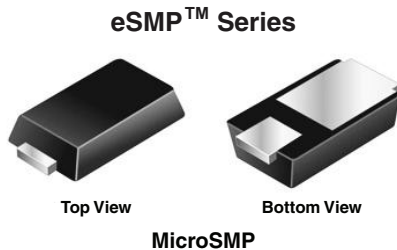


## Surface Mount Schottky Barrier Rectifiers



### FEATURES

- Very low profile - typical height of 0.68 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- **“Green” molding compound (GMC)**
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



| PRIMARY CHARACTERISTICS |            |
|-------------------------|------------|
| $I_{F(AV)}$             | 1 A        |
| $V_{RRM}$               | 50 V, 60 V |
| $I_{FSM}$               | 25 A       |
| $V_F$ at $I_F = 1.0$ A  | 0.52 V     |
| $T_J$ max.              | 150 °C     |

### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

### MECHANICAL DATA

**Case:** MicroSMP

Molding compound meets UL 94V-0 flammability rating.

“G” vs. “E” suffix defines molding as none green, “E”, or green molding compound (GMC) “G”.

“G” is defined as halogen-free (HF) and antimony-free molding compound that is < 50 ppm for F, Cl, Br, I and At, and < 5 ppm for Sb.

**Note:**

- There is no industry standard for definition of HF, or GMC for components.

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test. “E3” terminal finish per J-STD-609

**Polarity:** Color band denotes the cathode end

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                            |                |               |        |      |
|--|----------------|---------------|--------|------|
| PARAMETER  | SYMBOL         | MSS1P5        | MSS1P6 | UNIT |
| Device marking code  |                | 15            | 16     |      |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50            | 60     | V    |
| Maximum average forward rectified current (Fig. 1)                                 | $I_{F(AV)}$    | 1.0           |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 25            |        | A    |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 55 to + 150 |        | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                        |   |                |           |           |          |
|--|------------------------|---|----------------|-----------|-----------|----------|
| PARAMETER  | TEST CONDITIONS        |   | SYMBOL         | TYP.      | MAX.      | UNIT     |
| Maximum instantaneous forward voltage <sup>(1)</sup>                       | I <sub>F</sub> = 0.5 A | T <sub>J</sub> = 25 °C                            | V <sub>F</sub> | 0.45      | -         | V        |
|  | I <sub>F</sub> = 1.0 A |   |                | 0.56      | 0.68      |          |
|  | I <sub>F</sub> = 0.5 A | T <sub>J</sub> = 125 °C                           |                | 0.40      | -         |          |
|  | I <sub>F</sub> = 1.0 A |   |                | 0.52      | 0.60      |          |
| Maximum reverse current <sup>(1)</sup>                                     | rated V <sub>R</sub>   | T <sub>J</sub> = 25 °C<br>T <sub>J</sub> = 125 °C | I <sub>R</sub> | 20<br>7.0 | 150<br>12 | μA<br>mA |
| Typical junction capacitance   | 4.0 V, 1 MHz           |   | C <sub>J</sub> | 40        | -         | pF       |

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |        |        |      |
|---|------------------|--------|--------|------|
| PARAMETER   | SYMBOL           | MSS1P5 | MSS1P6 | UNIT |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 125    |        | °C/W |
|   | R <sub>θJL</sub> | 30     |        |      |
|   | R <sub>θJC</sub> | 40     |        |      |

Note:

(1) Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. with 6.0 x 6.0 mm copper pad areas  
R<sub>θJL</sub> is measured at the terminal of cathode band. R<sub>θJC</sub> is measured at the top center of the body

| ORDERING INFORMATION (Example) |                 |                        |               |                                   |
|--------------------------------|-----------------|------------------------|---------------|-----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                     |
| MSS1P6-E3/89A                  | 0.006           | 89A                    | 4500          | 7" diameter plastic tape and reel |
| MSS1P6-G3/89A                  | 0.006           | 89A                    | 4500          | 7" diameter plastic tape and reel |

RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

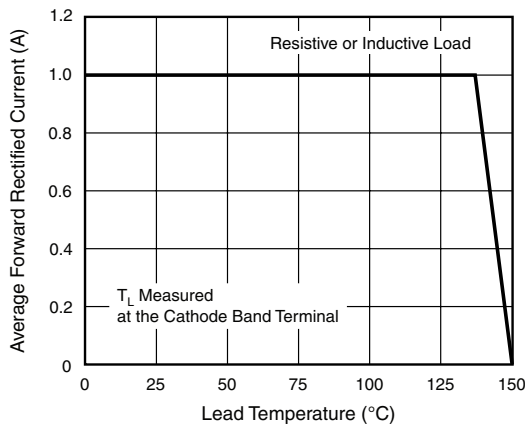


Figure 1. Maximum Forward Current Derating Curve

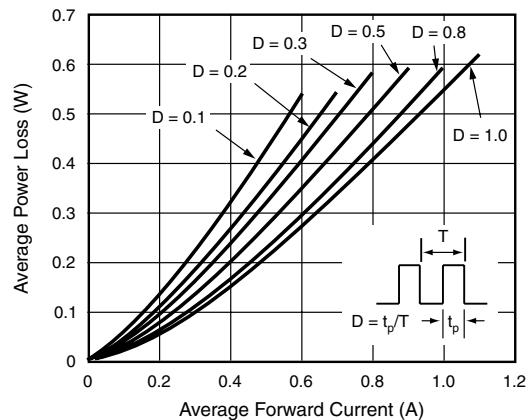


Figure 2. Forward Power Loss Characteristics

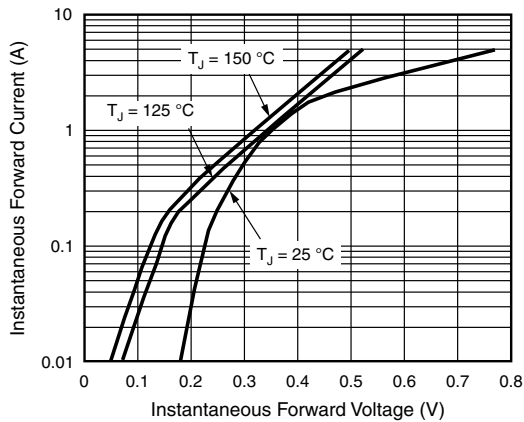


Figure 3. Typical Instantaneous Forward Characteristics

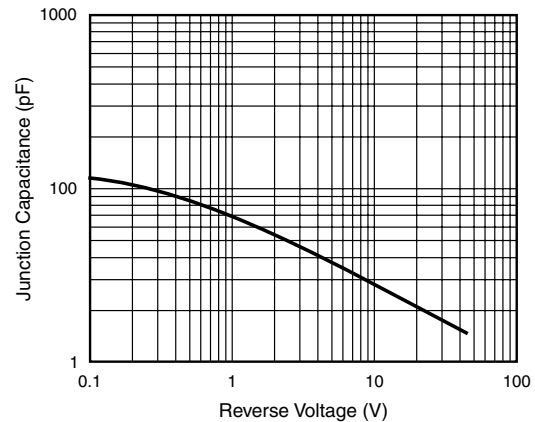


Figure 5. Typical Junction Capacitance

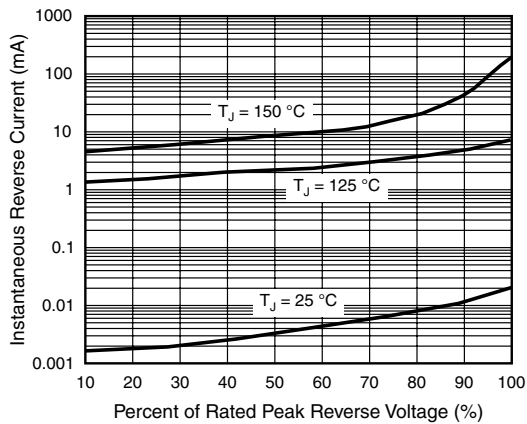


Figure 4. Typical Reverse Characteristics

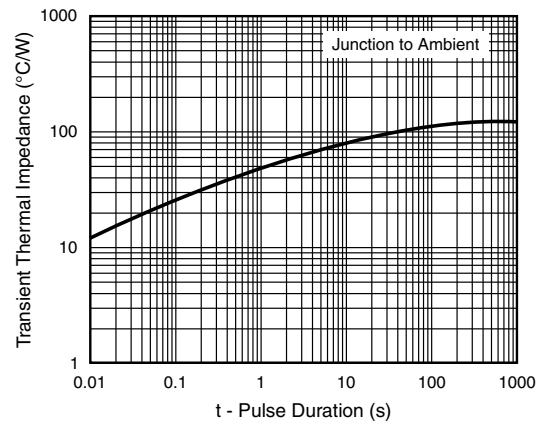
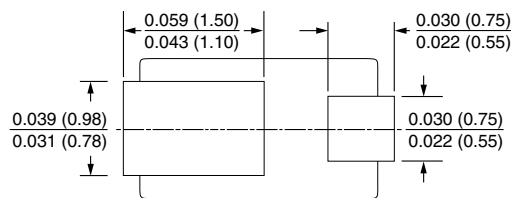
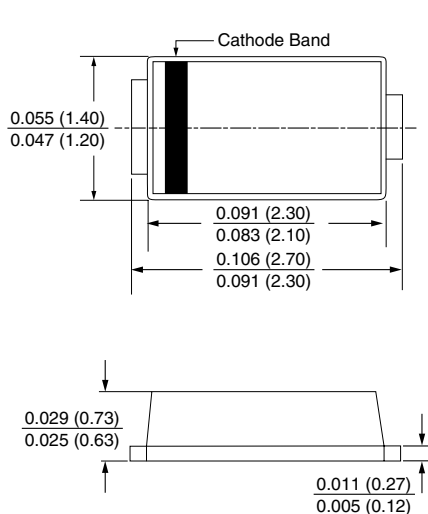


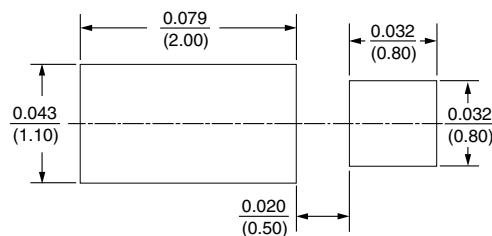
Figure 6. Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**MicroSMP**



**Mounting Pad Layout**





## Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.