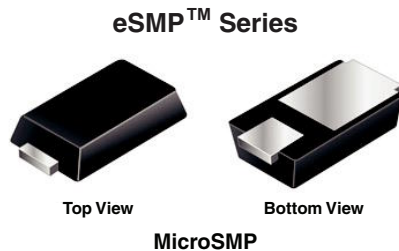


Ultra Low V_F Surface Mount Schottky Barrier Rectifiers



The ultra low V_F Schottky optimized for forward voltage drop with high reverse current trade-off.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1 A
V_{RRM}	20 V, 30 V
I_{FSM}	30 A
V_F at $I_F = 1.0$ A	0.30 V
T_J max.	125 °C

APPLICATIONS

Application designed and qualified for hard disk driver where the V_F performance and size are required. HTIR is not a concern.

FEATURES

- Very low profile - typical height of 0.68 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- Caution: High reverse leakage
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: MicroSMP

Molding compound meets UL 94 V-0 flammability rating.

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

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

M3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	MSS1P2U	MSS1P3U	UNIT
Device marking code		12U	13U	
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	V
Maximum average forward rectified current at $T_M = 110$ °C	I_F	1.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30		A
Operating junction temperature range	T_J	- 55 to + 125		°C
Storage temperature range	T_{STG}	- 55 to + 150		°C

MSS1P2U & MSS1P3U

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage ⁽¹⁾	I _F = 0.1 A I _F = 0.5 A I _F = 1.0 A	T _A = 25 °C	V _F	0.23 0.30 0.35	- - 0.40	V
	I _F = 0.1 A I _F = 0.5 A I _F = 1.0 A	T _A = 85 °C		0.16 0.24 0.30	- - 0.35	
Reverse current per diode ⁽²⁾	V _R = 30 V	T _A = 25 °C T _A = 85 °C	I _R	0.4 12	1.2 30	mA
Typical junction capacitance	4.0 V, 1 MHz		C _J	68	-	pF

Notes:

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

(2) Pulse test: Pulse width ≤ 40 ms

- Reverse power dissipation and the possibility of thermal runaway must be considered when operating this device under any reverse voltage conditions. Calculations of T_J therefore must include forward and reverse power effects.

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MSS1P2U	MSS1P3U	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA} R _{θJM}	170 30		°C/W

Note:

(1) Free air, mounted on recommended copper pad area. Thermal resistance R_{θJA} - junction to ambient, R_{θJM} - junction to mount.

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MSS1P3U-M3/89A	0.006	89A	4500	7" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

