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MBR2H200SFT1G, MBR2H200SFT3G

Surface Mount Schottky Power Rectifier

Plastic SOD−123FL Package

This device uses the Schottky Barrier principle with a large area metal−to−silicon power diode. 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. Because of its small size, it is ideal for use in portable and battery powered products such as cellular and cordless phones, chargers, notebook computers, printers, PDAs and PCMCIA cards. Typical applications are AC−DC and DC−DC converters, reverse battery protection, and "Oring" of multiple supply voltages and any other application where performance and size are critical.

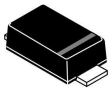
Features

- Guardring for Stress Protection
- Low Forward Voltage
- Epoxy Meets UL 94 V−0
- Package Designed for Optimal Automated Board Assembly
- These are Pb−Free Devices

Mechanical Characteristics

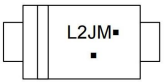
- Reel Options: MBR2H200SFT3G = 10,000 per 13 in reel/8 mm tape
- Device Marking: L2J
- Polarity Designator: Cathode Band
- Weight: 11.7 mg (approximately)
- Case: Epoxy, Molded
- Lead Finish: 100% Matte Sn (Tin)
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL 1 Requirements

SCHOTTKY BARRIER RECTIFIER 2.0 AMPERES 200 VOLTS



SOD−123FL CASE 498

MARKING DIAGRAM



L2J = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MBR2H200SFT1G	SOD−123 (Pb−Free)	3000 / Tape & Reel
MBR2H200SFT3G	SOD−123 (Pb−Free)	10000 / Tape & Reel

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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
Average Rectified Forward Current (T_L = 108°C)	I_O	2.0	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz, T_C = 105°C)	I_{FRM}	4.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	30	A
Storage and Operating Junction Temperature Range (Note 1)	T_{stg}, T_J	−55 to +150	°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)	Ψ_{JCL}	23	°C/W
Thermal Resistance, Junction−to−Ambient (Note 2)	$R_{\theta JA}$	85	°C/W
Thermal Resistance, Junction−to−Ambient (Note 3)	$R_{\theta JA}$	330	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 4) (I_F = 1.0 A, T_J = 25°C) (I_F = 2.0 A, T_J = 25°C) (I_F = 1.0 A, T_J = 125°C) (I_F = 2.0 A, T_J = 125°C)	V_F	 0.86 0.94 0.71 0.78	V
Maximum Instantaneous Reverse Current (Note 4) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 125°C)	I_R	 200 2	 μA 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 700 mm^2 copper pad size (Approximately 1 in^2) 1 oz FR4 Board.
3. Mounted with pad size approximately 20 mm^2 copper, 1 oz FR4 Board.
4. Pulse Test: Pulse Width ≤ 380 μs, Duty Cycle ≤ 2.0%.

