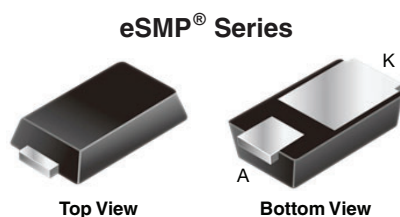


# Surface-Mount Schottky Barrier Rectifiers



**MicroSMP (DO-219AD)**

Anode  Cathode

## FEATURES

- Very low profile - typical height of 0.65 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
- AEC-Q101 qualified available  
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

AUTOMOTIVE  
GRADE  
Available



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## LINKS TO ADDITIONAL RESOURCES



| 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              |
| Package                 | MicroSMP (DO-219AD) |
| Circuit configuration   | Single              |

## TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

## MECHANICAL DATA

**Case:** MicroSMP (DO-219AD)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3\_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified

("\_X" denotes revision code e.g. A, B,...)

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                             | TEST CONDITIONS      | SYMBOL      | TYP. | MAX. | UNIT          |
|---------------------------------------|----------------------|-------------|------|------|---------------|
| Maximum instantaneous forward voltage | $I_F = 0.5\text{ A}$ | $V_F^{(1)}$ | 0.45 | -    | V             |
|                                       | $I_F = 1.0\text{ A}$ |             | 0.56 | 0.68 |               |
|                                       | $I_F = 0.5\text{ A}$ |             | 0.40 | -    |               |
|                                       | $I_F = 1.0\text{ A}$ |             | 0.52 | 0.60 |               |
| Maximum reverse current               | Rated $V_R$          | $I_R^{(2)}$ | 20   | 150  | $\mu\text{A}$ |
|                                       |                      |             | 7.0  | 12   | mA            |
| Typical junction capacitance          | 4.0 V, 1 MHz         | $C_J$       | 40   | -    | pF            |

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                  | SYMBOL                | MSS1P5 | MSS1P6 | UNIT |
|----------------------------|-----------------------|--------|--------|------|
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 125    |        | °C/W |
|                            | $R_{\theta JL}^{(1)}$ | 30     |        |      |
|                            | $R_{\theta JC}^{(1)}$ | 40     |        |      |

**Note**(1) Thermal resistance from junction to ambient and junction to lead mounted on PCB with 6.0 mm x 6.0 mm copper pad areas  $R_{\theta JL}$  is measured at the terminal of cathode band.  $R_{\theta JC}$  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-M3/89A                | 0.006           | 89A                    | 4500          | 7" diameter plastic tape and reel |
| MSS1P6HM3_A/H <sup>(1)</sup> | 0.006           | H                      | 4500          | 7" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified

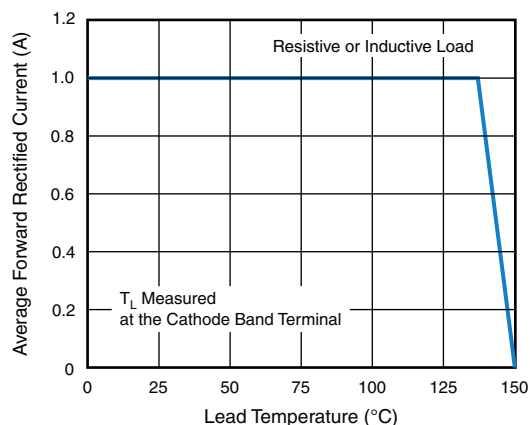
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

