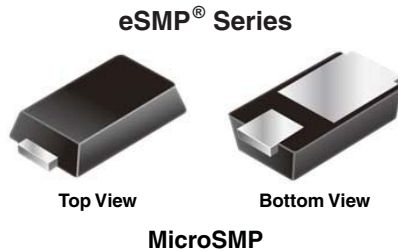


## Surface Mount Schottky Barrier Rectifiers



### 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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	20 V, 30 V
$I_{FSM}$	25 A
$V_F$ at $I_F = 1.0$ A	0.35 V
$T_J$ max.	150 °C
Package	MicroSMP
Diode variations	Single

### MECHANICAL DATA

#### Case: MicroSMP

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 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

### TYPICAL APPLICATIONS

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

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	MSS1P2L	MSS1P3L	UNIT
Device marking code		12L	13L	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	1.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	25		A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150		°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	$I_F = 0.5$ A	$T_J = 25$ °C	0.39	-	V
			$I_F = 1.0$ A	0.44	
	$I_F = 0.5$ A	$T_J = 125$ °C	0.28	-	
			$I_F = 1.0$ A	0.35	
Maximum reverse current	Rated $V_R$	$T_J = 25$ °C	15	250	μA
			$T_J = 125$ °C	6.0	20
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	65	-	pF

#### Notes

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

(2) Pulse test: Pulse width ≤ 40 ms



THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MSS1P2L	MSS1P3L	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	125		$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$	30		
	$R_{\theta JC}^{(1)}$	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  $R_{\theta JL}$  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
MSS1P3L-M3/89A	0.006	89A	4500	7" diameter plastic tape and reel
MSS1P3LHM3/89A <sup>(1)</sup>	0.006	89A	4500	7" diameter plastic tape and reel

