AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN

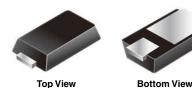
FREE

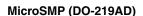


Vishay General Semiconductor

Surface Mount Schottky Barrier Rectifiers

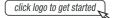
eSMP® Series







DESIGN SUPPORT TOOLS





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				

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 <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

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

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 - 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	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		А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30		А	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150		°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	$I_F = 1.0 A$	T ₄ = 25 °C	V _F ⁽¹⁾	0.44	-	V
	I _F = 2.0 A			0.52	0.60	
	I _F = 1.0 A	T _A = 125 °C		0.36	-	
	I _F = 2.0 A			0.47	0.55	
Maximum reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	15	250	μΑ
	nated v _R	T _A = 125 °C		6.0	20	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	65	-	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	MSS2P2	MSS2P3	UNIT	
	R _{0JA} (1)	105		°C/W	
Typical thermal resistance	R _{0JL} (1)	15			
	R ₀ JC (1)	2	0]	

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 $R_{\theta JL}$ is measured at the terminal of cathode band. $R_{\theta JC}$ 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		
MSS2P3-M3/89A	0.006	89A	4500	7" diameter plastic tape and reel		
MSS2P3HM3/89A (1)	0.006	89A	4500	7" diameter plastic tape and reel		
MSS2P3HM3_A/H (1)	0.006	Н	4500	7" diameter plastic tape and reel		

Note

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

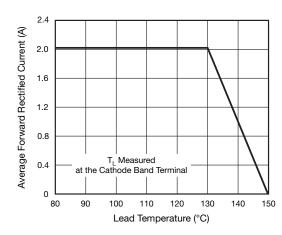


Fig. 1 - Maximum Forward Current Derating Curve

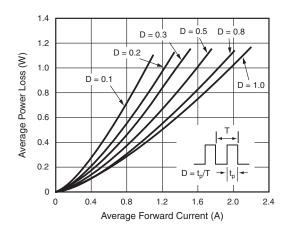


Fig. 2 - Forward Power Loss Characteristics

⁽¹⁾ AEC-Q101 qualified



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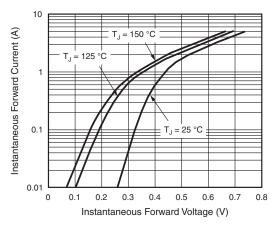


Fig. 3 - Typical Instantaneous Forward Characteristics

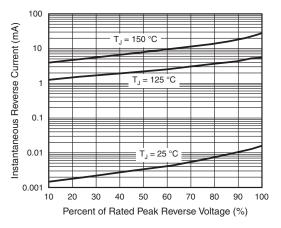


Fig. 4 - Typical Reverse Characteristics

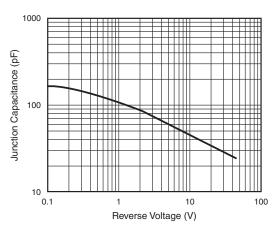


Fig. 5 - Typical Junction Capacitance

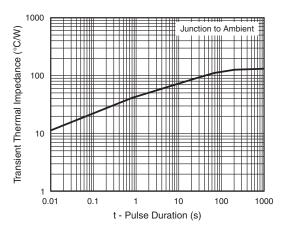
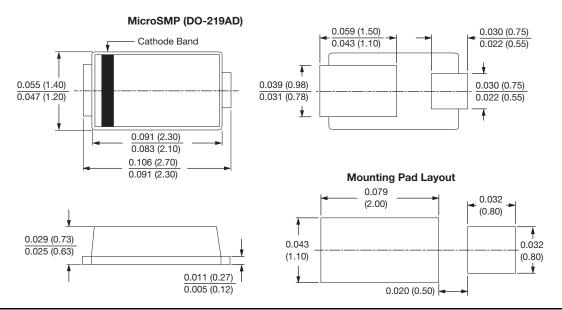


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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