MBRM5100H

5A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER
POWERMITE®3

NEW PRODUCT

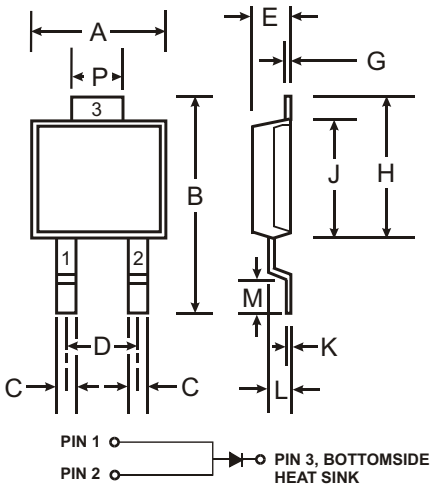
UNDER DEVELOPMENT

Features

- Guard Ring Die Construction for Transient Protection
- High Surge Current Capability
- Very Low Leakage Current
- High Junction Temperature Capability
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- Plastic Material: UL Flammability Classification Rating 94V-0

Mechanical Data

- Case: POWERMITE®3 Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Moisture sensitivity: Level 1 per J-STD-020A
- Polarity: See Diagram
- Marking: See Page 4
- Weight: 0.077 grams (approx.)



Note: Pins 1 & 2 must be electrically connected at the printed circuit board.

POWERMITE®3		
Dim	**Min**	**Max**
A	4.03	4.09
B	6.40	6.61
C	.864	.914
D	1.83 NOM	
E	1.10	1.14
G	.173	.203
H	5.01	5.17
J	4.37	4.43
K	.173	.203
L	.71	.77
M	.36	.46
P	1.73	1.83
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	71	V
Average Rectified Output Current @ T_C = 75°C	I_O	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	150	A
Maximum Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	2.0	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	$V_{(BR)R}$	100	—	—	V	I_R = 3.5μA
Forward Voltage (Note 1)	V_F	— — — —	0.675 0.55 0.75 0.63	0.70 0.58 0.78 0.66	V	I_F = 5A, T_S = 25°C I_F = 5A, T_S = 125°C I_F = 10A, T_S = 25°C I_F = 10A, T_S = 125°C
Reverse Leakage Current (Note 1)	I_R	— —	0.2 0.25	3.5 4.5	μA mA	T_S = 25°C, V_R = 100V T_S = 125°C, V_R = 100V

Notes: 1. Short duration test pulse used to minimize self-heating effect.

