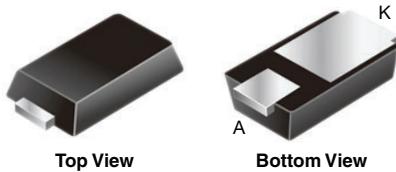


Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

eSMP® Series



MicroSMP (DO-219AD)

Anode  Cathode

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



RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



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

TYPICAL APPLICATIONS

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

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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 1.0 \text{ A}$	$T_A = 25^\circ\text{C}$	V_F ⁽¹⁾	0.70	-	V
	$I_F = 2.0 \text{ A}$	$T_A = 25^\circ\text{C}$		0.90	0.98	
	$I_F = 1.0 \text{ A}$	$T_A = 125^\circ\text{C}$		0.57	-	
	$I_F = 2.0 \text{ A}$	$T_A = 125^\circ\text{C}$		0.65	0.73	
Reverse current	$V_R = 90 \text{ V}$	$T_A = 25^\circ\text{C}$	I_R ⁽²⁾	0.001	-	mA
		$T_A = 125^\circ\text{C}$		0.25	-	
	$V_R = 120 \text{ V}$	$T_A = 25^\circ\text{C}$		-	0.05	
		$T_A = 125^\circ\text{C}$		0.5	2	
Typical junction capacitance	4.0 V, 1 MHz		C_J	140	-	pF

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: pulse width $\leq 5 \text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	V2PM12	UNIT
Typical thermal resistance	$R_{\theta JA}$ ⁽¹⁾⁽²⁾	130	$^\circ\text{C/W}$
	$R_{\theta JM}$ ⁽³⁾	20	

Notes

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

(2) Free air, mounted on FR4 PCB, 2 oz. standard footprint, $R_{\theta JA}$ - junction to ambient

(3) Mounted on PCB with 8.0 mm x 8.0 mm copper pad areas, $R_{\theta JM}$ - 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 ⁽¹⁾	0.006	H	4500	7" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

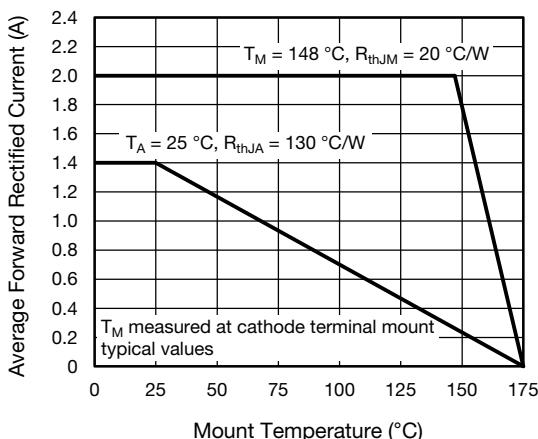
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