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TYPICAL CHARACTERISTICS

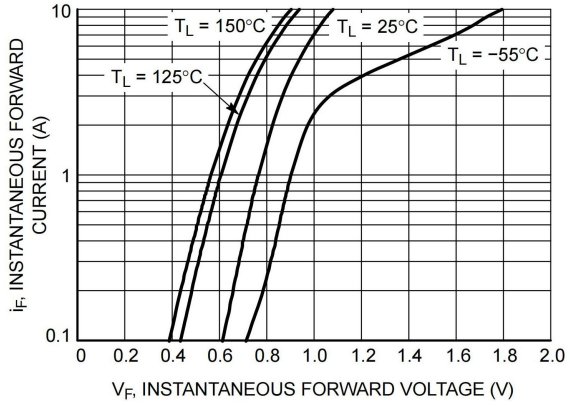

Figure 1. Typical Instantaneous Forward Characteristics

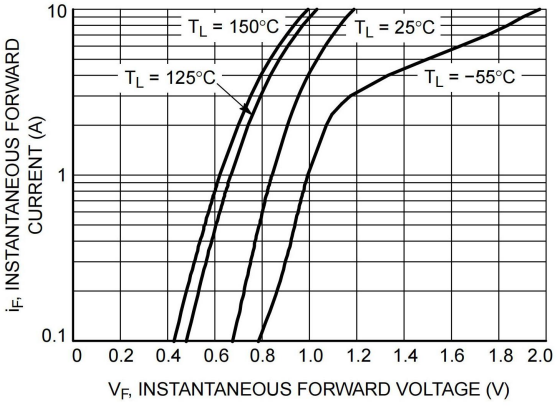

Figure 2. Maximum Instantaneous Forward Characteristics

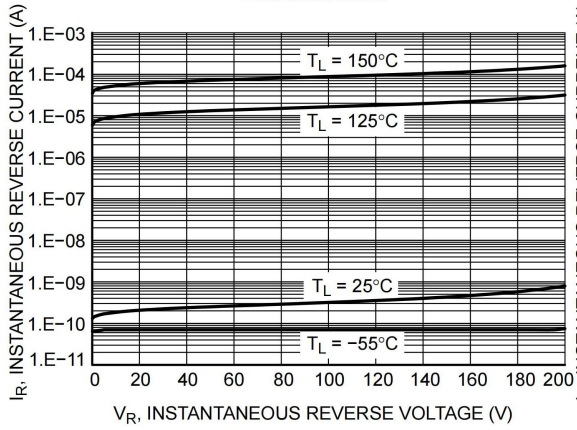

Figure 3. Typical Reverse Characteristics

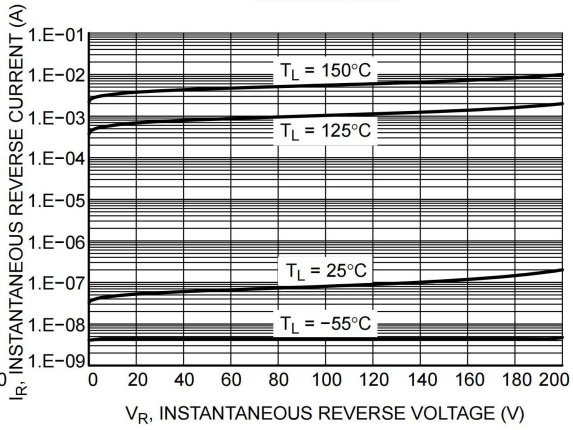

Figure 4. Maximum Reverse Characteristics

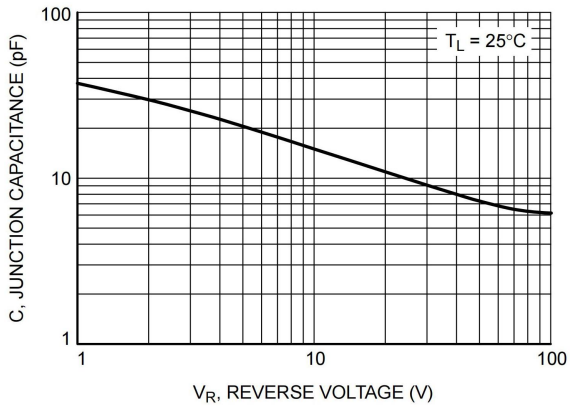

Figure 5. Typical Junction Capacitance

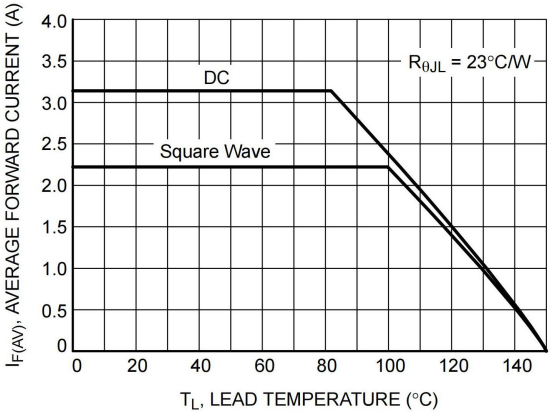

Figure 6. Current Derating per Diode

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TYPICAL CHARACTERISTICS

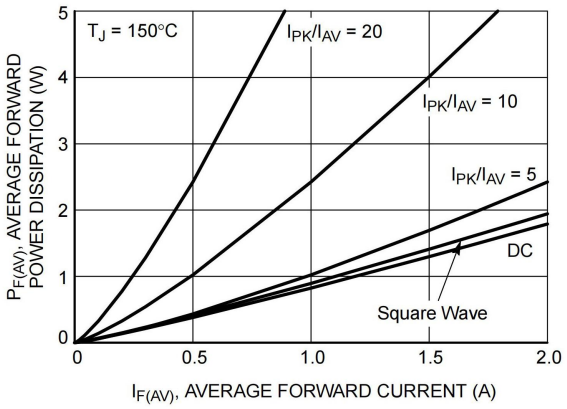

Figure 7. Forward Power Dissipation

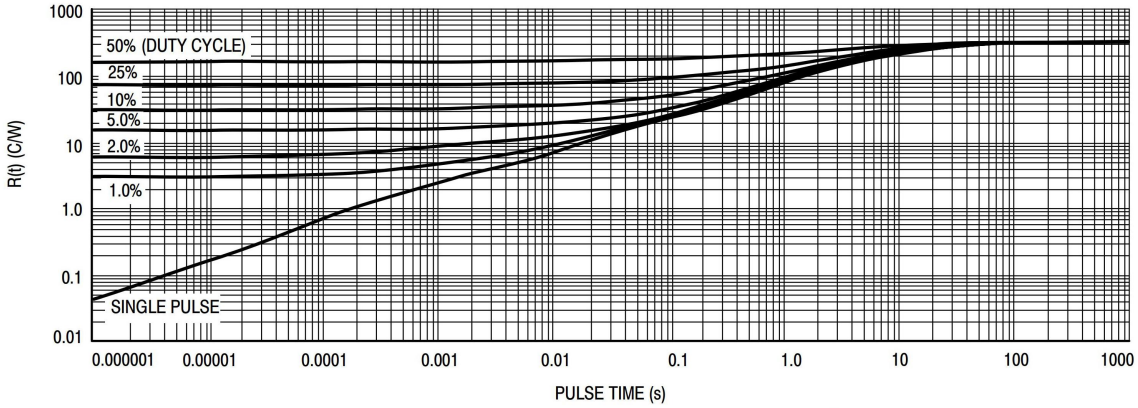

