

Vishay General Semiconductor

# **Surface Mount Schottky Barrier Rectifiers**



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	1.0 A			
V <sub>RRM</sub>	50 V, 60 V			
I <sub>FSM</sub>	25 A			
V <sub>F</sub> at I <sub>F</sub> = 1.0 A	0.52 V			
T <sub>J</sub> max.	150 °C			

#### **TYPICAL APPLICATIONS**

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

#### **FEATURES**

• Very low profile - typical height of 0.68 mm



Ideal for automated placement



Low forward voltage drop, low power losses

ROHS

· High efficiency

HALOGEN FREE

- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- · Halogen-free

#### **MECHANICAL DATA**

Case: MicroSMP

Molding compound meets UL 94V-0 flammability

rating.

Base P/N-E3 - RoHS compliant, commercial grade
Base P/N-M3 - halogen-free and RoHS compliant,
commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 and M3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MSS1P5	MSS1P6	UNIT	
Device marking code		15	16		
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	60	V	
Maximum average forward rectified current (Fig. 1)	I <sub>F(AV)</sub>	1.0		Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	25		Α	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to + 150		°C	

## **MSS1P5 & MSS1P6**

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	I <sub>F</sub> = 0.5 A I <sub>F</sub> = 1.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.45 0.56	- 0.68	V
	I <sub>F</sub> = 0.5 A I <sub>F</sub> = 1.0 A	T <sub>J</sub> = 125 °C		0.40 0.52	- 0.60	
Maximum reverse current (2)	rated V <sub>R</sub>	T <sub>J</sub> = 25 °C T <sub>J</sub> = 125 °C	I <sub>R</sub>	20 7.0	150 12	μA mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	40	-	pF

#### Notes:

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MSS1P5	MSS1P6	UNIT	
Typical thermal resistance <sup>(1)</sup>	$egin{array}{c} R_{ hetaJA} \ R_{ hetaJL} \ R_{ hetaJC} \end{array}$	125 30 40		°C/W	

#### Note:

(1) Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. with 6.0 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		
MSS1P6-E3/89A	0.006	89A	4500	7" diameter plastic tape and reel		
MSS1P6-M3/89A	0.006	89A	4500	7" diameter plastic tape and reel		

#### **RATINGS AND CHARACTERISTICS CURVES**

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

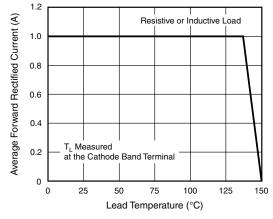


Figure 1. Maximum Forward Current Derating Curve

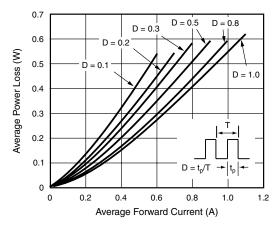


Figure 2. Forward Power Loss Characteristics



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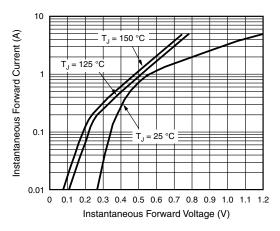


Figure 3. Typical Instantaneous Forward Characteristics

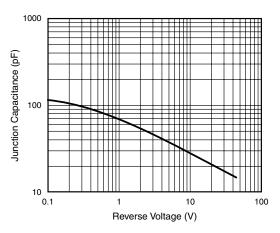


Figure 5. Typical Junction Capacitance

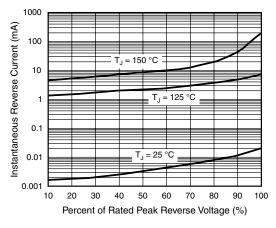


Figure 4. Typical Reverse Characteristics

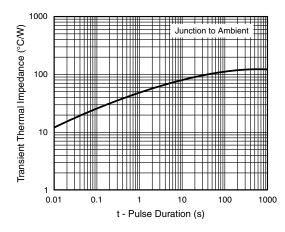
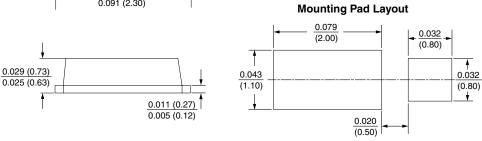


Figure 6. Typical Transient Thermal Impedance

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

# MicroSMP Cathode Band 0.059 (1.50) 0.043 (1.10) 0.030 (0.75) 0.022 (0.55) 0.030 (0.75)





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