

## 5A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER POWERMITE®3

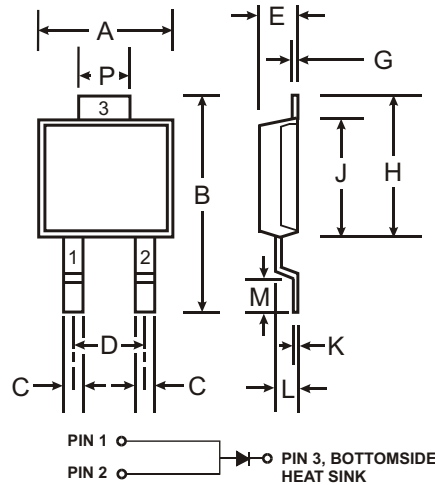
### Features

- 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
- Available in 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 3 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please see Ordering Information, Note 7, on Page 3
- Polarity: See Diagram
- Marking: See Page 3
- Weight: 0.077 grams (approximate)

NOT RECOMMENDED FOR NEW DESIGNS  
USE PDS5100H



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		

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

### Maximum Ratings @ T<sub>A</sub> = 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 <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	100	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	71	V
Average Rectified Output Current @ T <sub>C</sub> = 75°C	I <sub>O</sub>	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I <sub>FSM</sub>	150	A
Maximum Thermal Resistance Junction to Soldering Point	R <sub>θJS</sub>	2.0	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

### Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(BR)R</sub>	100	—	—	V	I <sub>R</sub> = 50μA
Forward Voltage	V <sub>F</sub>	—	0.675 0.55 0.75 0.63	0.70 0.58 0.78 0.66	V	I <sub>F</sub> = 5A, T <sub>S</sub> = 25°C I <sub>F</sub> = 5A, T <sub>S</sub> = 125°C I <sub>F</sub> = 10A, T <sub>S</sub> = 25°C I <sub>F</sub> = 10A, T <sub>S</sub> = 125°C
Reverse Leakage Current (Note 1)	I <sub>R</sub>	—	1.2 0.4	50 4.5	μA mA	T <sub>S</sub> = 25°C, V <sub>R</sub> = 100V T <sub>S</sub> = 125°C, V <sub>R</sub> = 100V

- Notes: 1. Short duration test pulse used to minimize self-heating effect.  
2. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.