Figure 8. Thermal Response, Junction−to−Ambient (20 mm^2 pad)

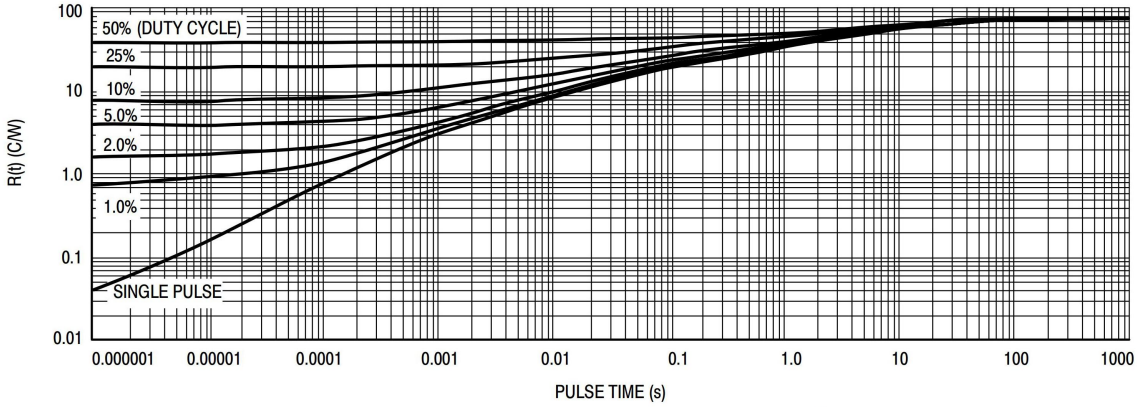

Figure 9. Thermal Response, Junction−to−Ambient (1 in^2 pad)

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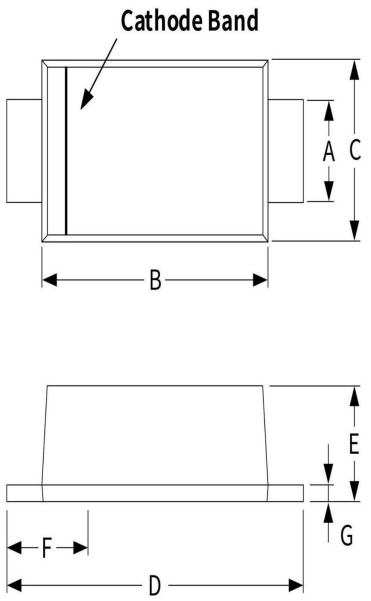
Ordering Information

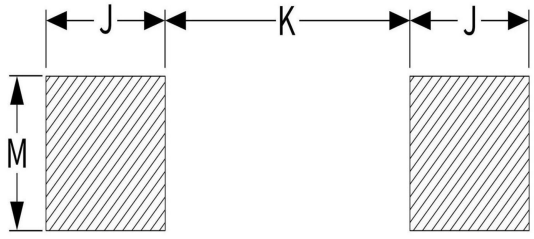
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-123FL	R1		3000	30000	240000	7"
SOD-123FL	R3		10000	40000	200000	13

Package Outline Dimensions (SOD -123FL)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.430
B	2.55	2.85	0.100	0.111
C	1.60	1.90	0.063	0.074
D	3.60	3.90	0.031	0.043
E	1.00	1.20	0.031	0.035
F	0.40	0.90	0.047	0.055
G	0.10	0.25	0.003	0.007

Suggested Pad Lavout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	1.00	-	0.040	-
K	-	1.90	-	0.074
M	1.50	-	0.059	-