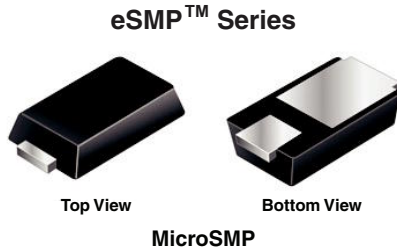




**THE DATASHEET OF  
MSS1P5-E3/89A**



## Surface Mount Schottky Barrier Rectifiers



| PRIMARY CHARACTERISTICS |            |
|-------------------------|------------|
| $I_{F(AV)}$             | 1.0 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.

### FEATURES

- Very low profile - typical height of 0.68 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- 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
- Halogen-free



### MECHANICAL DATA

**Case:** MicroSMP

Molding compound meets UL 94V-0 flammability rating.

Base P/N-E3 - RoHS compliant, commercial grade

Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

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

E3 and M3 suffix meets JESD 201 class 1A whisker test

**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>(2)</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       |

**Notes:**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

| 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-M3/89A                  | 0.006           | 89A                    | 4500          | 7" diameter plastic tape and reel |

**RATINGS AND CHARACTERISTICS CURVES**

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

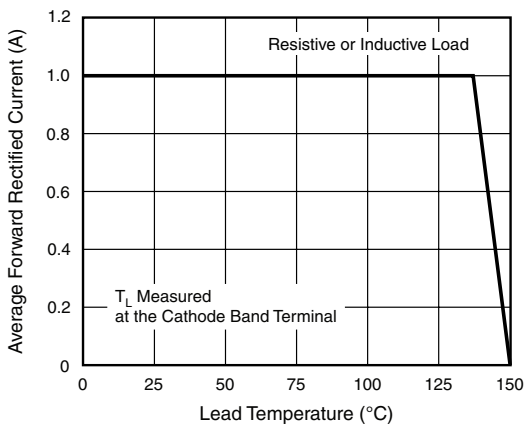


Figure 1. Maximum Forward Current Derating Curve

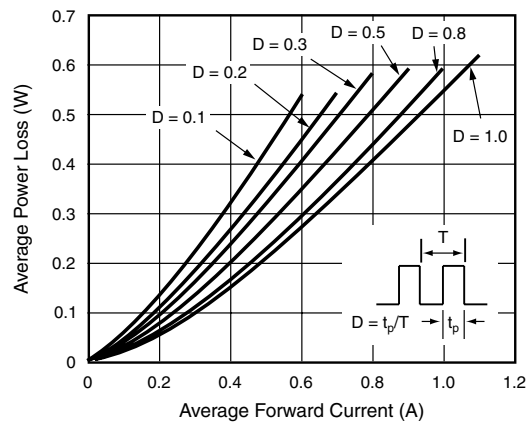


Figure 2. Forward Power Loss Characteristics

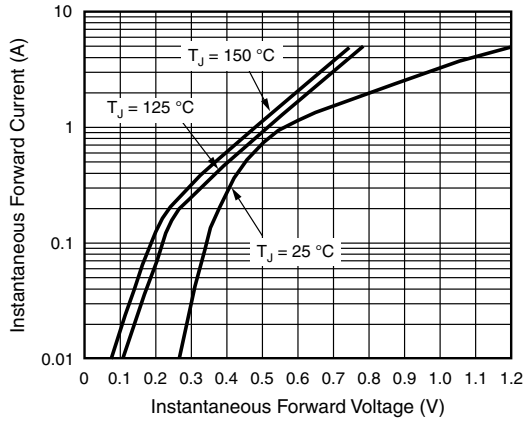


Figure 3. Typical Instantaneous Forward Characteristics

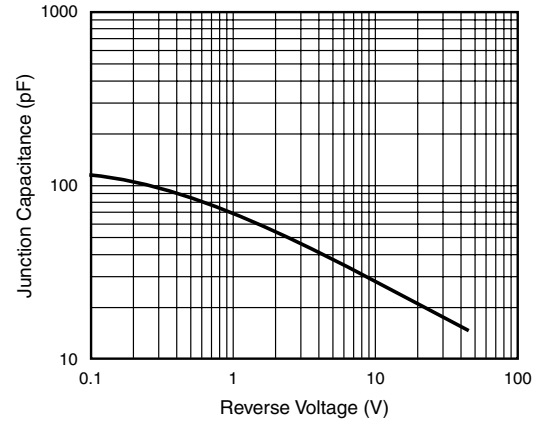


Figure 5. Typical Junction Capacitance

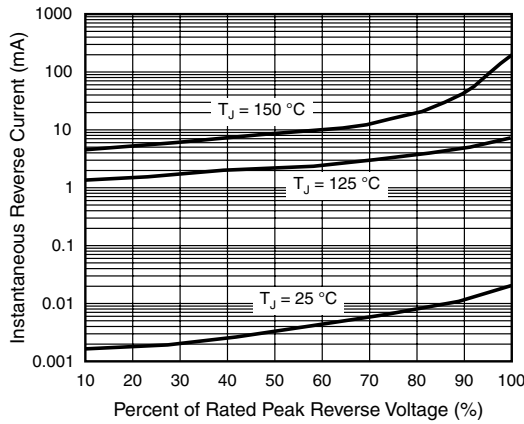


Figure 4. Typical Reverse Characteristics

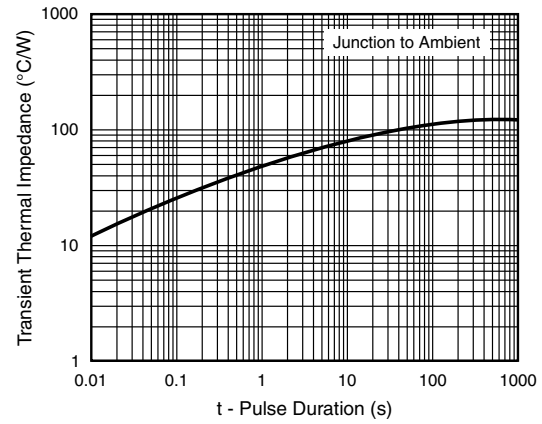
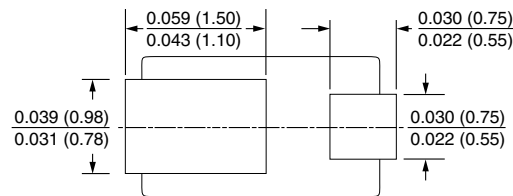
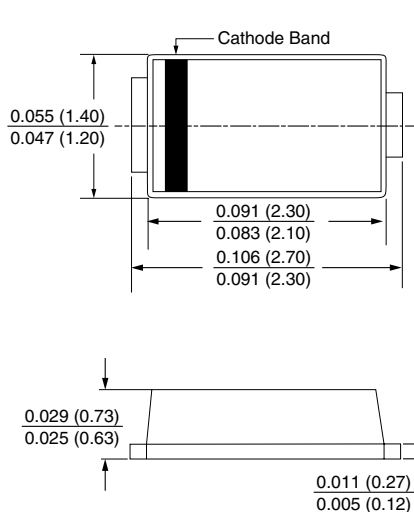


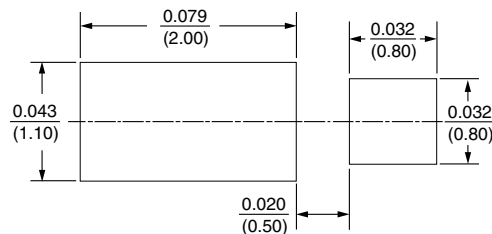
Figure 6. Typical Transient Thermal Impedance

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

**MicroSMP**



**Mounting Pad Layout**





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