



# MBRM560

## 5A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

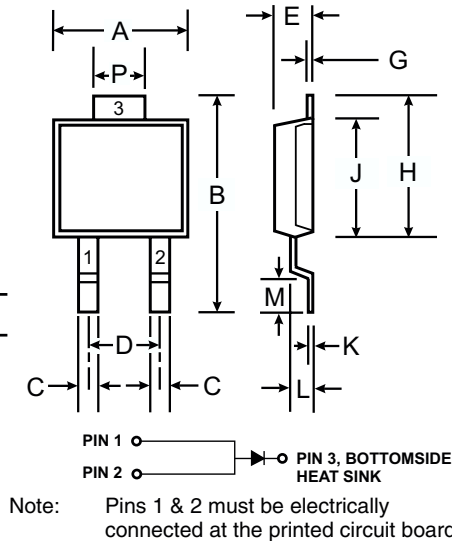
### POWERMITE®3

#### 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
- Plastic Material: UL Flammability Classification Rating 94V-0

#### Mechanical Data

- Case: POWERMITE®3, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking: See Sheet 3
- Weight: 0.072 grams (approx.)



| 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 |          |      |

#### Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

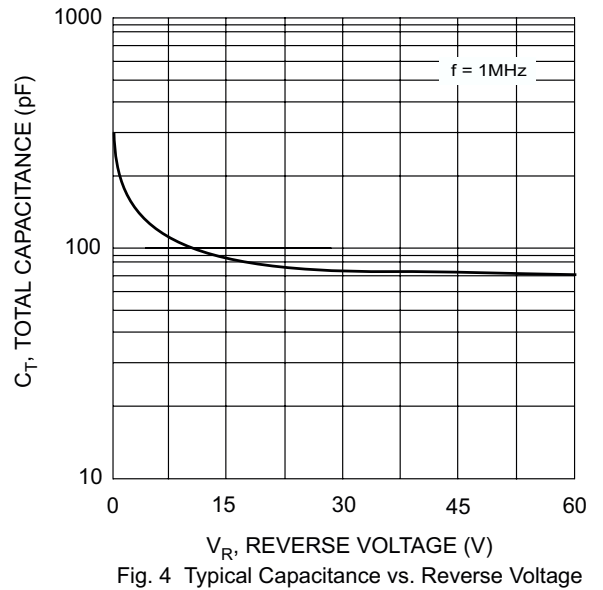
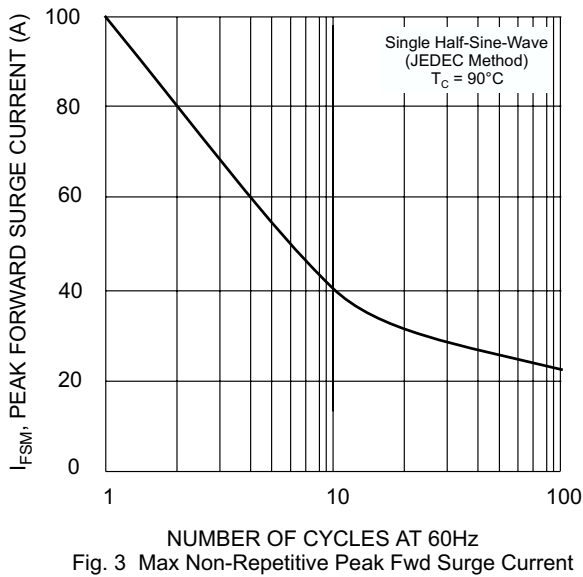
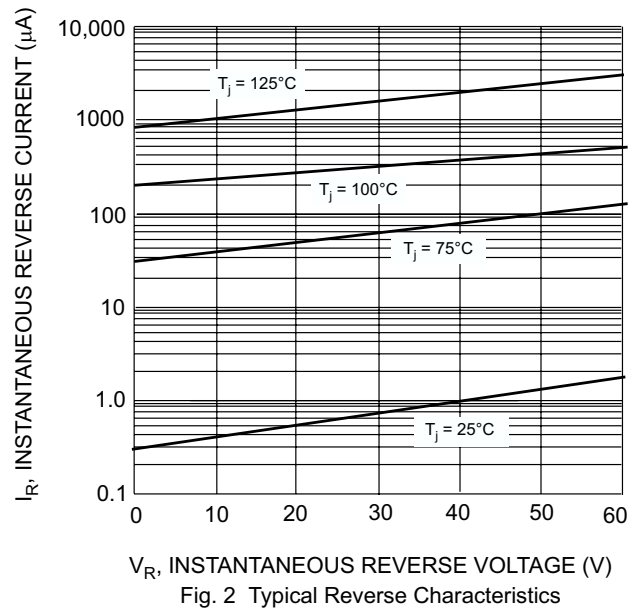
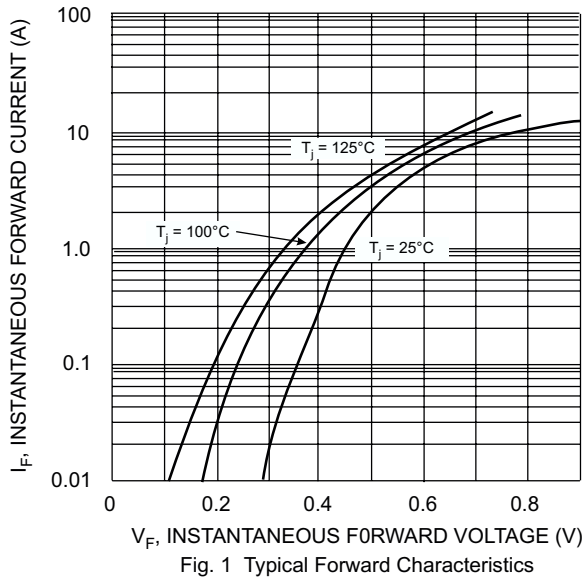
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

