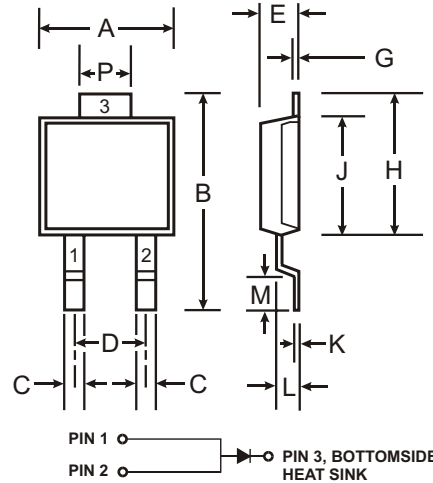


Features

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



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 (JEDEC Method) @ T _C = 80°C | I _{FSM} | 100 | A |
| Typical Thermal Resistance Junction to Case | R _{θJC} | 1.2 | °C/W |
| Typical Thermal Resistance Junction to Soldering Point | R _{θJS} | 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 (Note 1) | 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.

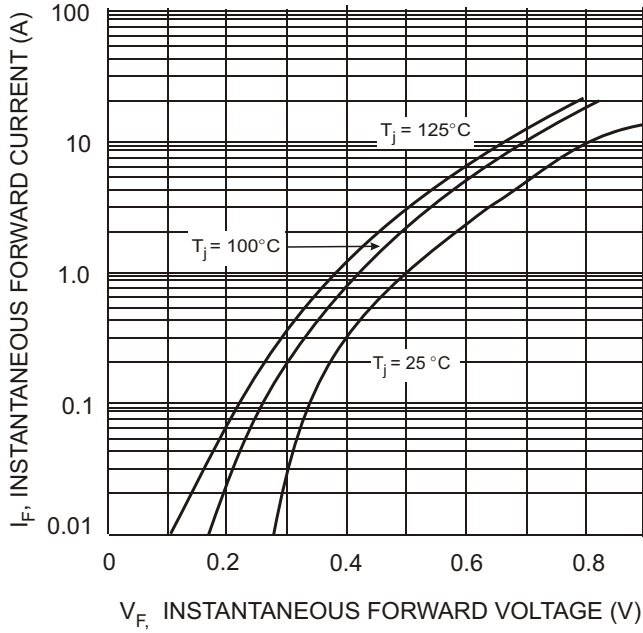


Fig. 1 Typical Forward Characteristics

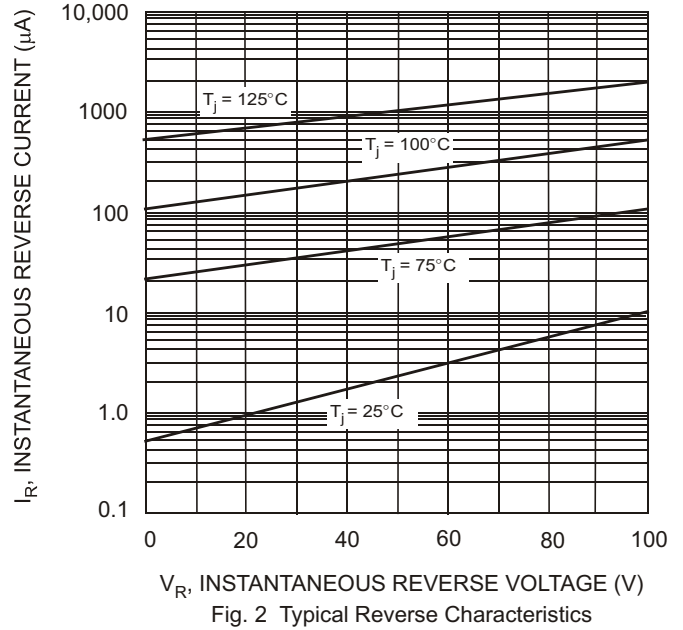


Fig. 2 Typical Reverse Characteristics

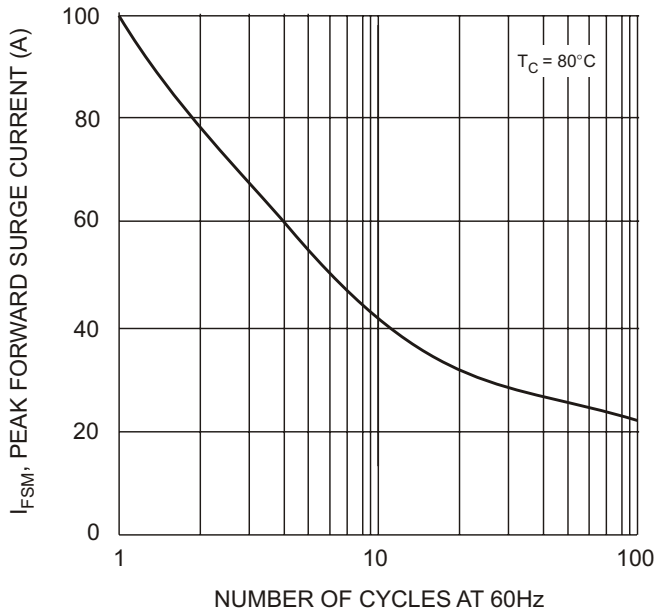


Fig. 3 Max Non-Repetitive Peak forward Surge Current