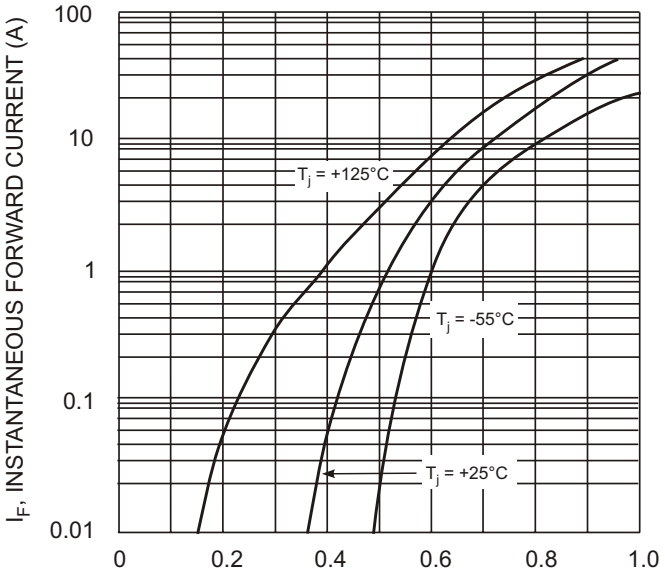


Fig. 1 Typical Forward Characteristics

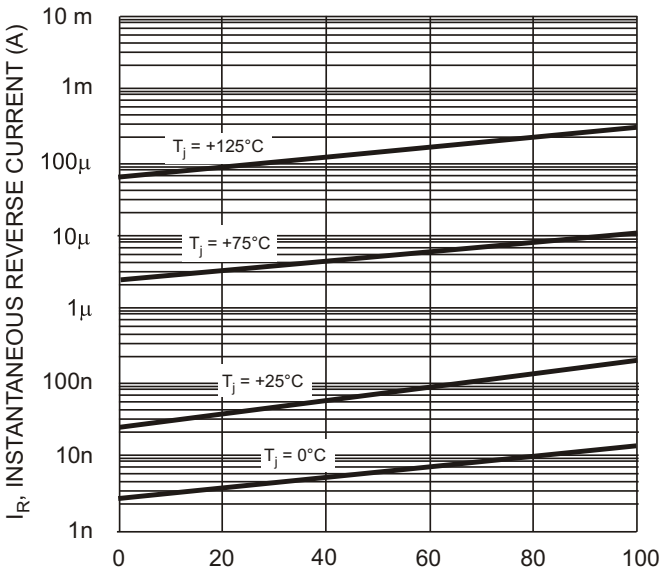


Fig. 2 Typical Reverse Characteristics

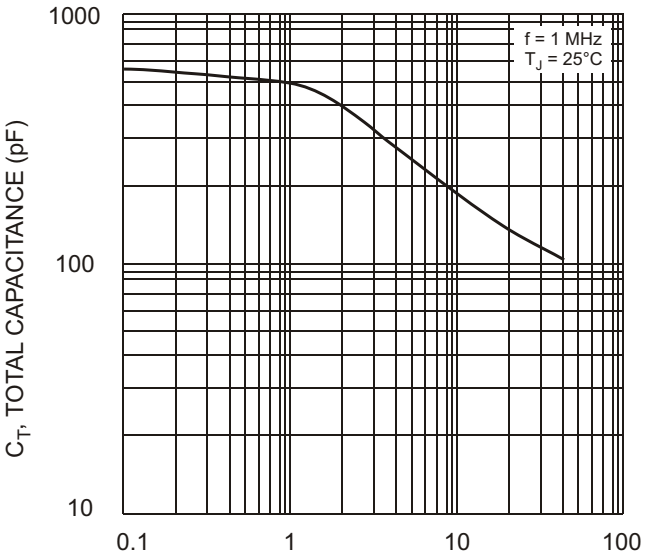


Fig. 3 Typical Total Capacitance vs. Reverse Voltage

UNDER DEVELOPMENT

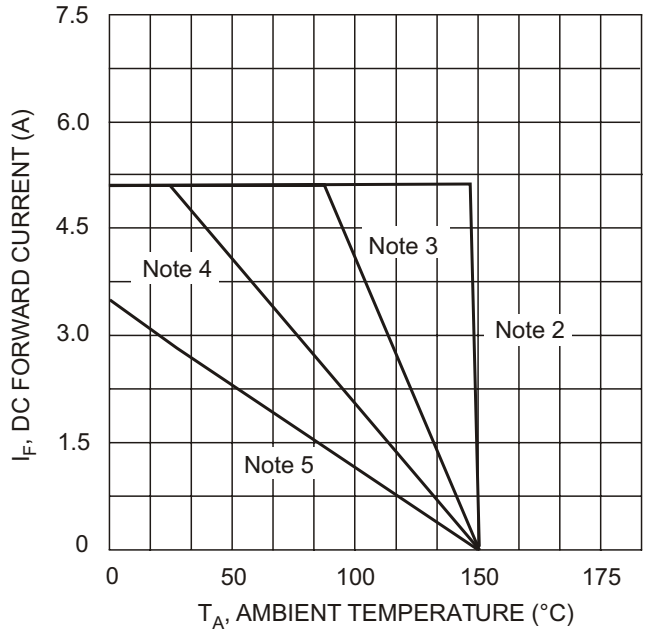


Fig. 4 DC Forward Current Derating

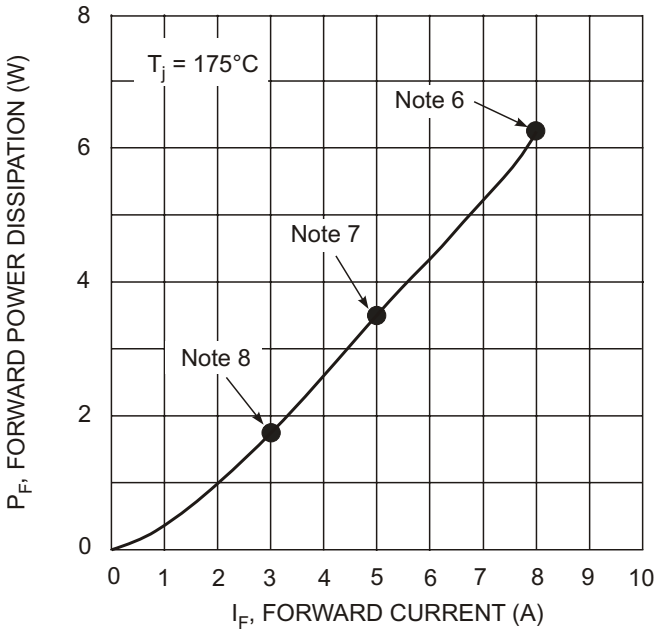


Fig. 5 Forward Power Dissipation

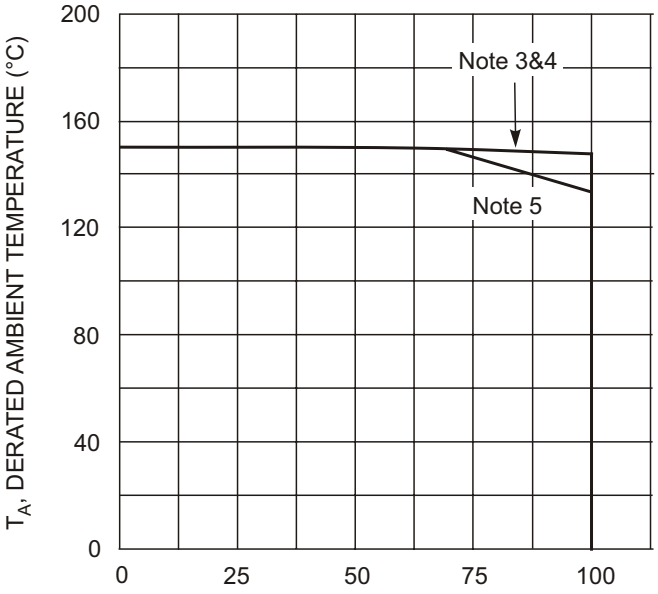


Fig. 6 Operating Temperature Derating

Notes:
2. $T_A = T_{SOLDERING\ POINT}$, $R_{\theta JS}$ = 2.0°C/W, $R_{\theta SA}$ = 0°C/W.
3. Device mounted on ceramic substrate, 2"x2", 2 oz. copper, single-sided, cathode pad dimensions 0.75"x1.0", anode pad dimensions 0.25"x1.0". $R_{\theta JA}$ in range of 20-25°C/W.
4. Device mounted on FR-4 substrate, 2"x2", 2 oz. copper, single-sided, cathode pad dimensions 0.50" x 1.0", anode pad dimensions 0.50"x1.0". $R_{\theta JA}$ in range of 40-50°C/W.
5. Device mounted on FR-4 substrate, 2"x2", 2 oz. copper, single-sided, pad layout as per Diodes Inc. suggested pad layout document AP2001 which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. $R_{\theta JA}$ in range of 90-100°C/W.
6. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 3.
7. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 4.
8. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 5.

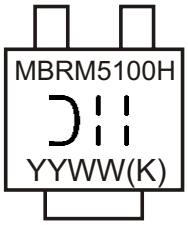
NEW PRODUCT

Ordering Information (Note 9)

Device	Packaging	Shipping
MBRM5100H-13	POWERMITE®3	5000/Tape & Reel

Notes: 9. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



MBRM5100H = Product type marking code
= Manufacturers' code marking
YYWW = Date code marking
YY = Last digit of year ex: 02 for 2002
WW = Week code 01 to 52
(K) = Factory Designator