


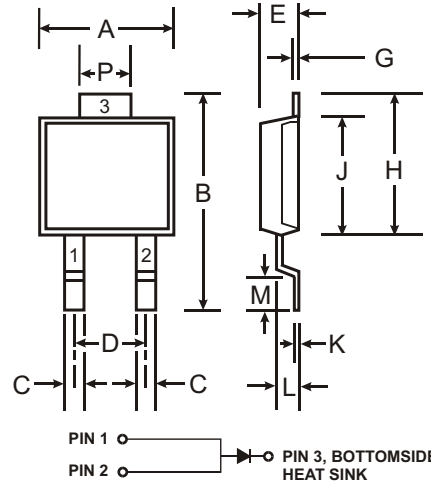
**3A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER  
POWERMITE 3**

**Features**

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- Lead Free Finish/RoHS Compliant (Note 2)**

**Mechanical Data**

- Case: POWERMITE 3
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish). 
- Polarity: See Diagram
- Marking: Type Number
- 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 |
| <b>All Dimensions in mm</b> |          |      |

**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> | 40          | V    |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub>                                    | 28          | V    |
| Average Rectified Output Current (See also Figure 5)  | I <sub>O</sub>   | 3           | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave Superimposed on Rated Load<br>@ T <sub>C</sub> = 100 C | I <sub>FSM</sub>                                       | 50          | A    |
| Typical Thermal Resistance Junction to Soldering Point  | R <sub>JS</sub>  | 3.4         | 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> | 40  |                              |                              | V       | I <sub>R</sub> = 0.5mA   |
| Forward Voltage                    | V <sub>FM</sub>    |     | 0.46<br>0.40<br>0.57<br>0.54 | 0.50<br>0.44<br>0.61<br>0.58 | V       | I <sub>F</sub> = 3A, T <sub>J</sub> = 25 C<br>I <sub>F</sub> = 3A, T <sub>J</sub> = 125 C<br>I <sub>F</sub> = 6A, T <sub>J</sub> = 25 C<br>I <sub>F</sub> = 6A, T <sub>J</sub> = 125 C |
| Reverse Current (Note 1)           | I <sub>RM</sub>    |     | 15                           | 500<br>20                    | A<br>mA | T <sub>J</sub> = 25 C, V <sub>R</sub> = 40V<br>T <sub>J</sub> = 100 C, V <sub>R</sub> = 40V  |
| Total Capacitance                  | C <sub>T</sub>     |     | 180                          |                              | pF      | f = 1.0MHz, V <sub>R</sub> = 4.0V DC   |

