Vishay General Semiconductor

# **Surface-Mount Schottky Barrier Rectifiers**



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Anode O Cathode

## LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	2.0 A			
V <sub>RRM</sub>	20 V, 30 V			
I <sub>FSM</sub>	30 A			
V <sub>F</sub> at I <sub>F</sub> = 2.0 A	0.47 V			
T <sub>J</sub> 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\_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

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MSS2P2	MSS2P3	UNIT		
Device marking code		22	23			
Maximum repetitive peak reverse voltage	V <sub>RRM</sub> 20 30		V			
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub>	2.0		А		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	30		А		
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150		°C		



RoHS COMPLIANT HALOGEN FREE



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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	I <sub>F</sub> = 1.0 A	- T <sub>A</sub> = 25 °C	- V <sub>F</sub> <sup>(1)</sup>	0.44	-	V
	I <sub>F</sub> = 2.0 A			0.52	0.60	
	I <sub>F</sub> = 1.0 A	– T <sub>A</sub> = 125 °C		0.36	-	
	I <sub>F</sub> = 2.0 A			0.47	0.55	
Maximum reverse current	Poted V	Rated V <sub>R</sub> $\frac{T_A = 25 \text{ °C}}{T_A = 125 \text{ °C}}$	I <sub>R</sub> <sup>(2)</sup>	15	250	μA
	naleu v <sub>R</sub>			6.0	20	mA
Typical junction capacitance	4.0 V, 1 Mł	4.0 V, 1 MHz		65	-	pF

#### Notes

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

 $^{(2)}$  Pulse test: Pulse width  $\leq 40\ ms$ 

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MSS2P2	MSS2P3	UNIT	
Typical thermal resistance	R <sub>0JA</sub> <sup>(1)</sup>	105		°C/W	
	R <sub>0JL</sub> <sup>(1)</sup>	15			
	R <sub>0JC</sub> <sup>(1)</sup>	2	20		

#### Note

<sup>(1)</sup> 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_A/H <sup>(1)</sup>	0.006	Н	4500	7" diameter plastic tape and reel		

Note

<sup>(1)</sup> AEC-Q101 qualified

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

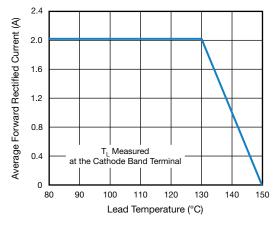


Fig. 1 - Maximum Forward Current Derating Curve

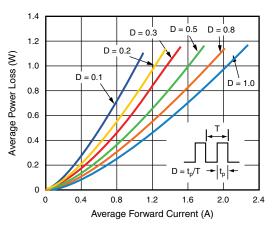


Fig. 2 - Forward Power Loss Characteristics

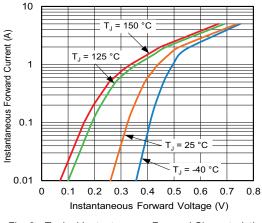
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Fig. 3 - Typical Instantaneous Forward Characteristics

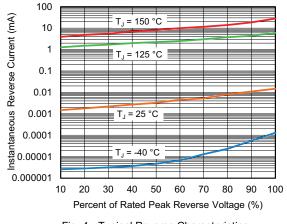


Fig. 4 - Typical Reverse Characteristics

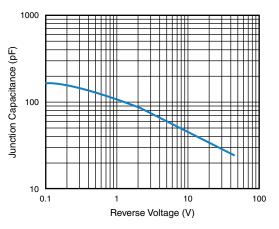


Fig. 5 - Typical Junction Capacitance

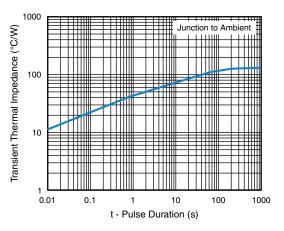
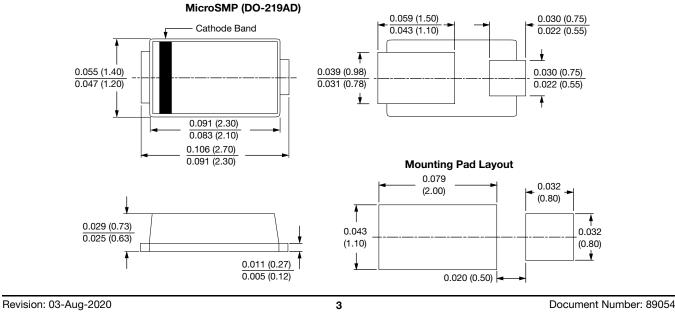


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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