MBRM3100

3A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER
POWERMITE 3

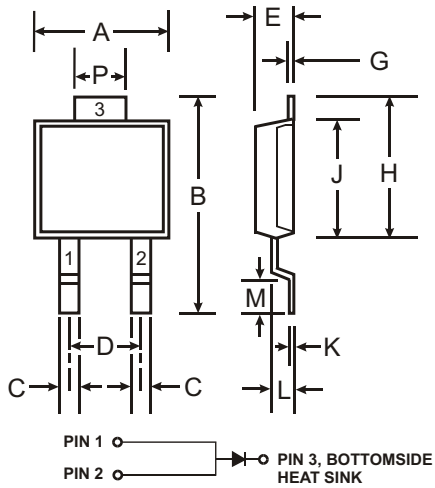
NOT RECOMMENDED FOR NEW DESIGNS
USE PDS3100

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
- **Lead Free Finish, RoHS Compliant Version (Note 2)**

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
- Lead Free Plating (Matte Tin Finish). e3
- 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 (Also see Figure 5)	I_O	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load @ T_C = 90°C	I_{FSM}	50	A
Typical Thermal Resistance Junction to Soldering Point	R_{JS}	3.5	C/W
Typical Thermal Resistance Junction to Case	R_{JC}	1.6	C/W
Operating Temperature Range	T_j	-55 to +125	C
Storage Temperature Range	T_{STG}	-55 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		0.72 0.60 0.80 0.69	0.76	V	I_F = 3A, T_j = 25 C I_F = 3A, T_j = 100 C I_F = 6A, T_j = 25 C I_F = 6A, T_j = 100 C
Reverse Current (Note 1)	I_R		3 0.35	100 20	A mA	T_j = 25 C, V_R = 100V T_j = 100 C, V_R = 100V
Total Capacitance	C_T		100		pF	f = 1.0MHz, V_R = 4.0V DC

Notes: 1. Short duration test pulse used to minimize self-heating effect.
2. RoHS revision 13.2.2003. High Temperature Solder Exemption Applied see *EU Directive Annex Note 7.*

