MBRM5100

5A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER
POWERMITE®3

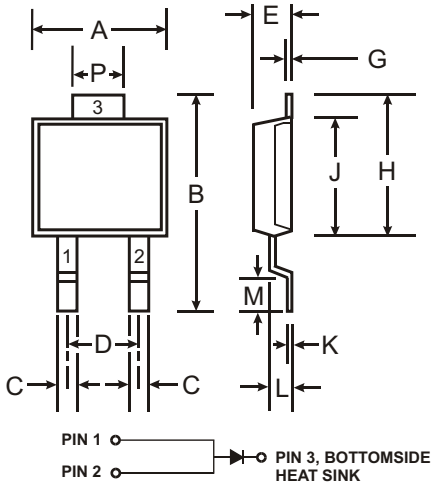
NOT RECOMMENDED FOR NEW DESIGNS
USE PDS5100

Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Reverse Breakdown Voltage
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications

Mechanical Data

- Case: POWERMITE®3
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking: See Page 3
- Ordering Information: See Page 3
- Weight: 0.072 grams (approximate)



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	$V_{R(RMS)}$	70	V
Average Rectified Output Current (See also figure 5)	I_O	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load @T_C = 80°C	I_{FSM}	100	A
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	1.2	°C/W
Typical Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	2.7	°C/W
Operating Temperature Range	T_j	-65 to +125	°C
Storage Temperature Range	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 = 0.2mA
Forward Voltage	V_F	— — — —	0.75 0.58 0.84 0.67	0.81 0.64 0.90 0.73	V	I_F = 5A, T_j = 25°C I_F = 5A, T_j = 125°C I_F = 10A, T_j = 25°C I_F = 10A, T_j = 125°C
Peak Reverse Current (Note 1)	I_R	— —	0.015 2	0.2 100	mA	T_j = 25°C, V_R = 100V T_j = 125°C, V_R = 100V

