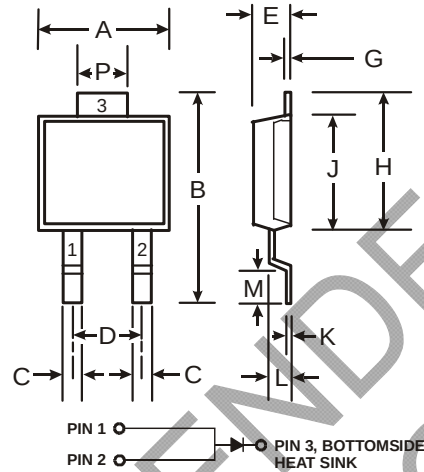


## Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Reverse Current
- 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-020
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish). (e3)
- Polarity: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.072 grams (approximate)



| POWERMITE®3          |          |      |
|----------------------|----------|------|
| Dim                  | Min      | Max  |
| A                    | 4.03     | 4.09 |
| B                    | 6.40     | 6.61 |
| C                    | .889 NOM |      |
| D                    | 1.83 NOM |      |
| E                    | 1.10     | 1.14 |
| G                    | .178 NOM |      |
| H                    | 5.01     | 5.17 |
| J                    | 4.37     | 4.43 |
| K                    | .178 NOM |      |
| 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

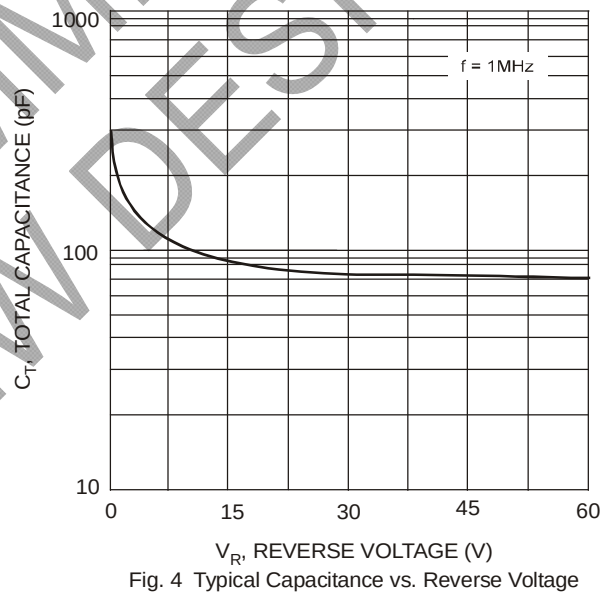
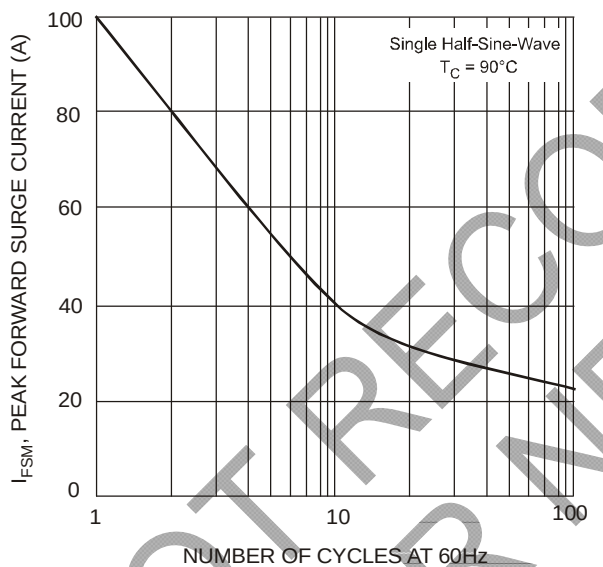
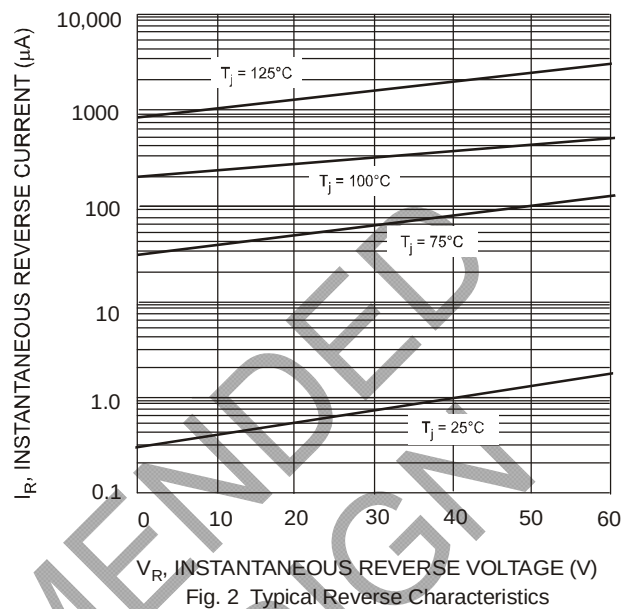
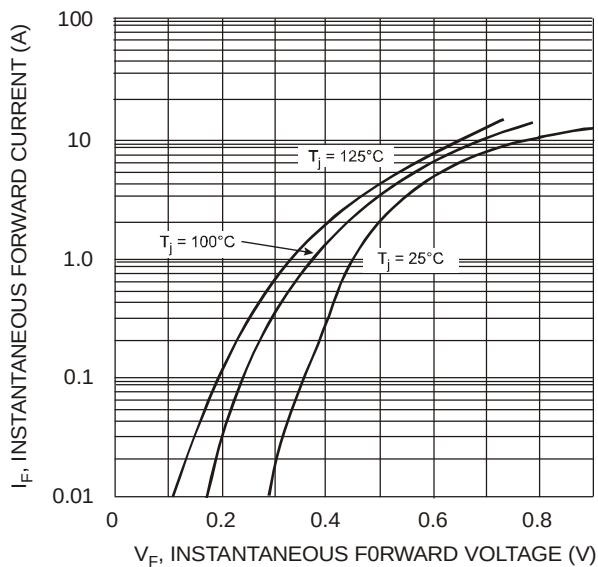
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