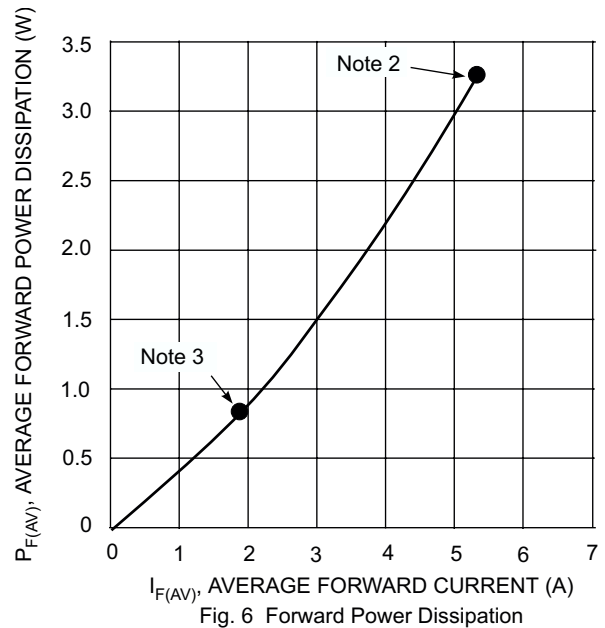
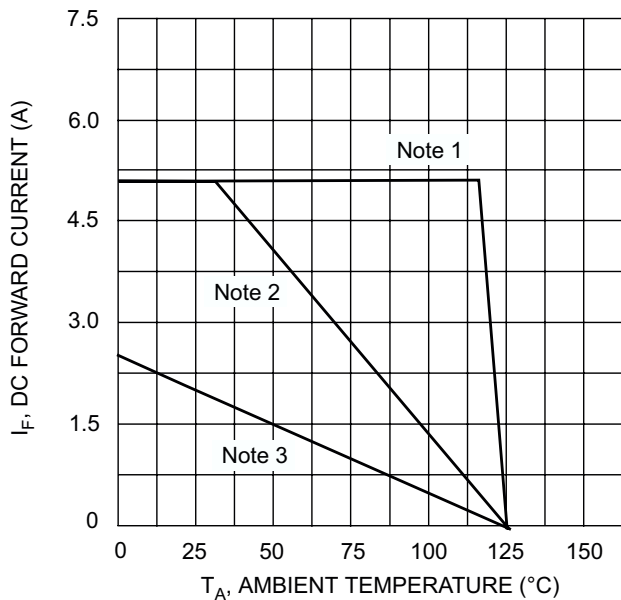
| Characteristic                                                                                                                                | Symbol                                                 | Value       | Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                                                        | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 60          | V    |
| 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<br>8.3ms Single half sine-wave Superimposed on Rated Load<br>(JEDEC Method) @ T <sub>C</sub> = 90°C | I <sub>FSM</sub>                                       | 100         | A    |
| 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 (Note 1)           | V <sub>FM</sub>    | —   | 0.65<br>0.56<br>0.74<br>0.64 | 0.69<br>0.60<br>0.78<br>0.68 | V        | I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C<br>I <sub>F</sub> = 8A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 8A, T <sub>J</sub> = 125°C |
| Reverse Current (Note 1)           | I <sub>RM</sub>    | —   | 2<br>0.6                     | 200<br>20                    | μA<br>mA | T <sub>J</sub> = 25°C, V <sub>R</sub> = 60V<br>T <sub>J</sub> = 100°C, V <sub>R</sub> = 60V                                                                                            |

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





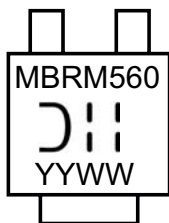
- Notes:
1.  $T_A = T_{\text{SOLDERING POINT}}$ ,  $R_{\theta JS} = 2.7^\circ\text{C/W}$ ,  $R_{\theta SA} = 0^\circ\text{C/W}$ .
  2. Device mounted on GETEK substrate, 2"x2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0".  $R_{\theta JA}$  in range 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 100-130°C/W.

## Ordering Information (Note 4)

| Device     | Packaging   | Shipping         |
|------------|-------------|------------------|
| MBRM560-13 | POWERMITE®3 | 5000/Tape & Reel |

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

## Marking Information



MBRM560 = 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