NOT RECOMMENDED FOR NEW DESIGN
USE PDS360

# MBRM360

**3A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER**

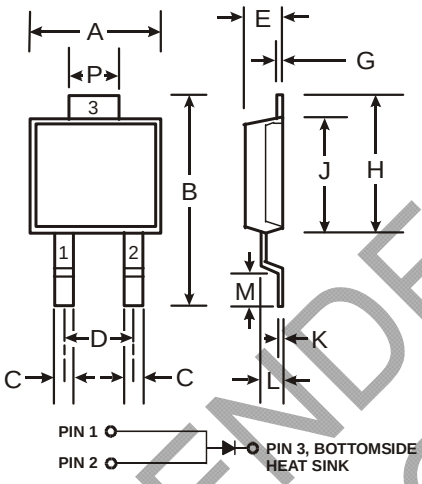
***POWERMITE®3***

## 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
- **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)




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** | .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 @$T_A$ = 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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 60 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 42 | V |
| Average Rectified Output Current (See also Figure 5) | $I_O$ | 3 | A |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load @ $T_C$ = 25°C<br>@ $T_C$ = 100°C | $I_{FSM}$ | 100<br>50 | A |
| Typical Thermal Resistance Junction to Soldering Point | $R_{\theta JS}$ | 3.2 | °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) | $V_{(BR)R}$ | 60 | — | — | V | $I_R$ = 0.2mA |
| Forward Voltage | $V_{FM}$ | —<br>—<br>—<br>— | 0.59<br>0.53<br>0.72<br>0.63 | 0.63<br>0.57<br>0.76<br>0.67 | V | $I_F$ = 3A, $T_j$ = 25°C<br>$I_F$ = 3A, $T_j$ = 125°C<br>$I_F$ = 6A, $T_j$ = 25°C<br>$I_F$ = 6A, $T_j$ = 125°C |
| Reverse Current (Note 1) | $I_{RM}$ | —<br>—<br>— | 2.0<br>0.6<br>2.5 | 200<br>20<br>150 | µA<br>mA<br>mA | $T_j$ = 25°C, $V_R$ = 60V<br>$T_j$ = 100°C, $V_R$ = 60V<br>$T_j$ = 125°C, $V_R$ = 60V |
| Total Capacitance | $C_T$ | — | 130 | — | pF | f = 1.0MHz, $V_R$ = 4.0V DC |

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.