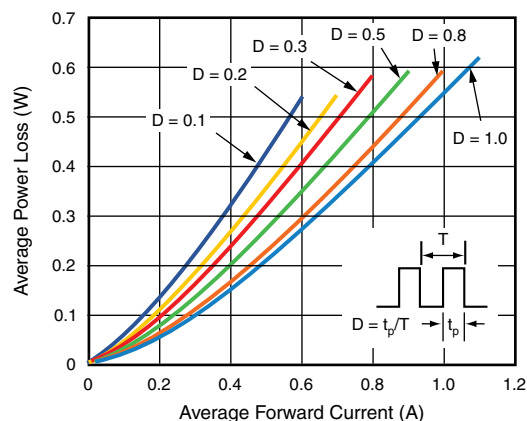


Fig. 2 - Forward Power Loss Characteristics

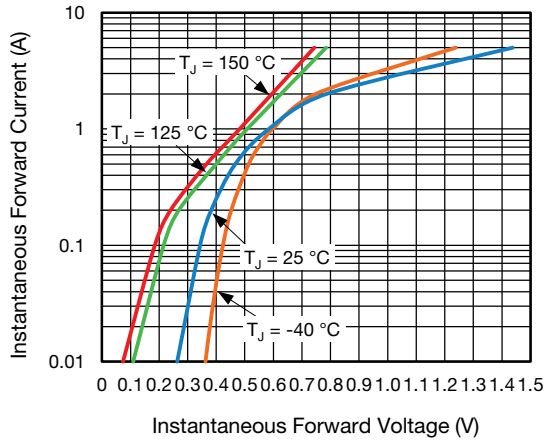


Fig. 3 - Typical Instantaneous Forward Characteristics

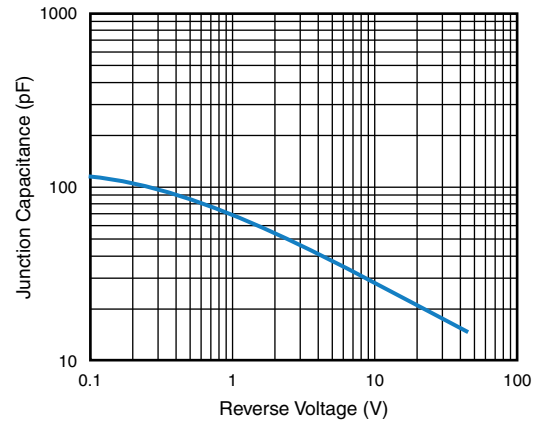


Fig. 5 - Typical Junction Capacitance

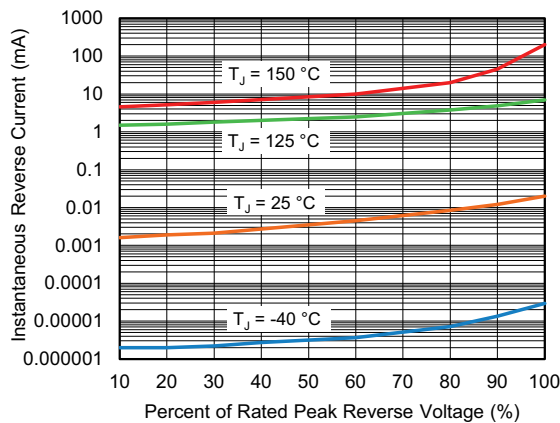


Fig. 4 - Typical Reverse Characteristics

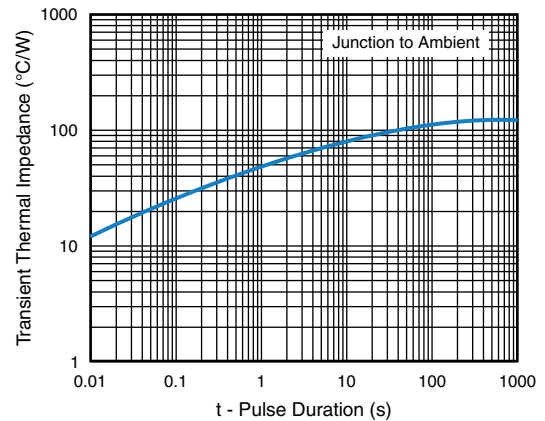
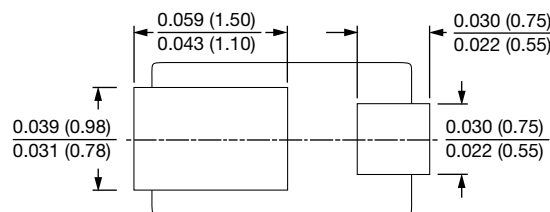
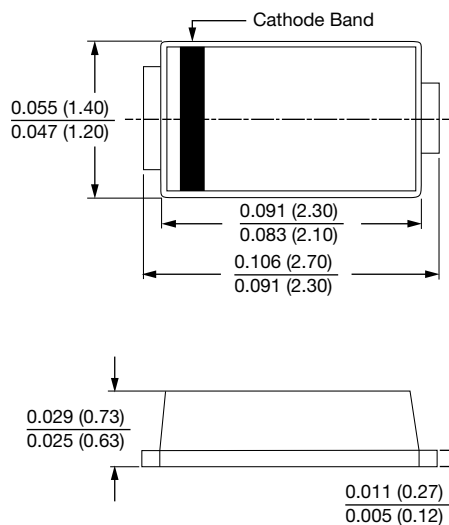
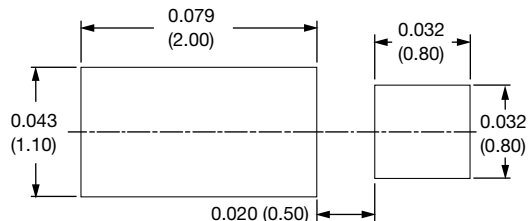


Fig. 6 - Typical Transient Thermal Impedance

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

**MicroSMP (DO-219AD)**

**Mounting Pad Layout**




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