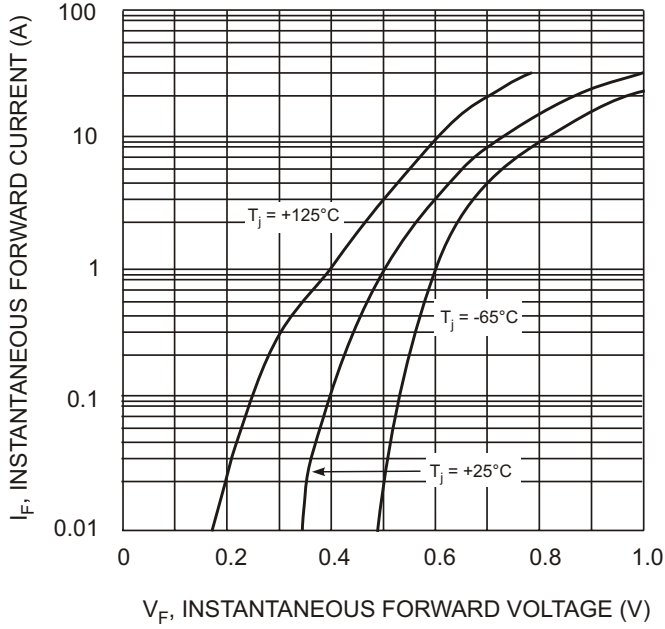


Fig. 1 Typical Forward Characteristics

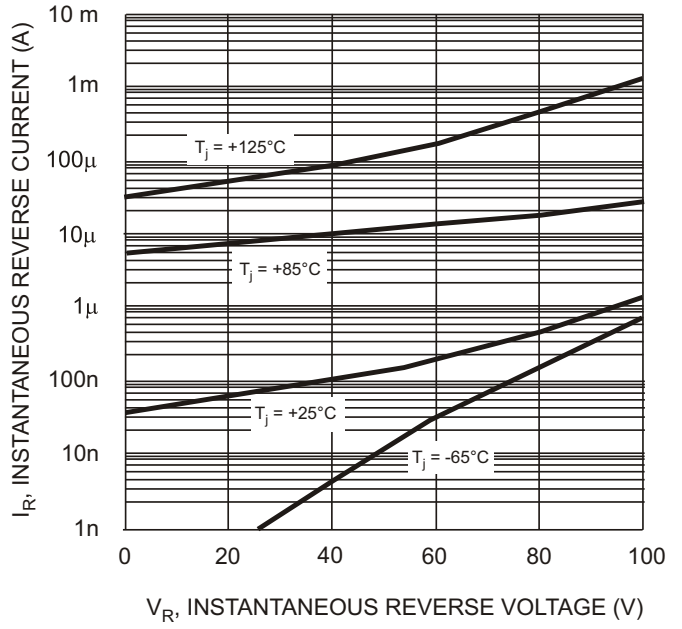


Fig. 2 Typical Reverse Characteristics

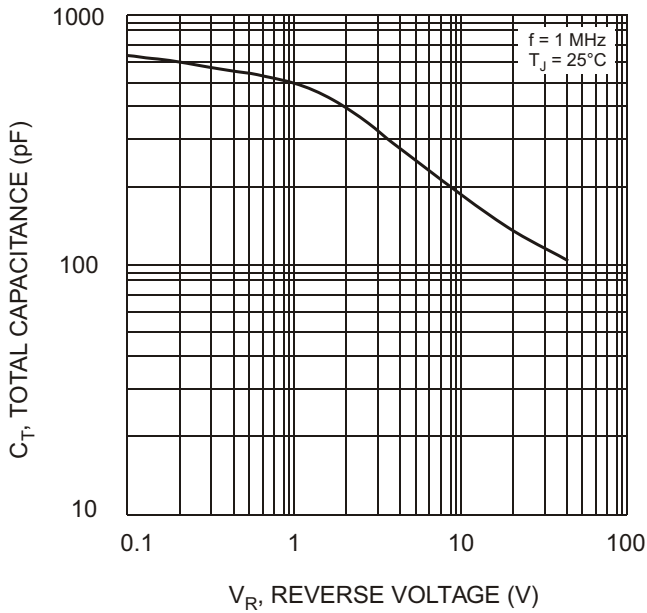
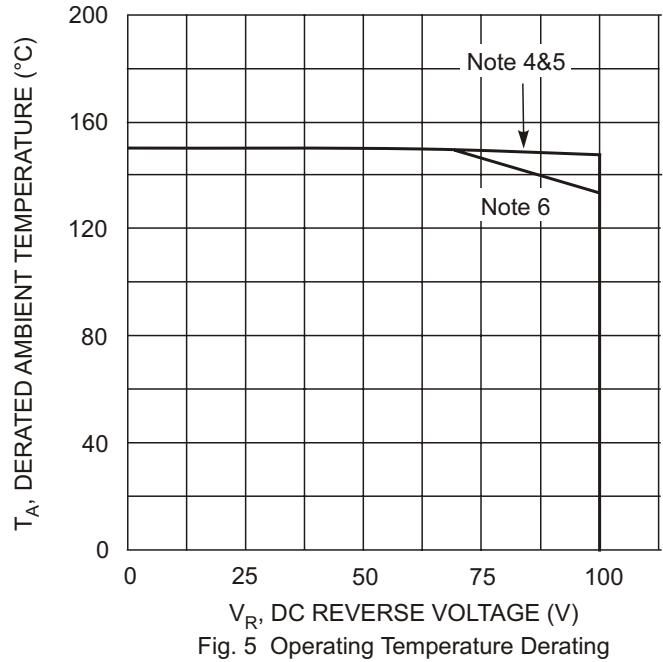
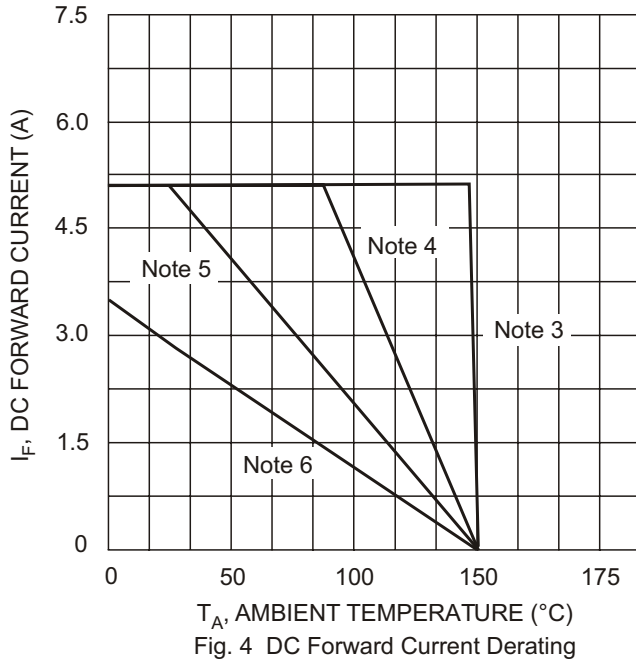


Fig. 3 Typical Total Capacitance vs. Reverse Voltage

**NOT RECOMMENDED FOR NEW DESIGNS  
USE PDS5100H**



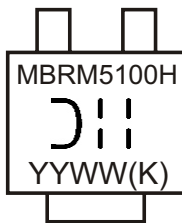
- Notes:
- $T_A = T_{SOLDERING\ POINT}$ ,  $R_{\theta JS} = 2.0^{\circ}C/W$ ,  $R_{\theta SA} = 0^{\circ}C/W$ .
  - Device mounted on ceramic substrate, 2"x2", 2 oz. copper, single-sided, cathode pad dimensions 0.75"x1.0", anode pad dimensions 0.25"x1.0".  $R_{\theta JA}$  in range of 20-25°C/W.
  - 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.
  - 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.

## Ordering Information (Note 7)

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

- Notes:
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  - For Lead Free Finish/RoHS Compliant version part number, please add "-F" suffix to the part number above. Example: MBRM5100H-13-F.

## Marking Information



MBRM5100H = Product type marking code  
 D|| = 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

**NOT RECOMMENDED FOR NEW DESIGNS  
USE PDS5100H**