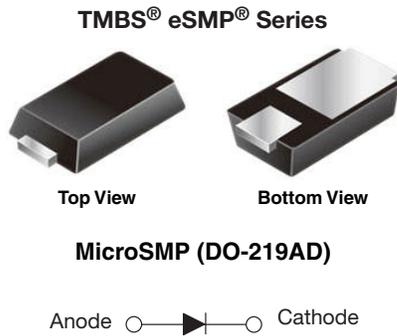


# Surface Mount Trench MOS Barrier Schottky Rectifier



## FEATURES

- Very low profile - typical height of 0.65 mm
- Ideal for automated placement
- Trench MOS Schottky technology
- Low forward voltage drop
- Low power loss, 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**

## DESIGN SUPPORT TOOLS

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**3D**  
Models  
Available

## TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 A
$V_{RRM}$	120 V
$I_{FSM}$	30 A
$V_F$ at $I_F = 2$ A (125 °C)	0.65 V
$T_J$ max.	175 °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, and RoHS-compliant  
 Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

M3 and 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	V2PM12	UNIT
Device marking code		2MS	
Maximum repetitive peak reverse voltage	$V_{RRM}$	120	V
Maximum DC forward current	$I_{F(AV)}^{(1)}$	1.4	A
	$I_{F(AV)}^{(2)}$	2	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	30	A
Operating junction and storage temperature range	$T_J^{(3)}, T_{STG}$	-40 to +175	°C

## Notes

(1) Free air, mounted on recommended copper pad area

(2) Mounted on 8.0 mm x 8.0 mm pad area

(3) The heat generated must be less than the thermal conductivity from junction to ambient:  $dP_D/dT_J < 1/R_{\theta JA}$



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.70	-	V
	I <sub>F</sub> = 2.0 A	T <sub>A</sub> = 25 °C		0.90	0.98	
	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 125 °C		0.57	-	
	I <sub>F</sub> = 2.0 A	T <sub>A</sub> = 125 °C		0.65	0.73	
Reverse current	V <sub>R</sub> = 90 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	0.001	-	mA
		T <sub>A</sub> = 125 °C		0.25	-	
	V <sub>R</sub> = 120 V	T <sub>A</sub> = 25 °C		-	0.05	
		T <sub>A</sub> = 125 °C		0.5	2	
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	140	-	pF

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	V2PM12	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)(2)</sup>	130	°C/W
	R <sub>θJM</sub> <sup>(3)</sup>	20	

**Notes**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/ R<sub>θJA</sub>
- (2) Free air, mounted on FR4 PCB, 2 oz. standard footprint, R<sub>θJA</sub> - junction to ambient
- (3) Mounted on PCB with 8.0 mm x 8.0 mm copper pad areas, R<sub>θJM</sub> - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V2PM12-M3/H	0.006	H	4500	7" diameter plastic tape and reel
V2PM12HM3/H <sup>(1)</sup>	0.006	H	4500	7" diameter plastic tape and reel

