

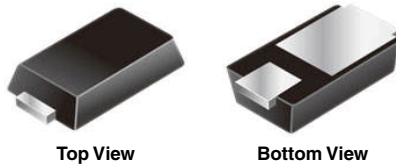


**THE DATASHEET OF
MSS1P3-M3/89A**



Surface Mount Schottky Barrier Rectifiers

eSMP® Series



Top View Bottom View

MicroSMP (DO-219AD)



DESIGN SUPPORT TOOLS

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| PRIMARY CHARACTERISTICS | |
|-------------------------|------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 30 V, 40 V |
| I_{FSM} | 25 A |
| V_F at $I_F = 1.0$ A | 0.41 V |
| T_J max. | 150 °C |
| Package | MicroSMP |
| Circuit configuration | Single |

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



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: MicroSMP

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

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

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 | MSS1P3 | MSS1P4 | UNIT |
| Device marking code | | 13 | 14 | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 30 | 40 | 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 °C unless otherwise noted) | | | | | | |
|--|------------------------|-------------------------|-------------------------------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Maximum instantaneous forward voltage | I _F = 0.5 A | T _J = 25 °C | V _F ⁽¹⁾ | 0.41 | - | V |
| | I _F = 1.0 A | | | 0.48 | 0.55 | |
| | I _F = 0.5 A | T _J = 125 °C | | 0.32 | - | |
| | I _F = 1.0 A | | | 0.41 | 0.46 | |
| Maximum reverse current | Rated V _R | T _J = 25 °C | I _R ⁽²⁾ | 8.5 | 200 | μA |
| | | T _J = 125 °C | | 4.5 | 15 | mA |
| Typical junction capacitance | 4.0 V, 1 MHz | | C _J | 50 | - | pF |

Notes

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

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | |
|---|---------------------------------|--------|--------|------|
| PARAMETER | SYMBOL | MSS1P3 | MSS1P4 | UNIT |
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | 125 | | °C/W |
| | R _{θJL} ⁽¹⁾ | 30 | | |
| | R _{θJC} ⁽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_{θJL} is measured at the terminal of cathode band. R_{θJC} 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 |
| MSS1P4-M3/89A | 0.006 | 89A | 4500 | 7" diameter plastic tape and reel |
| MSS1P4HM3/89A ⁽¹⁾ | 0.006 | 89A | 4500 | 7" diameter plastic tape and reel |
| MSS1P4HM3_A/H ⁽¹⁾ | 0.006 | H | 4500 | 7" diameter plastic tape and reel |