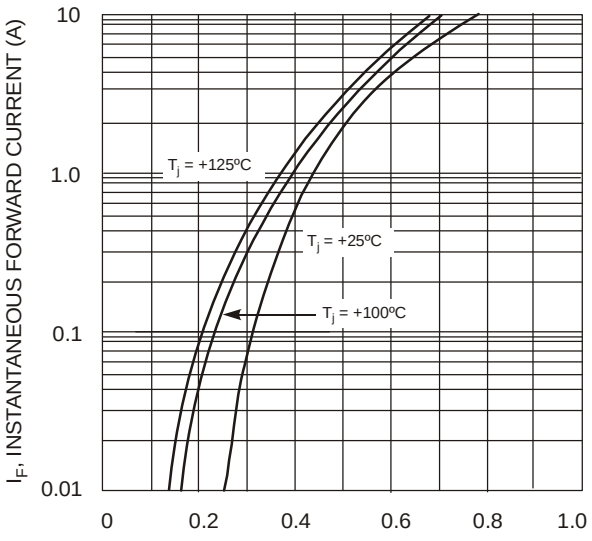



Fig. 1 Typical Forward Characteristics

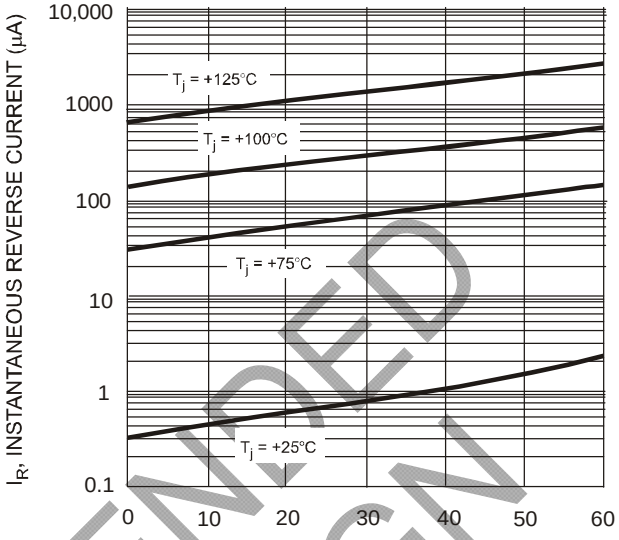



Fig. 2 Typical Reverse Characteristics

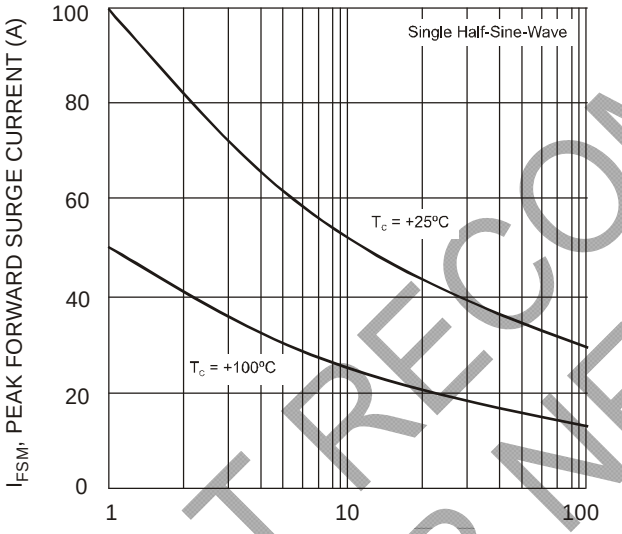



Fig. 3 Max Non-Repetitive Peak Forward Surge Current

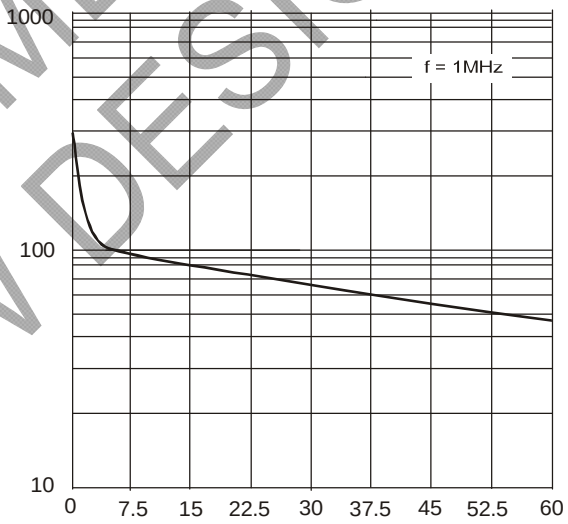



Fig. 4 Typical Capacitance vs. Reverse Voltage

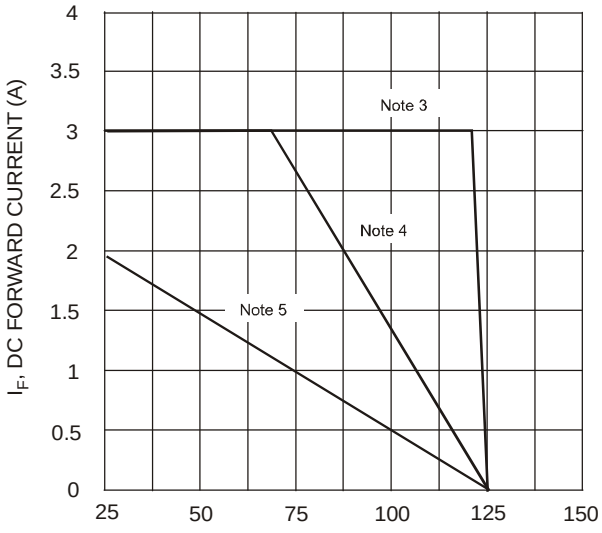


Fig. 5 DC Forward Current Derating

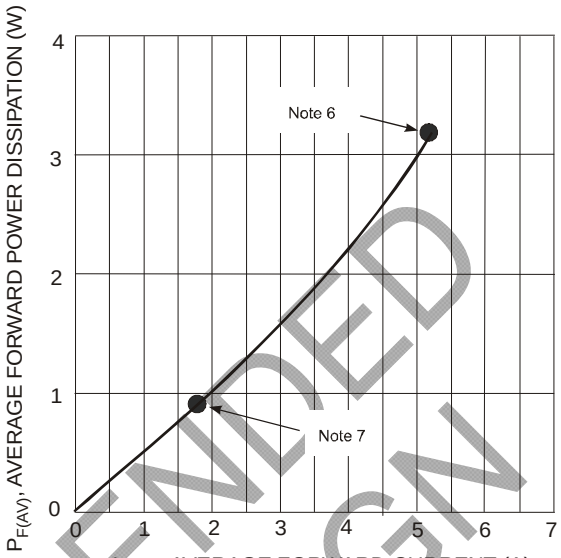


Fig. 6 Forward Power Dissipation

Notes:
3. $T_A = T_{SOLDERING\ POINT}$, $R_{\theta JS}$ = 3.2°C/W, $R_{\theta SA}$ = 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". $R_{\theta JA}$ 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 100-120°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 5.

## Ordering Information (Note 8)

| Device | Packaging | Shipping |
|---|---|---|
| MBRM360-13-F | POWERMITE®3 | 5000/Tape & Reel |

Notes: 8. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

## Marking Information


MBRM360 = Product type marking code
Ↄ¦¦ = Manufacturers' code marking
YYWW = Date code marking
YY = Last digit of year (ex: 02 for 2002)
WW = Week code (01 to 53)
(K) = Factory Designator

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