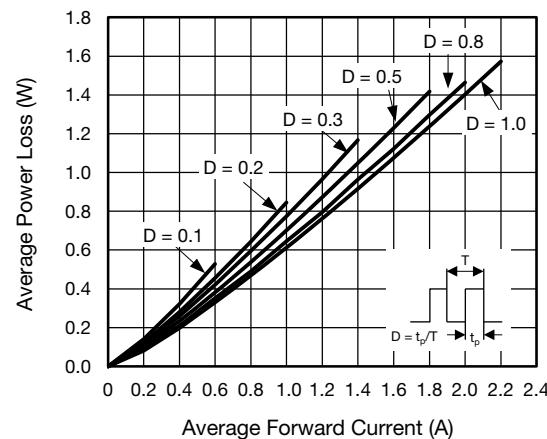


Fig. 2 - Average Power Loss Characteristics

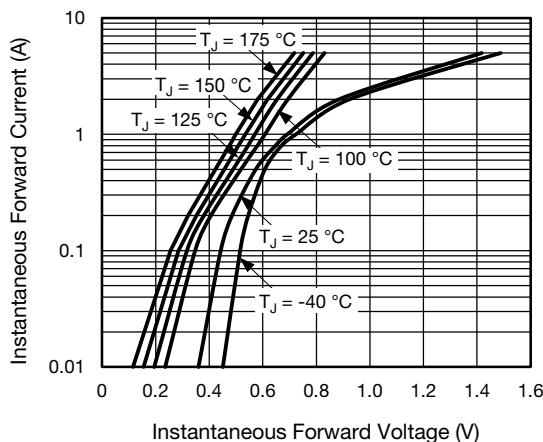


Fig. 3 - Typical Instantaneous Forward Characteristics

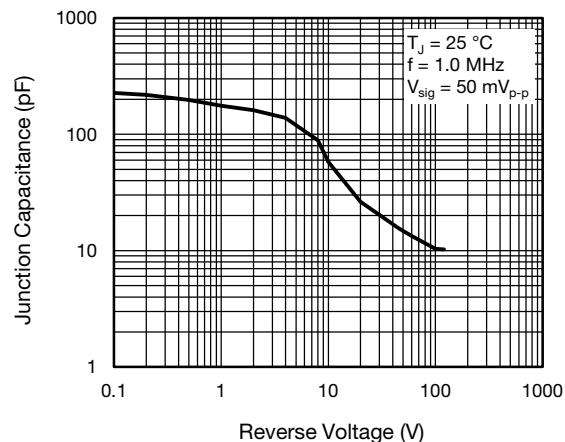


Fig. 5 - Typical Junction Capacitance

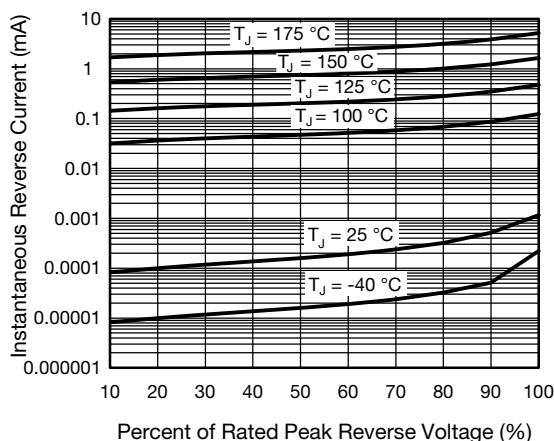


Fig. 4 - Typical Reverse Leakage Characteristics

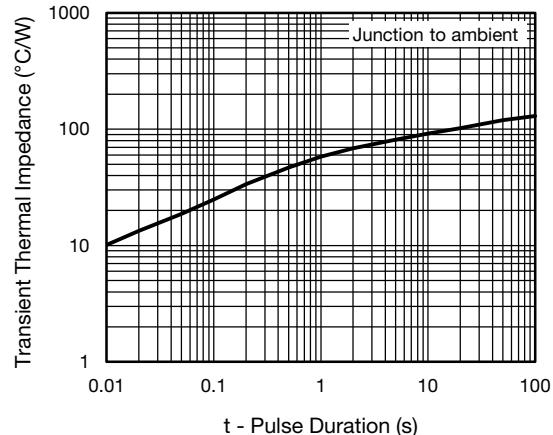
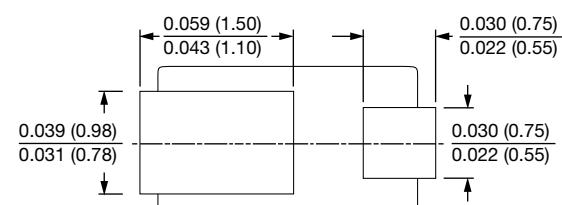
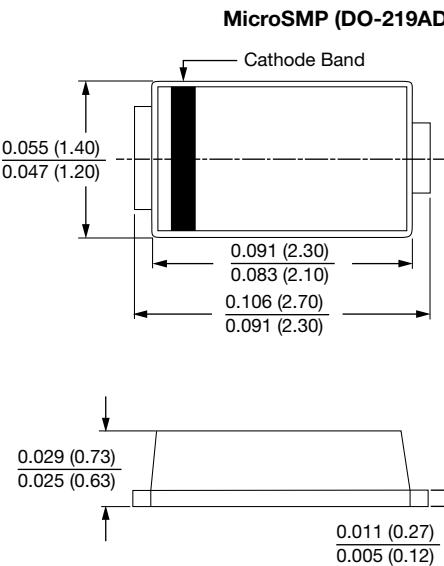
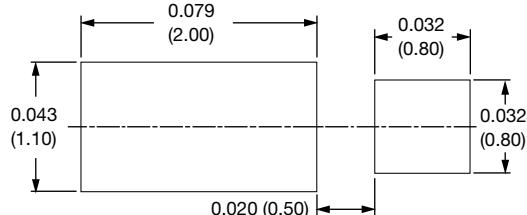


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Mounting Pad Layout



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