Note

- (1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

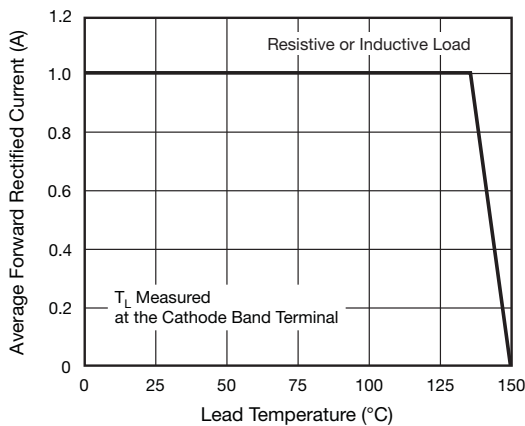


Fig. 1 - Maximum Forward Current Derating Curve

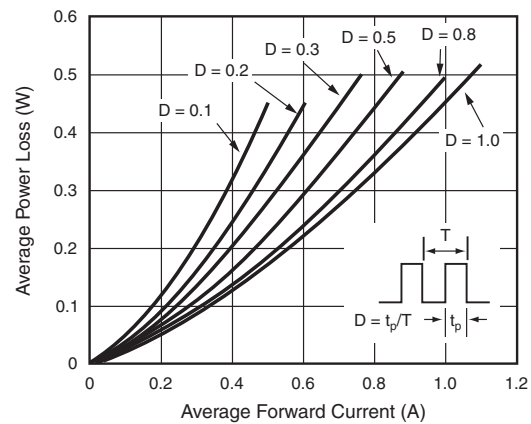


Fig. 2 - Forward Power Loss Characteristics

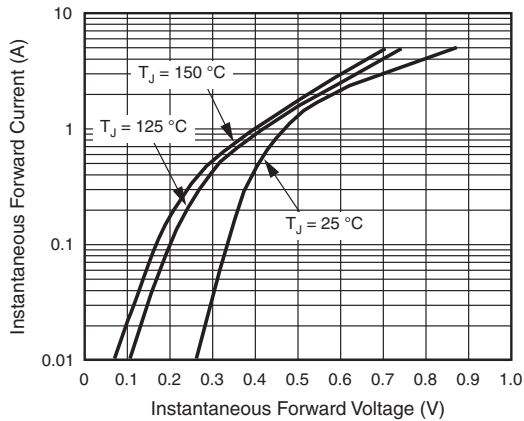


Fig. 3 - Typical Instantaneous Forward Characteristics

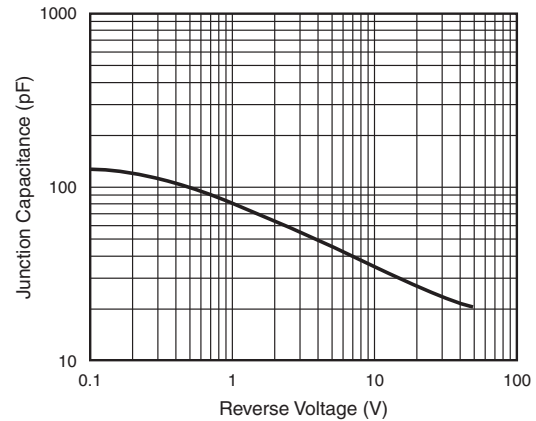


Fig. 5 - Typical Junction Capacitance

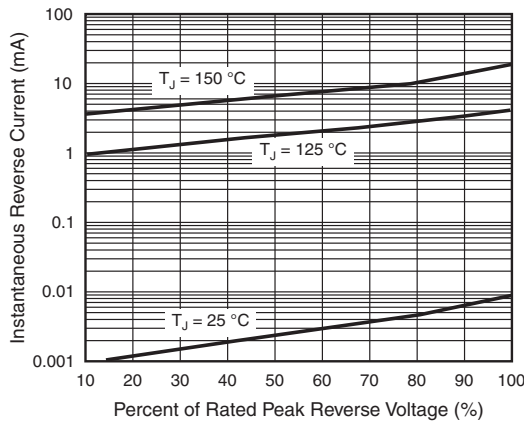


Fig. 4 - Typical Reverse Characteristics

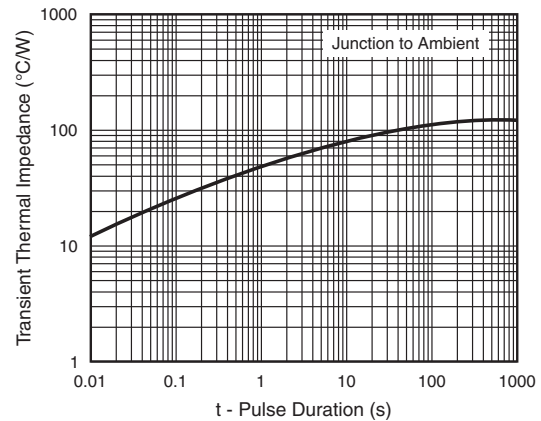
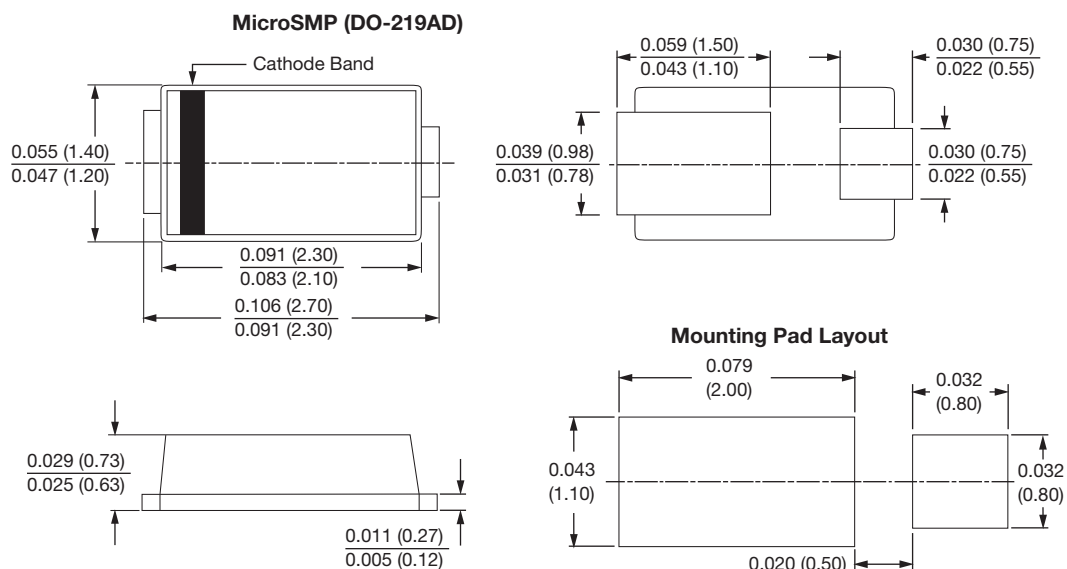


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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