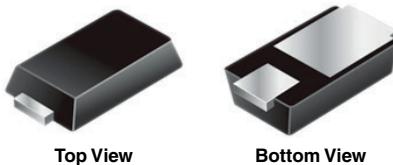


Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

eSMP® Series



Top View

Bottom View

MicroSMP (DO-219AD)

Anode → Cathode



FEATURES

- Very low profile - typical height of 0.65 mm
- 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

LINKS TO ADDITIONAL RESOURCES



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_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 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

PRIMARY CHARACTERISTICS	
I _{F(AV)}	1.0 A
V _{RRM}	200 V
I _{FSM}	25 A
V _F at I _F = 1.0 A (125 °C)	0.65 V
T _J max.	175 °C
Package	MicroSMP (DO-219AD)
Circuit configuration	Single

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	V1P22	UNIT
Device marking code		V1D	
Maximum repetitive peak reverse voltage	V _{RRM}	200	V
Maximum DC reverse voltage	V _{DC}	160	V
Maximum average forward rectified current	I _{F(AV)} ⁽¹⁾	1.0	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	25	A
Operating junction temperature range	T _J ⁽²⁾	-40 to +175	°C
Storage temperature range	T _{STG}	-55 to +175	°C

Notes

(1) Free air mounted on recommended copper pad area

(2) The heat generated must be less than the thermal conductivity from junction to ambient: dP_D/dT_J < 1/R_{θJA}

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 0.5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.74	-	V	
	$I_F = 1.0 \text{ A}$			0.80	0.88		
	$I_F = 0.5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.58	-		
	$I_F = 1.0 \text{ A}$			0.65	0.73		
Reverse current	$V_R = 160 \text{ V}$	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	0.001	-	mA	
		$T_A = 125^\circ\text{C}$		0.1	-		
	$V_R = 200 \text{ V}$	$T_A = 25^\circ\text{C}$		-	0.015		
		$T_A = 125^\circ\text{C}$		0.2	1.0		
Typical junction capacitance	4.0 V, 1 MHz		C_J	50.0	-	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	V1P22		UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$	130		°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 recommended copper pad area; thermal resistance, $R_{\theta JA}$ - junction to ambient

(3) Mounted on recommended copper pad area; thermal resistance, $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V1P22-M3/H	0.006	H	4500	7" diameter plastic tape and reel
V1P22HM3_A/H ⁽¹⁾	0.006	H	4500	7" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

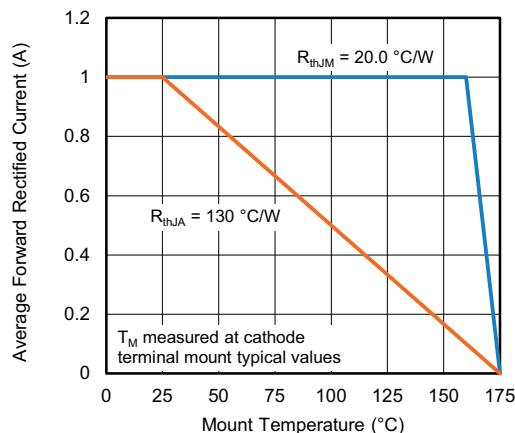
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