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

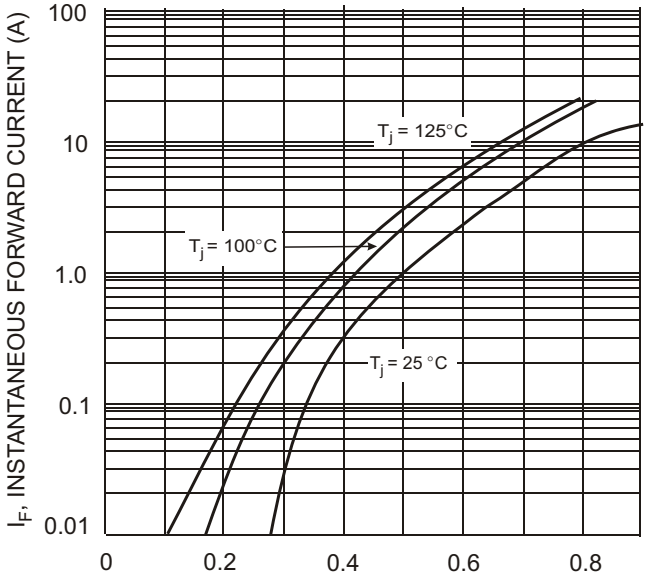


Fig. 1 Typical Forward Characteristics

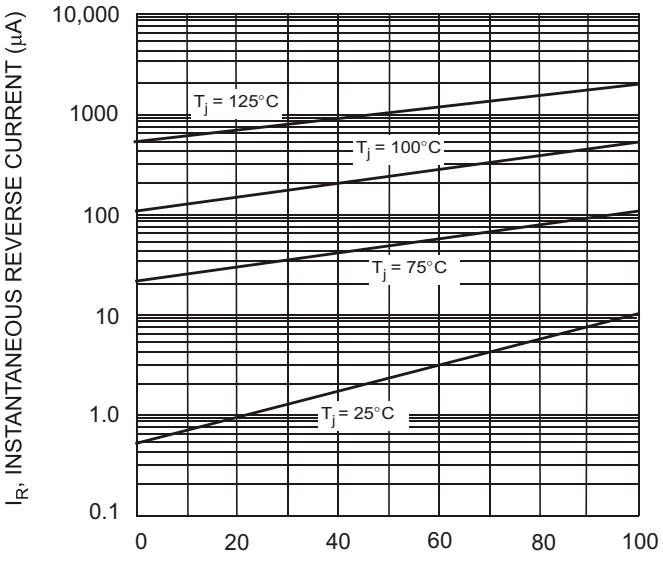


Fig. 2 Typical Reverse Characteristics

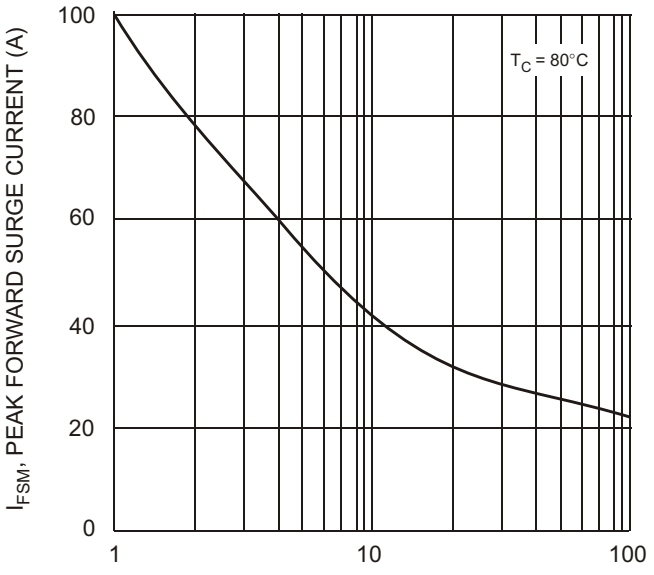


Fig. 3 Max Non-Repetitive Peak Forward Surge Current

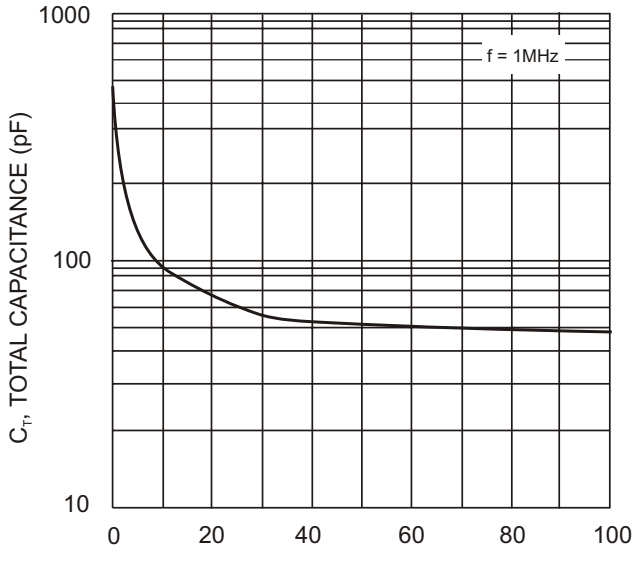


Fig. 4 Typical Capacitance vs. Reverse Voltage

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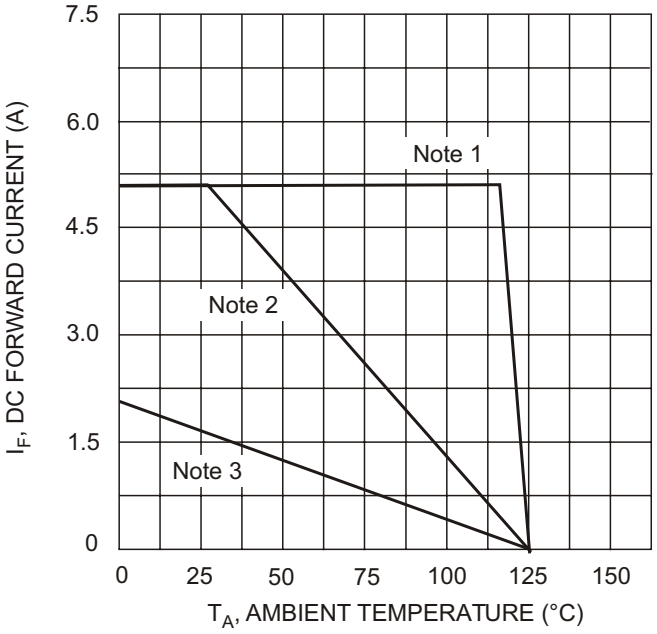


Fig. 5 DC Forward Current Derating

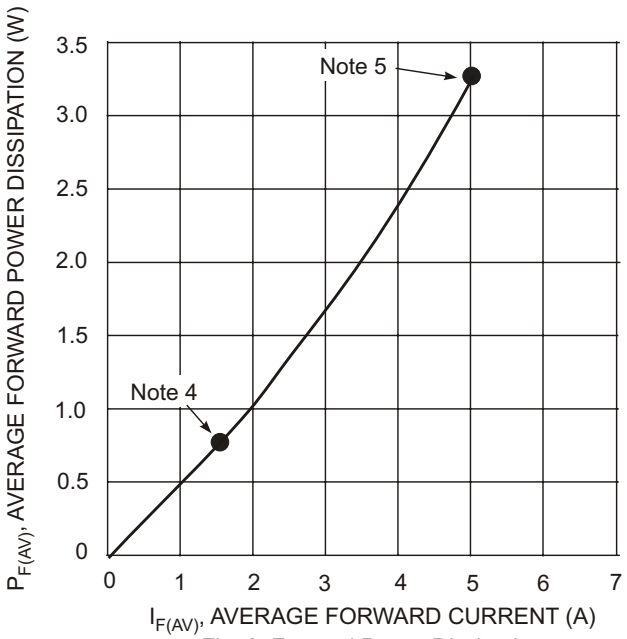


Fig. 6 Forward Power Dissipation

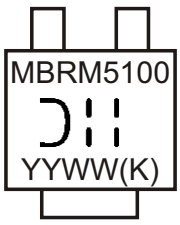
Notes:
1. $T_A = T_{SOLDERING\ POINT}$, $R_{\theta JS}$ = 2.7°C/W, $R_{\theta SA}$ = 0°C/W.
2. Device mounted on GETEK substrate, 2"x2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0". $R_{\theta JA}$ in range of 20-40°C/W.
3. Device mounted on FR-4 substrate, 2"x2", 2 oz. copper, single-sided, pad layout as per Diodes Inc. suggested pad layout document AP02001 which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. $R_{\theta JA}$ in range of 100-140°C/W.
4. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 3.
5. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 2.

Ordering Information (Note 6)

Device	Packaging	Shipping
MBRM5100-13	POWERMITE®3	5000/Tape & Reel

Notes: 6. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



MBRM5100 = 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

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