**Note**

- (1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

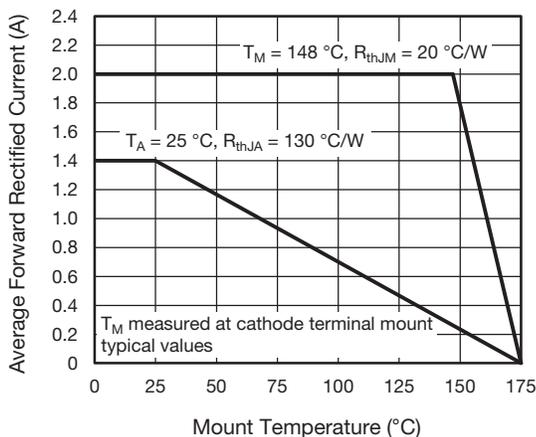


Fig. 1 - Maximum Forward Current Derating Curve

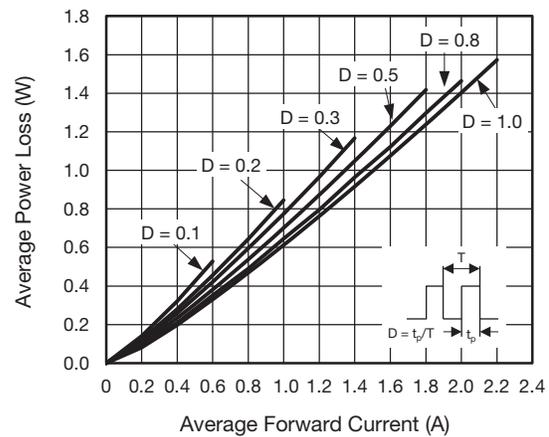


Fig. 2 - Average Power Loss Characteristics

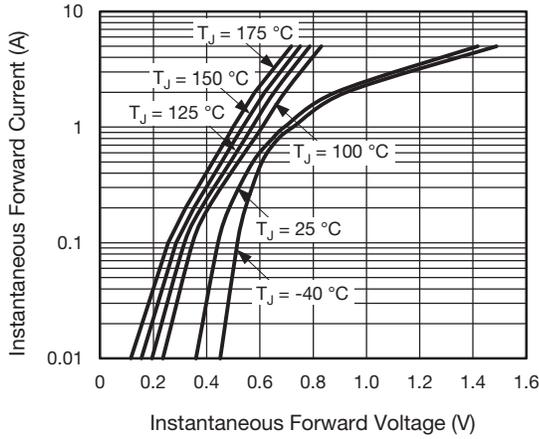


Fig. 3 - Typical Instantaneous Forward Characteristics

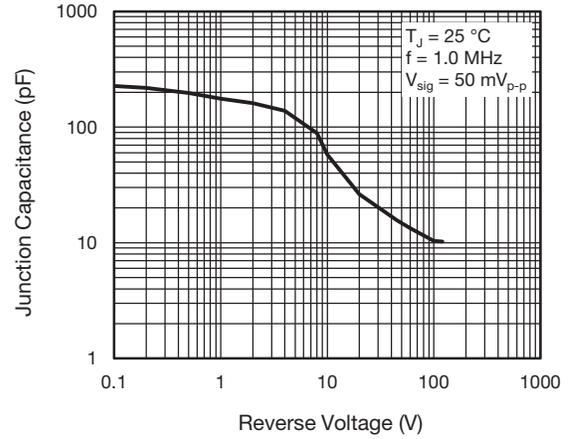


Fig. 5 - Typical Junction Capacitance

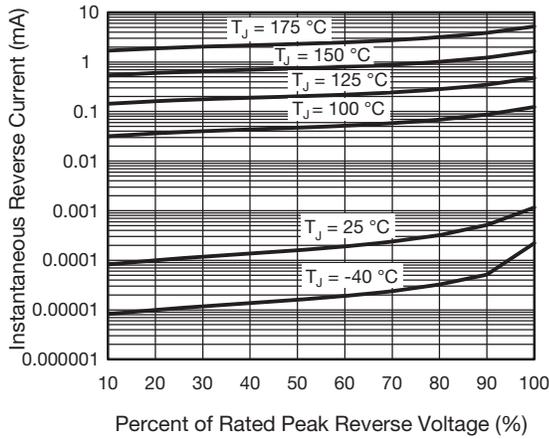


Fig. 4 - Typical Reverse Leakage Characteristics

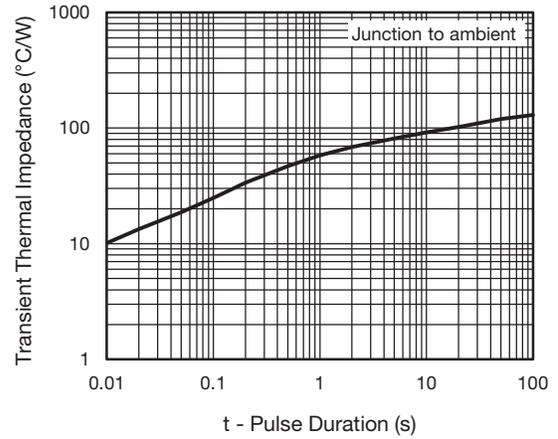
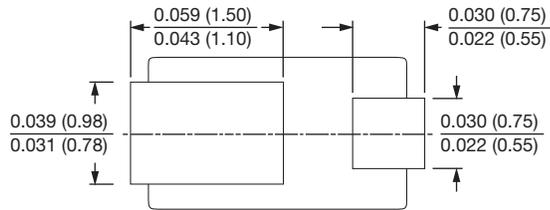
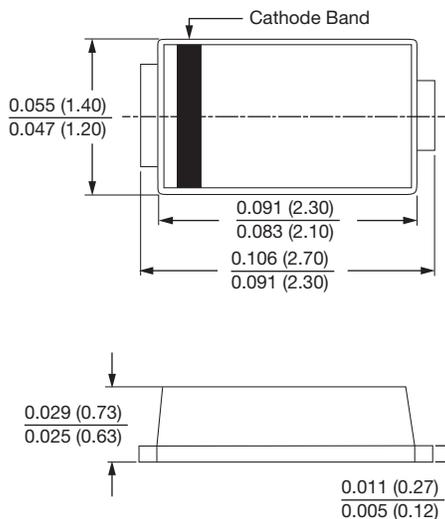


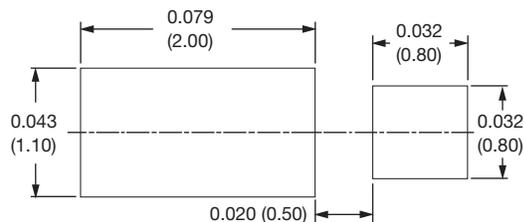
Fig. 6 - Typical Transient Thermal Impedance

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

**MicroSMP (DO-219AD)**



**Mounting Pad Layout**





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