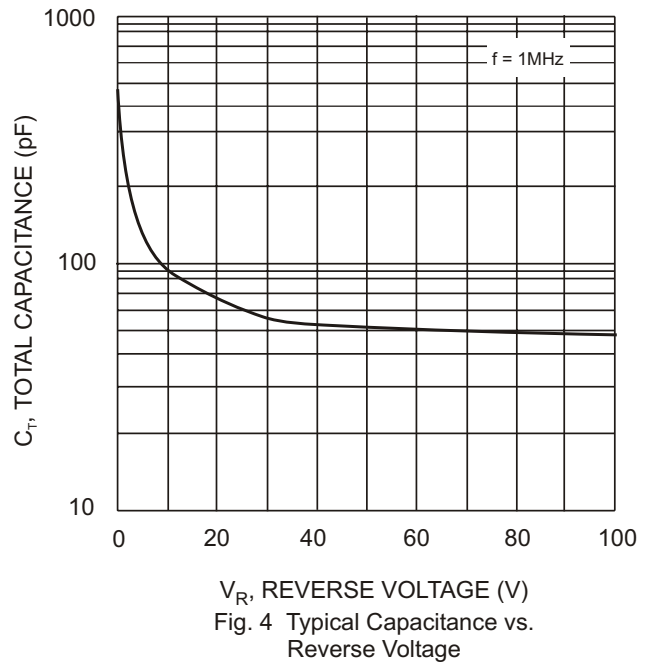
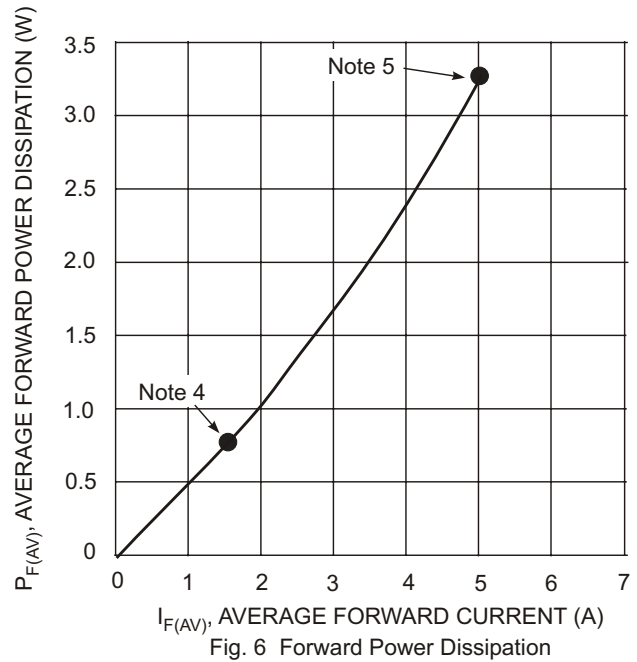
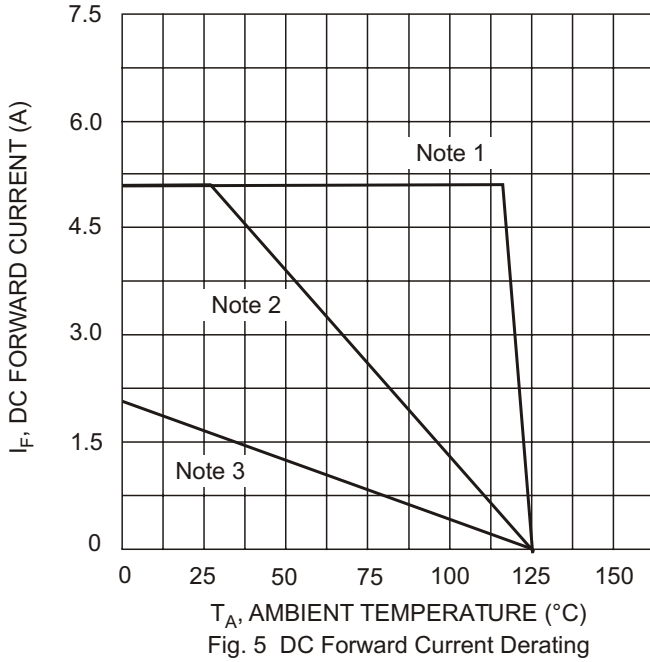


Fig. 4 Typical Capacitance vs. Reverse Voltage



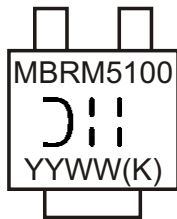
- Notes:
1. $T_A = T_{\text{SOLDERING POINT}}$, $R_{\theta JS} = 2.7^\circ\text{C/W}$, $R_{\theta SA} = 0^\circ\text{C/W}$.
 2. Device mounted on GETEK substrate, 2"x2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0". $R_{\theta JA}$ in range of 20-40°C/W.
 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
 D||| = Manufacturers' code marking
 YYWW = Date code marking
 YY = Last digit of year ex: 2 for 2002
 WW = Week code 01 to 52
 (K) = Factory Designator

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