**Note**

(1) Automotive grade

**RATINGS AND CHARACTERISTICS CURVES**

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

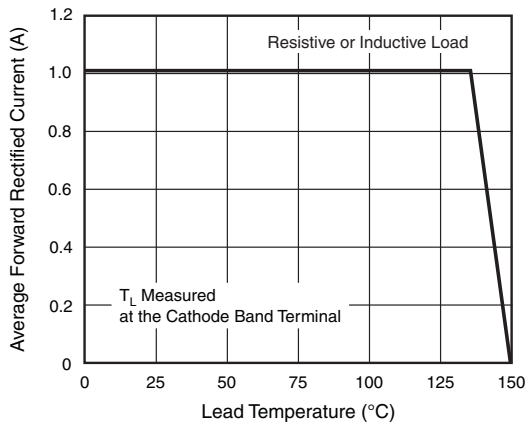


Fig. 1 - Maximum Forward Current Derating Curve

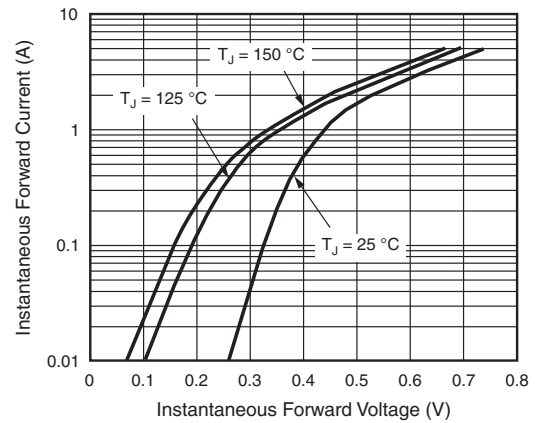


Fig. 3 - Typical Instantaneous Forward Characteristics

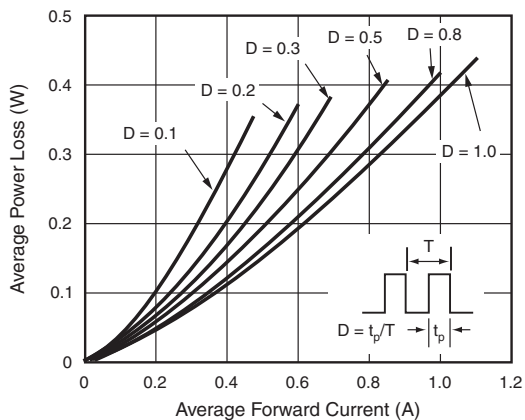


Fig. 2 - Forward Power Loss Characteristics

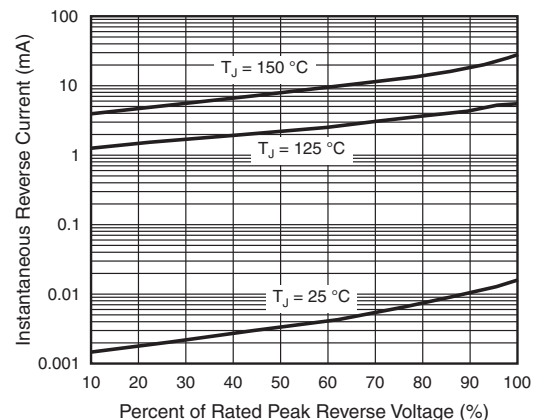


Fig. 4 - Typical Reverse Characteristics

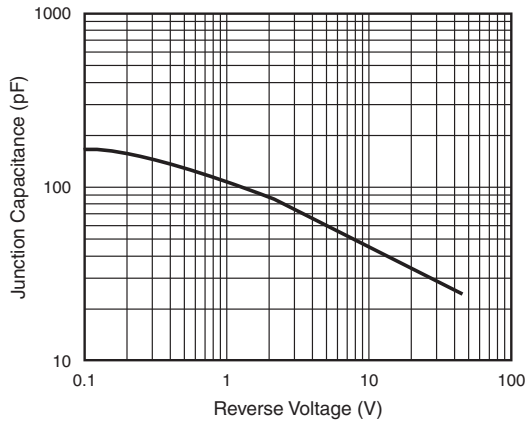


Fig. 5 - Typical Junction Capacitance

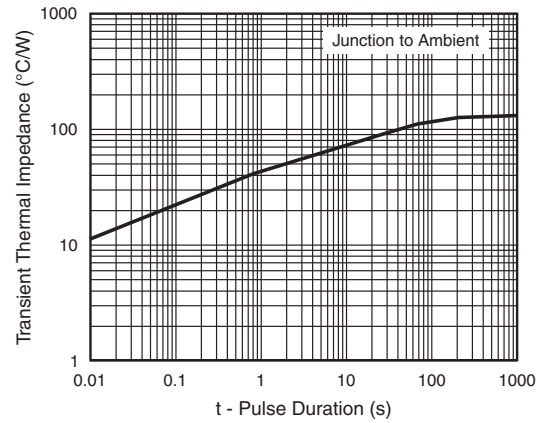
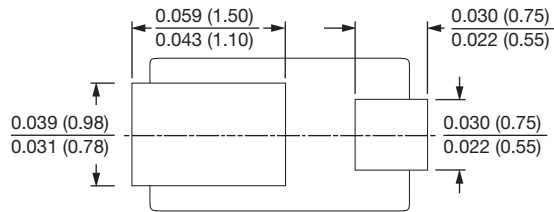
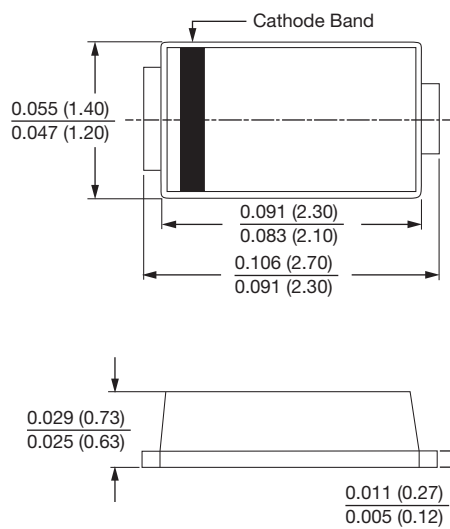


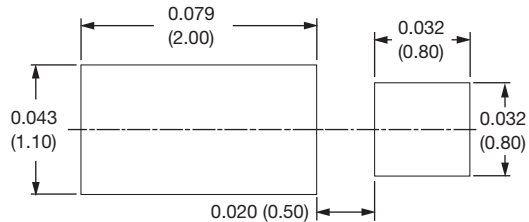
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### MicroSMP



### Mounting Pad Layout





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**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

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