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

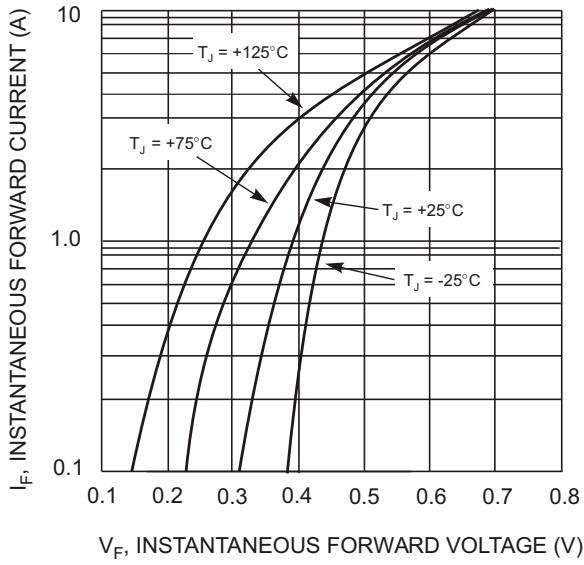


Fig. 1 Typical Forward Characteristics

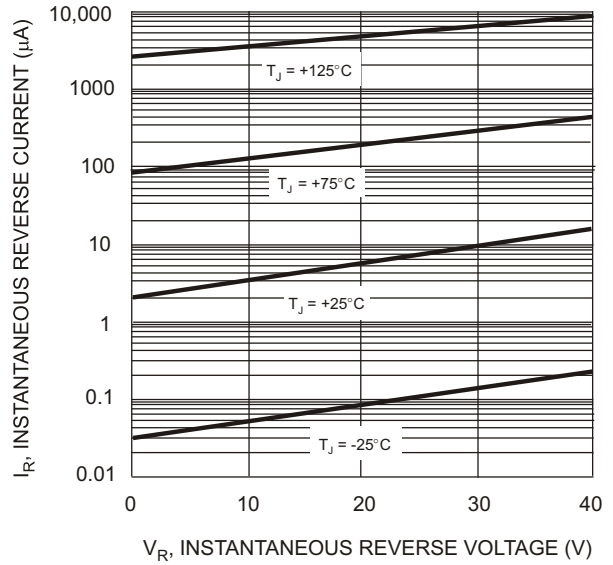


Fig. 2 Typical Reverse Characteristics

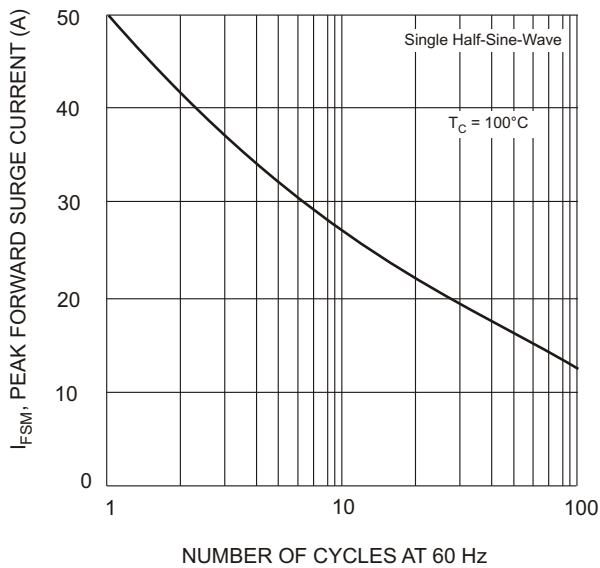


Fig. 3 Max Non-Repetitive Peak Forward Surge Current

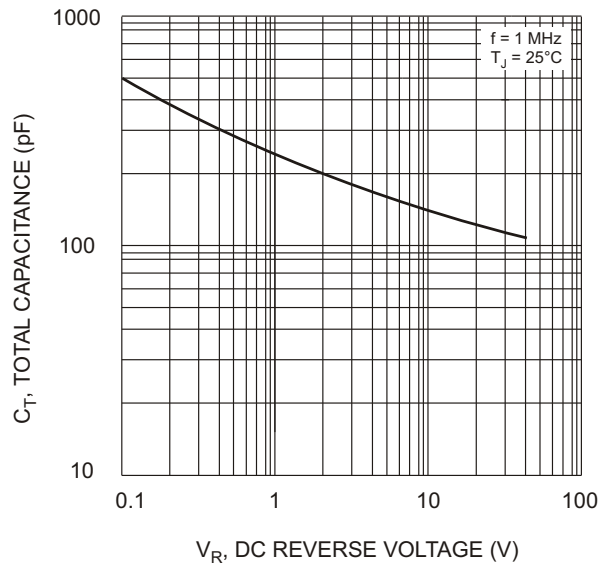


Fig. 4 Typical Capacitance vs. Reverse Voltage

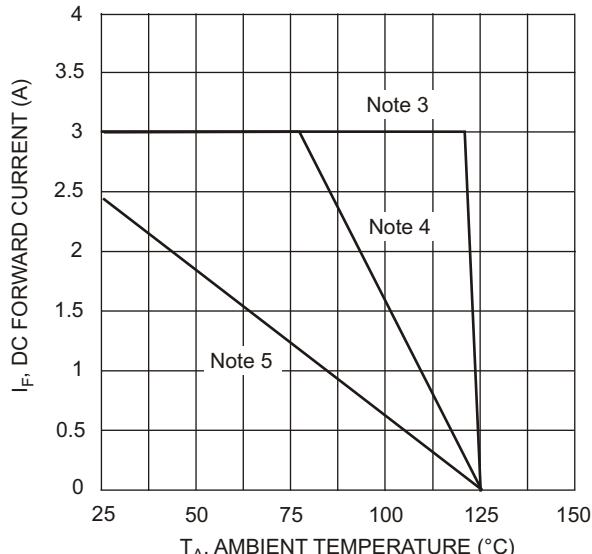


Fig. 5 DC Forward Current Derating

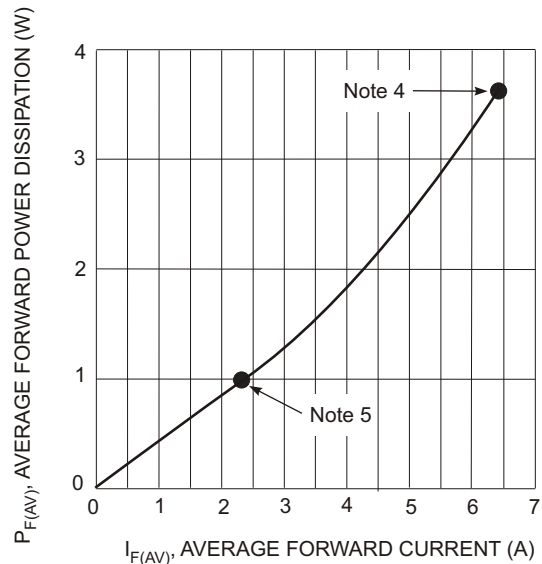


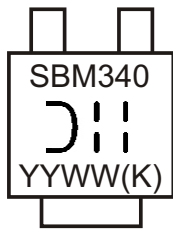
Fig. 6 Forward Power Dissipation

**Ordering Information** (Note 6)

| Device      | Packaging   | Shipping         |
|-------------|-------------|------------------|
| SBM340-13-F | POWERMITE 3 | 5000/Tape & Reel |

- Notes:
- $T_A = T_{\text{SOLDERING POINT}}$ .  $R_{JS} = 3.4 \text{ C/W}$ ,  $R_{SA} = 0 \text{ C/W}$ .
  - 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".  $R_{JA}$  in range of 20-40°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 AP02001 which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.  $R_{JA}$  in range of 95-115°C/W.
  - For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



- SBM340 = 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

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