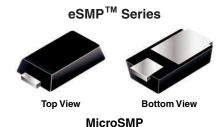




### Vishay General Semiconductor

### **Surface Mount Schottky Barrier Rectifiers**



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	1.0 A			
V <sub>RRM</sub>	30 V, 40 V			
I <sub>FSM</sub>	25 A			
V <sub>F</sub> at I <sub>F</sub> = 1.0 A	0.41 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 0.65 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

#### **MECHANICAL DATA**

Case: MicroSMP

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free and RoHS compliant,

commercial grade

Base P/NHM3 - halogen-free and RoHS compliant, automotive grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A 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	MSS1P3	MSS1P4	UNIT	
Device marking code		13	14		
Maximum repetitive peak reverse voltage	$V_{RRM}$	30 40		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	

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	$I_F = 0.5 A$	———— T. – 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.41	-	V
	I <sub>F</sub> = 1.0 A			0.48	0.55	
	I <sub>F</sub> = 0.5 A	- T <sub>J</sub> = 125 °C		0.32	-	
	I <sub>F</sub> = 1.0 A			0.41	0.46	
Maximum reverse current	Datad V	Rated $V_R$ $T_J = 25 \degree C$ $T_J = 125 \degree C$	I <sub>R</sub> <sup>(2)</sup>	8.5	200	μΑ
	Haled V <sub>R</sub>			4.5	15	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	50	-	pF

#### Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

# **MSS1P3, MSS1P4**

# Vishay General Semiconductor



THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MSS1P3 MSS1P4		UNIT	
	R <sub>0JA</sub> (1)	125		°C/W	
Typical thermal resistance	R <sub>0JL</sub> (1)	30			
	R <sub>0</sub> JC (1)	40			

#### 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<sub>BJL</sub> is measured at the terminal of cathode band. R<sub>BJC</sub> 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		
MSS1P4-M3/89A	0.006	89A	4500	7" diameter plastic tape and reel		
MSS1P4HM3/89A (1)	0.006	89A	4500	7" diameter plastic tape and reel		

#### Note

(1) AEC-Q101 qualified

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

(T<sub>A</sub> = 25 °C unless otherwise noted)

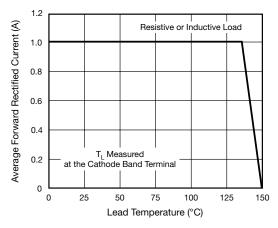


Fig. 1 - Maximum Forward Current Derating Curve

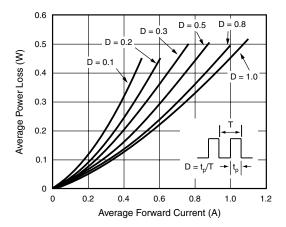


Fig. 2 - Forward Power Loss Characteristics

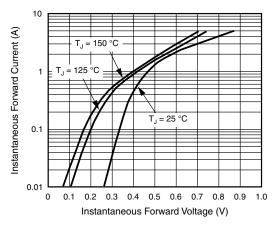


Fig. 3 - Typical Instantaneous Forward Characteristics

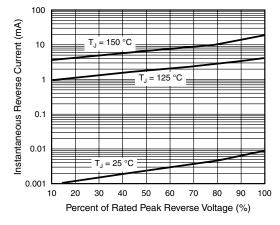


Fig. 4 - Typical Reverse Characteristics





# Vishay General Semiconductor

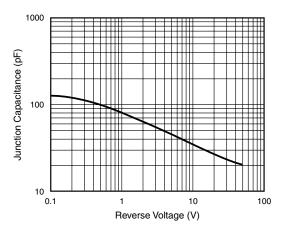


Fig. 5 - Typical Junction Capacitance

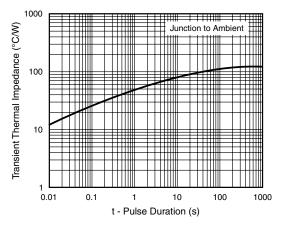
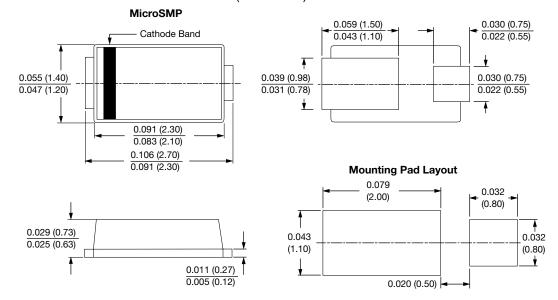


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



# **Legal Disclaimer Notice**



Vishay

### **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Document Number: 91000 www.vishay.com
Revision: 11-Mar-11 1