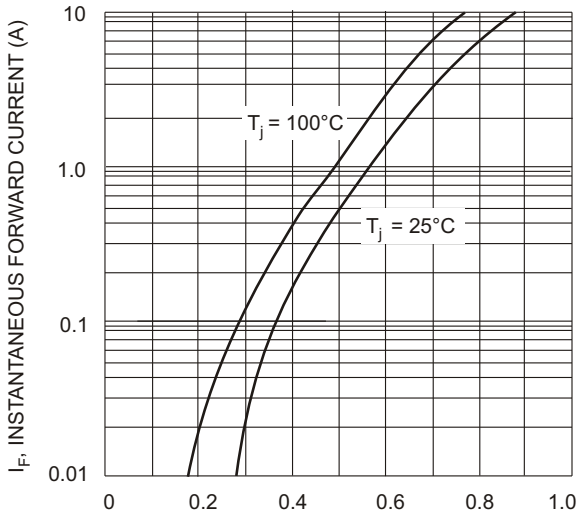


Fig. 1 Typical Forward Characteristics

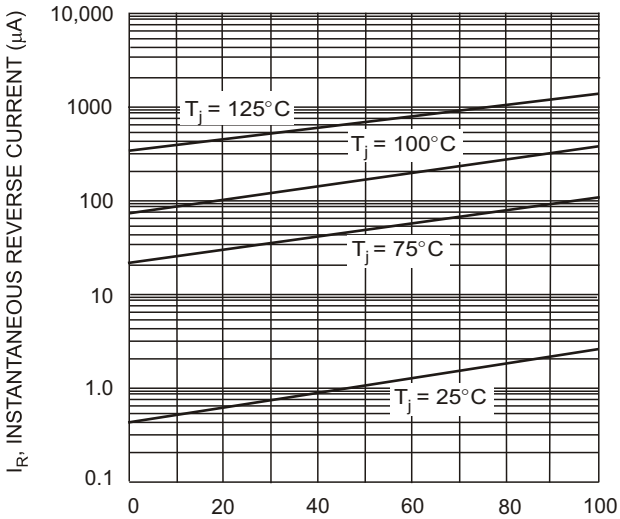


Fig. 2 Typical Reverse Characteristics

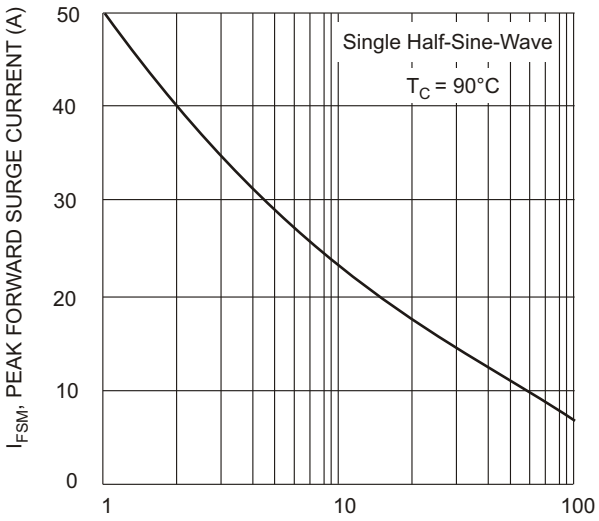


Fig. 3 Max Non-Repetitive Peak Forward Surge Current

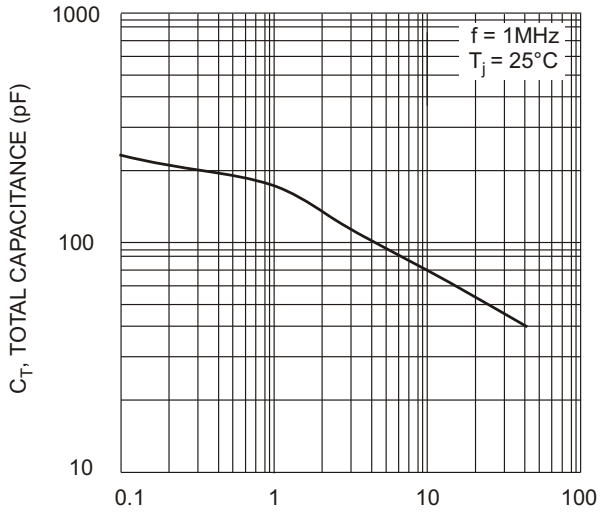


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

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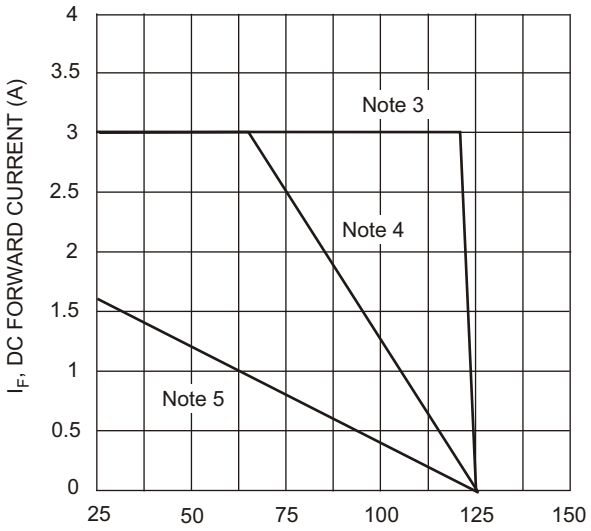


Fig. 5 DC Forward Current Derating

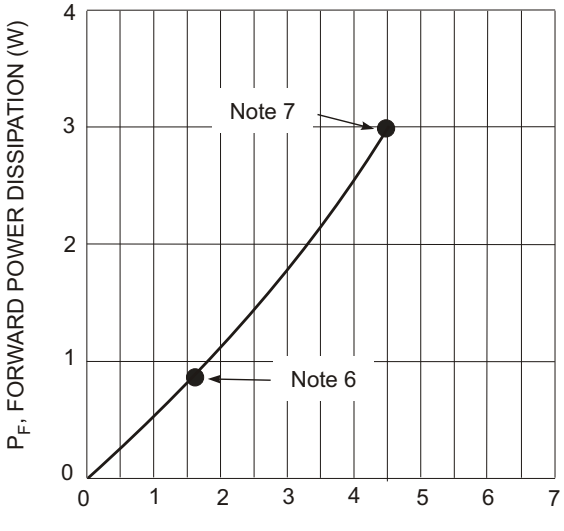


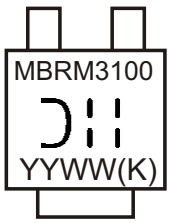
Fig. 6 Forward Power Dissipation

Ordering Information (Note 8)

Device	Packaging	Shipping
MBRM3100-13-F	POWERMITE 3	5000/Tape & Reel

Notes:
3. $T_A = T_{SOLDERING\ POINT}$, $R_{JS} = 3.5$ C/W, $R_{SA} = 0$ C/W.
4. 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_{JA} in range of 30-35°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 AP02001 which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. R_{JA} in range of 115-125°C/W.
6. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 4.
7. Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 3.
8. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



MBRM3100 = 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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