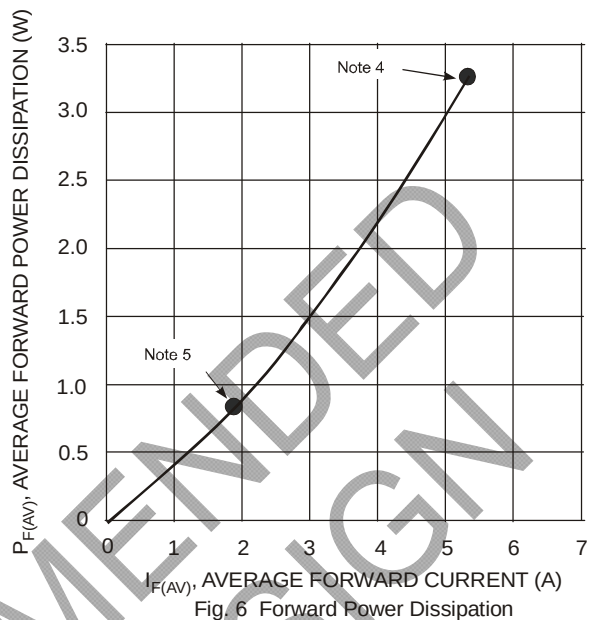
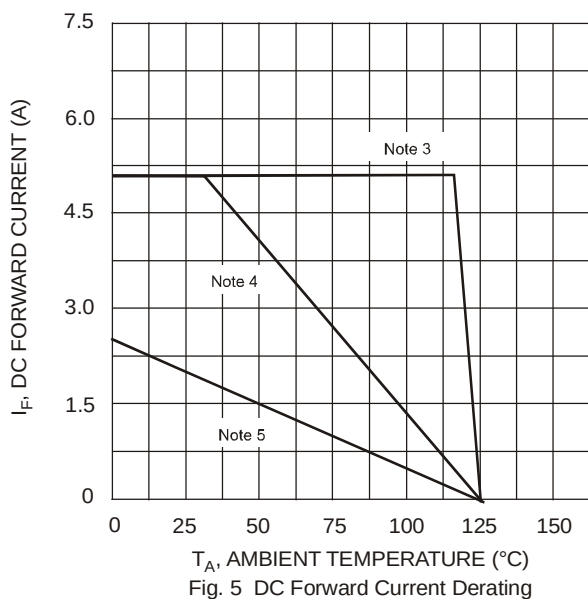
| Characteristic                                                                 | Symbol              | Value       | Unit |
|--------------------------------------------------------------------------------|---------------------|-------------|------|
| Peak Repetitive Reverse Voltage                                                | V <sub>RRM</sub>    | 60          | V    |
| Working Peak Reverse Voltage                                                   | V <sub>RWM</sub>    |             |      |
| DC Blocking Voltage                                                            | V <sub>R</sub>      |             |      |
| RMS Reverse Voltage                                                            | V <sub>R(RMS)</sub> | 42          | V    |
| Average Rectified Output Current (See also Figure 5)                           | I <sub>O</sub>      | 5           | A    |
| Non-Repetitive Peak Forward Surge Current                                      | I <sub>FSM</sub>    | 100         | A    |
| 8.3ms Single half sine-wave Superimposed on Rated Load @ T <sub>C</sub> = 90°C |                     |             |      |
| Typical Thermal Resistance Junction to Soldering Point                         | R <sub>θJS</sub>    | 2.7         | °C/W |
| Operating Temperature Range                                                    | T <sub>J</sub>      | -55 to +125 | °C   |
| Storage Temperature Range                                                      | T <sub>STG</sub>    | -55 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> | 60  | —    | —    | V    | I <sub>R</sub> = 0.2mA                       |
| Forward Voltage                    | V <sub>F</sub>     | —   | 0.65 | 0.69 | V    | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C   |
|                                    |                    | —   | 0.56 | 0.60 |      | I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C  |
|                                    |                    | —   | 0.74 | 0.78 |      | I <sub>F</sub> = 8A, T <sub>J</sub> = 25°C   |
|                                    |                    | —   | 0.64 | 0.68 |      | I <sub>F</sub> = 8A, T <sub>J</sub> = 125°C  |
| Reverse Current (Note 1)           | I <sub>R</sub>     | —   | 2    | 200  | μA   | T <sub>J</sub> = 25°C, V <sub>R</sub> = 60V  |
|                                    |                    | —   | 0.6  | 20   |      | T <sub>J</sub> = 100°C, V <sub>R</sub> = 60V |

Notes: 1. Short duration pulse test used to minimize self-heating effect.  
2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.





- Notes:
3.  $T_A = T_{SOLDERING\ POINT}$ ,  $R_{\theta JS} = 2.7^{\circ}C/W$ ,  $R_{\theta SA} = 0^{\circ}C/W$ .
  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".  $R_{\theta JA}$  in range of 20-40°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>.  $R_{\theta JA}$  in range of 100-130°C/W.

## Ordering Information (Note 6)

| Device       | Packaging                | Shipping         |
|--------------|--------------------------|------------------|
| MBRM560-13-F | POWERMITE <sup>®</sup> 3 | 5000/Tape & Reel |

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

## Marking Information



MBRM560 = 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 53)  
 (K) = Factory Designer Code

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