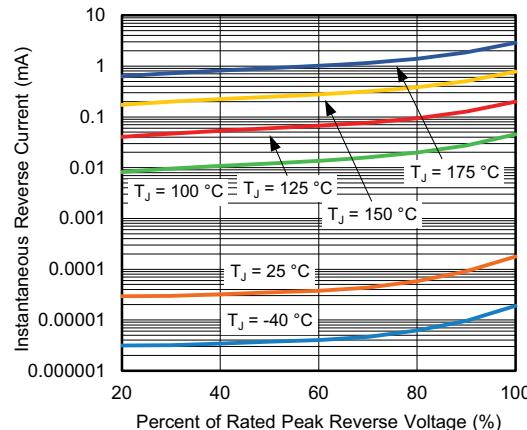


Fig. 4 - Typical Reverse Leakage Characteristics

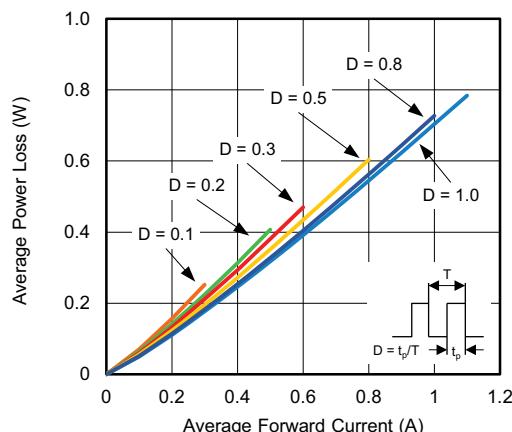


Fig. 2 - Average Power Loss Characteristics

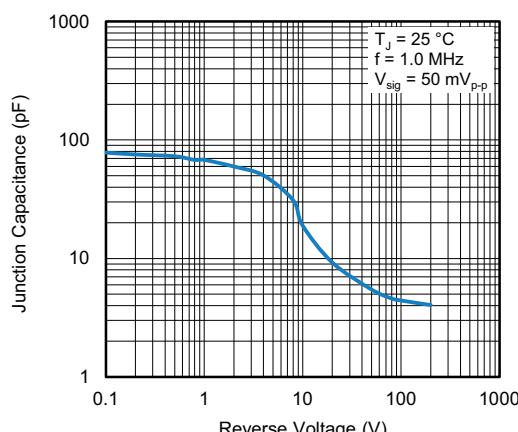


Fig. 5 - Typical Junction Capacitance

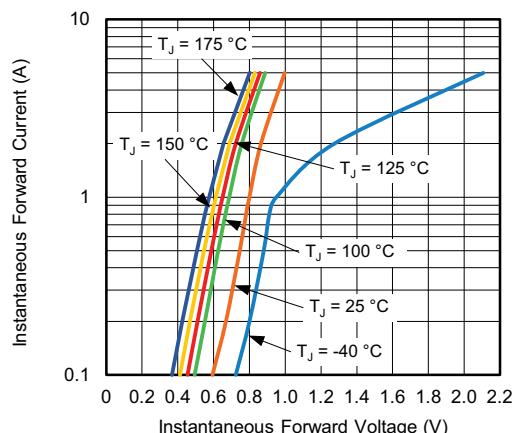


Fig. 3 - Typical Instantaneous Forward Characteristics

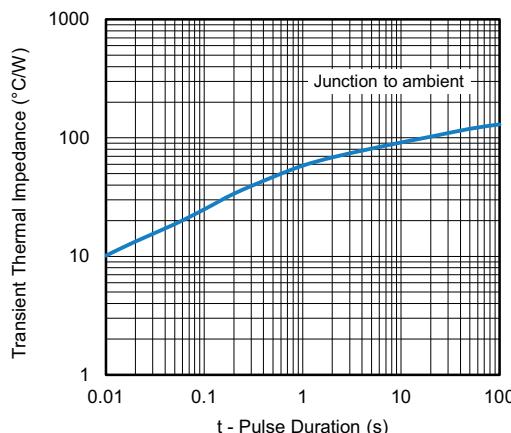
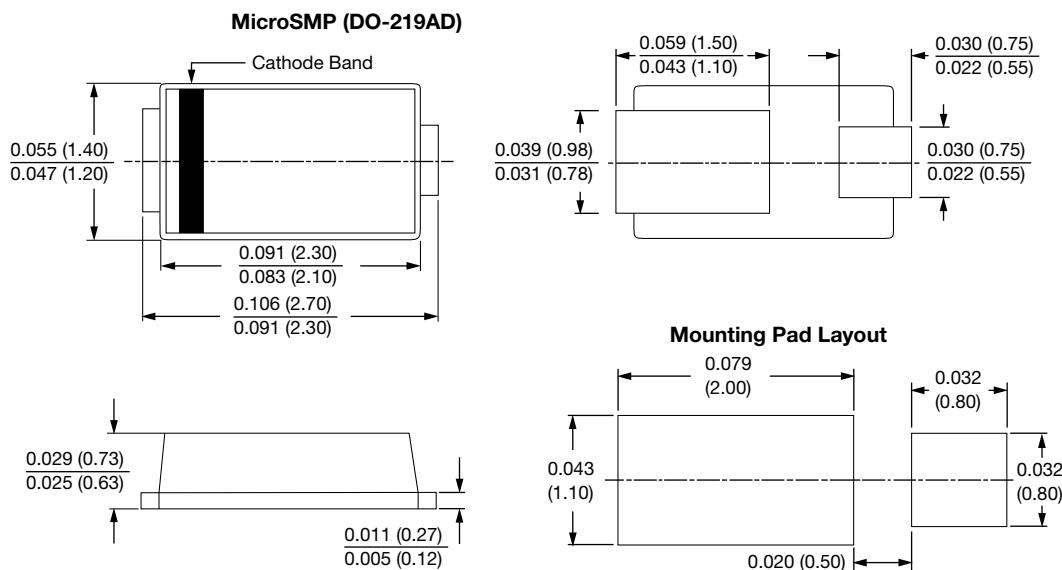


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)




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