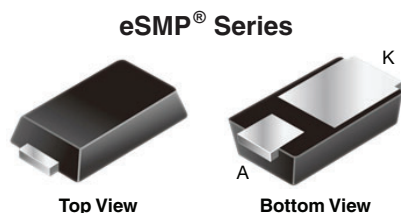


# Surface-Mount Schottky Barrier Rectifiers



**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)



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

## LINKS TO ADDITIONAL RESOURCES



## TYPICAL APPLICATIONS

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

## PRIMARY CHARACTERISTICS

|                        |                     |
|------------------------|---------------------|
| $I_{F(AV)}$            | 2.0 A               |
| $V_{RRM}$              | 20 V, 30 V          |
| $I_{FSM}$              | 30 A                |
| $V_F$ at $I_F = 2.0$ A | 0.47 V              |
| $T_J$ max.             | 150 °C              |
| Package                | MicroSMP (DO-219AD) |
| Circuit configuration  | Single              |

## 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         | MSS2P2      | MSS2P3 | UNIT |
|--|----------------|-------------|--------|------|
| Device marking code  |                | 22          | 23     |      |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 20          | 30     | V    |
| Maximum average forward rectified current (fig. 1)                                 | $I_{F(AV)}$    | 2.0         |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 30          |        | 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                                      | I <sub>F</sub> = 1.0 A | T <sub>A</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.44 | -    | V    |
|  | I <sub>F</sub> = 2.0 A |                         |                               | 0.52 | 0.60 |      |
|  | I <sub>F</sub> = 1.0 A | T <sub>A</sub> = 125 °C |                               | 0.36 | -    |      |
|  | I <sub>F</sub> = 2.0 A |                         |                               | 0.47 | 0.55 |      |
| Maximum reverse current  | Rated V <sub>R</sub>   | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 15   | 250  | μA   |
|  |                        | T <sub>A</sub> = 125 °C |                               | 6.0  | 20   | mA   |
| Typical junction capacitance   | 4.0 V, 1 MHz           |                         | C <sub>J</sub>                | 65   | -    | pF   |

**Notes**
<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$ 

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |      |
|---|---------------------------------|--------|--------|------|
| PARAMETER   | SYMBOL                          | MSS2P2 | MSS2P3 | UNIT |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)</sup> | 105    |        | °C/W |
|   | R <sub>θJL</sub> <sup>(1)</sup> | 15     |        |      |
|   | R <sub>θJC</sub> <sup>(1)</sup> | 20     |        |      |

**Note**
<sup>(1)</sup> 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

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                   |
|---------------------------------------|-----------------|------------------------|---------------|-----------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                     |
| MSS2P3-M3/89A                         | 0.006           | 89A                    | 4500          | 7" diameter plastic tape and reel |
| MSS2P3HM3_A/H <sup>(1)</sup>          | 0.006           | H                      | 4500          | 7" diameter plastic tape and reel |

**Note**
<sup>(1)</sup> AEC-Q101 qualified

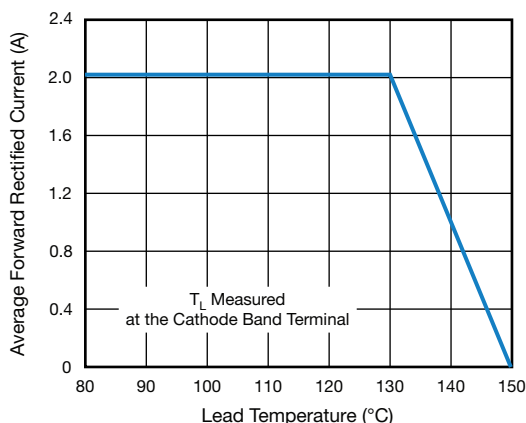
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

