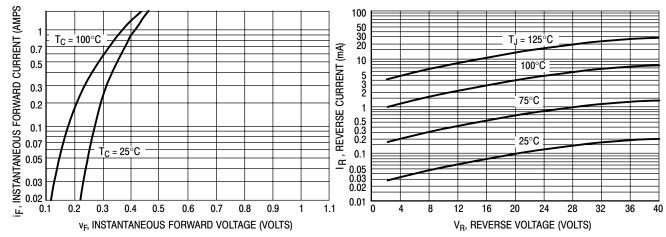


Figure 1. Typical Forward Voltage

Figure 2. Typical Reverse Current

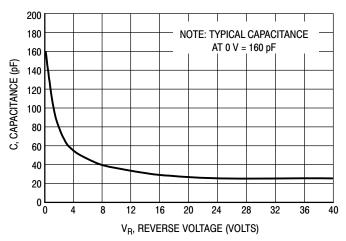


Figure 3. Typical Capacitance

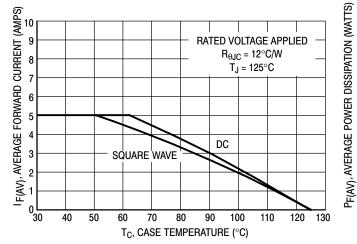


Figure 4. Current Derating (Case)

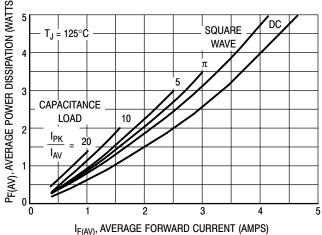
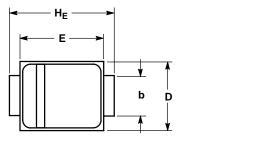
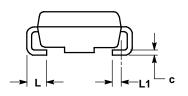


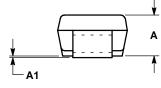
Figure 5. Power Dissipation

PACKAGE DIMENSIONS

SMB PLASTIC PACKAGE CASE 403A-03 ISSUE E





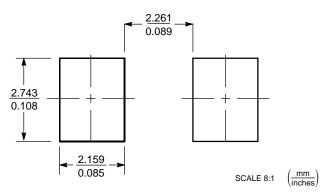


NOTES

- 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	2.41	0.075	0.084	0.095
A1	0.05	0.10	0.15	0.002	0.004	0.006
b	1.96	2.03	2.11	0.077	0.080	0.083
С	0.15	0.23	0.30	0.006	0.009	0.012
D	3.30	3.56	3.81	0.130	0.140	0.150
E	4.06	4.32	4.57	0.160	0.170	0.180
HE	5.21	5.44	5.59	0.205	0.214	0.220
L	0.76	1.02	1.27	0.030	0.040	0.050
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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