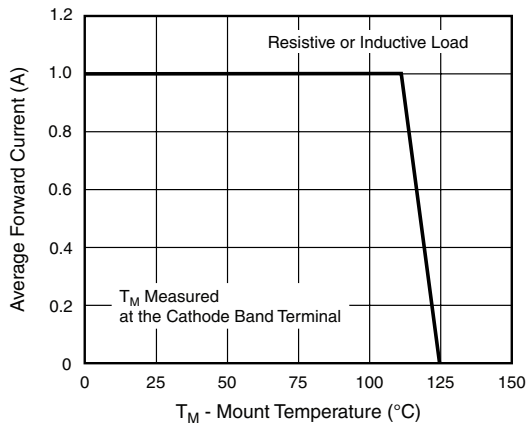


Figure 1. Maximum Forward Current Derating Curve

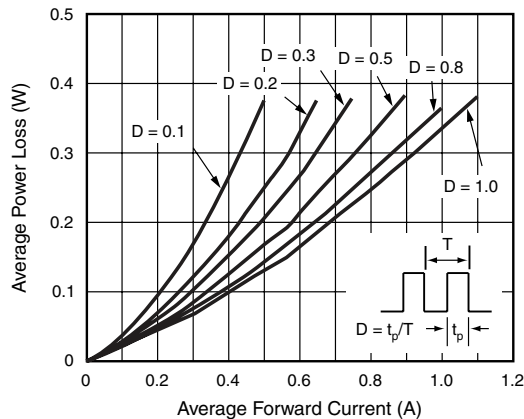


Figure 2. Forward Power Loss Characteristics

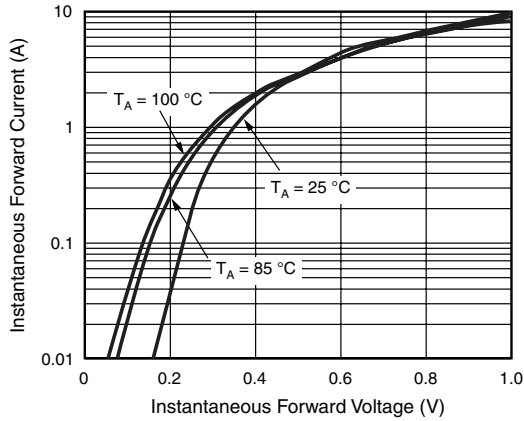


Figure 3. Typical Instantaneous Forward Characteristics

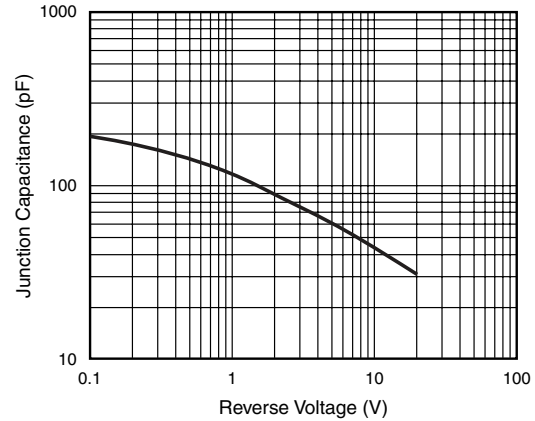


Figure 5. Typical Junction Capacitance

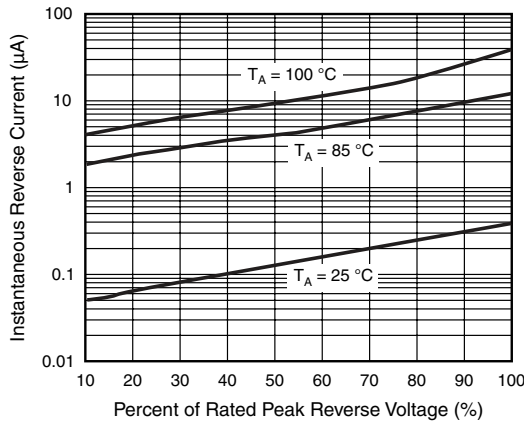


Figure 4. Typical Reverse Characteristics

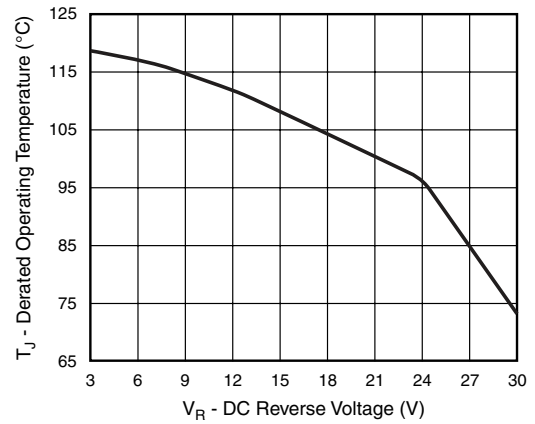
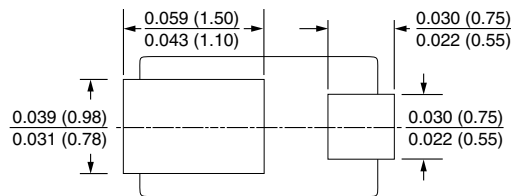
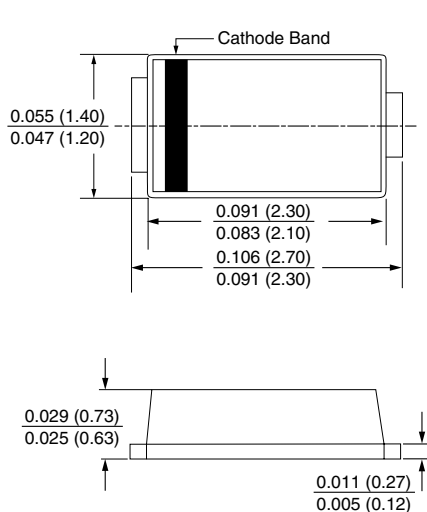


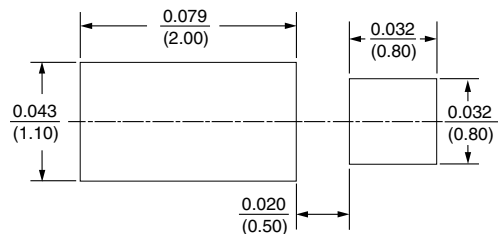
Figure 6. Typical Operating Temperature Derating

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

MicroSMP



Mounting Pad Layout





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All product specifications and data are subject to change without notice.

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