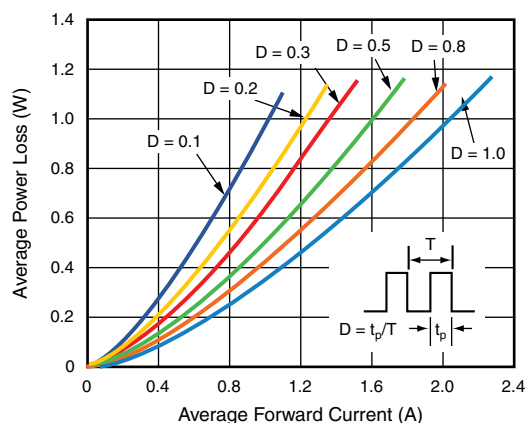


Fig. 2 - Forward Power Loss Characteristics

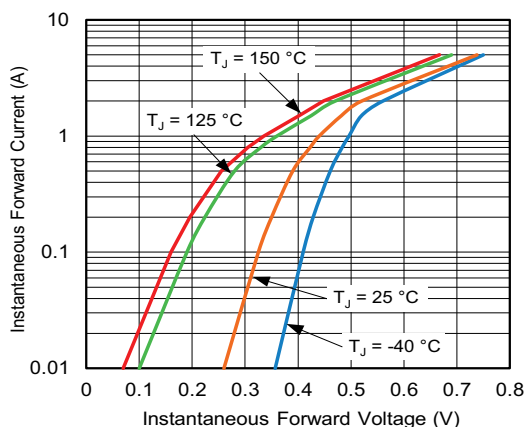


Fig. 3 - Typical Instantaneous Forward Characteristics

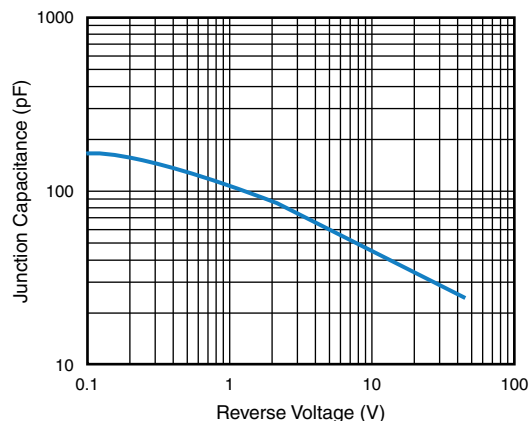


Fig. 5 - Typical Junction Capacitance

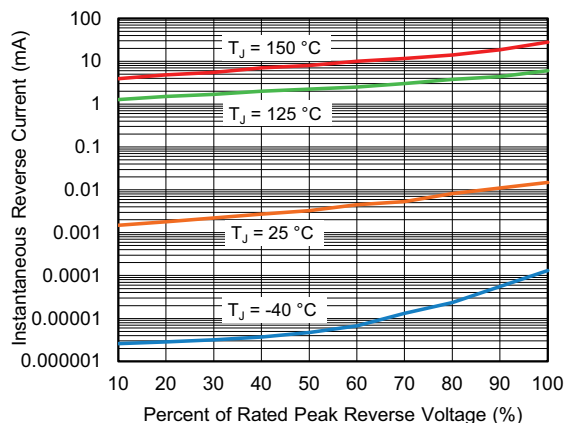


Fig. 4 - Typical Reverse Characteristics

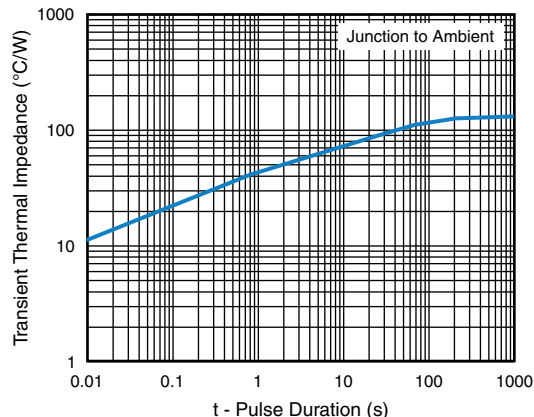
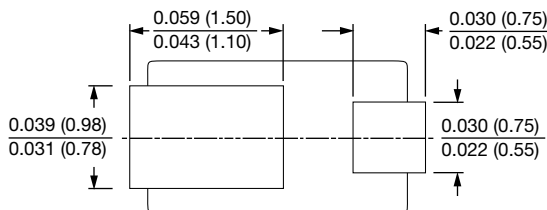
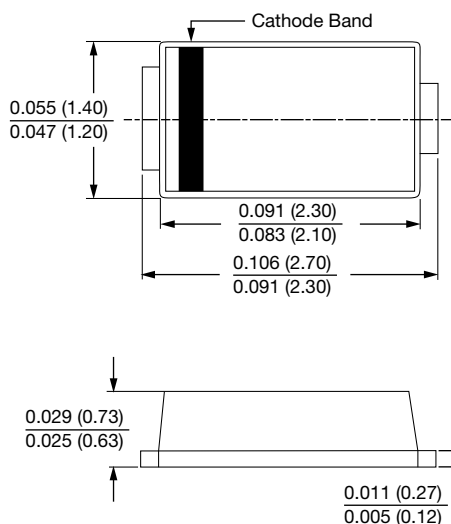


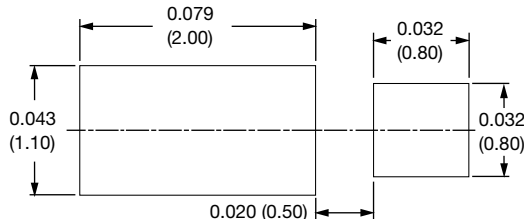
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### MicroSMP (DO-219AD)



### Mounting Pad Layout





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