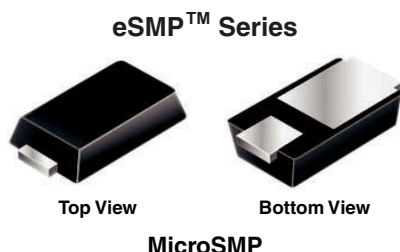




Surface Mount TRANSZORB® Transient Voltage Suppressors



PRIMARY CHARACTERISTICS

V_{WM}	3.3 V
P_{PPM}	100 W
I_{FSM}	25 A
$T_J \text{ max.}$	150 °C

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units specifically for protecting 3.3 V supplied sensitive equipment against transient overvoltages.

FEATURES

- Very low profile - typical height of 0.65 mm
- Ideal for automated placement
- Oxide planar chip junction
- Uni-directional polarity only
- Peak pulse power: 100 W (10/1000 μ s)
- ESD capability: 15 kV (air), 8 kV (contact)
- Meets MSL level 1, per J-STD-020C, 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



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

Base P/NHM3 - halogen-free and RoHS compliant, AEC-Q101 qualified

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

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation	$P_{PPM}^{(1)(2)}$	100	W
Peak pulse current with a 10/1000 μ s waveform (fig. 1)	I_{PPM}	13.7	A
Peak pulse current with a 8/20 μ s waveform (fig. 1)	I_{PPM}	75	A
Non repetitive peak forward surge current 8.3 ms single half sine-wave	$I_{FSM}^{(2)}$	25	A
Power dissipation $T_L = 120\text{ °C}$	$P_D^{(2)}$	1.0	W
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150	°C

Notes

(1) Non-repetitive current pulse, per fig. 1

(2) Mounted on 6.0 mm x 6.0 mm copper pads to each terminal

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ unless otherwise noted)

DEVICE TYPE	DEVICE MARKING CODE	MIN. BREAKDOWN VOLTAGE V_{BR} AT IT		MAX. REVERSE LEAKAGE CURRENT I_R AT V_{WM}		MAX. CLAMPING VOLTAGE AT V_C AT $I_{PPM}(10/1000\text{ }\mu\text{s})$		MAX. CLAMPING VOLTAGE AT V_C AT $I_{PPM}(8/20\text{ }\mu\text{s})$		TYPICAL TEMPERATURE COEFFICIENT OF V_{BR}	TYP. JUNCTION CAPACITANCE C_J AT 0 V (1 MHz)
		V	mA	μ A	V	V	A	V	A	($10^{-4}/\text{°C}$)	pF
MSP3V3	KC	4.1	1.0	200	3.3	7.3	13.7	11.0	75	- 5.3	850

MSP3V3

Vishay General Semiconductor

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

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	125	$^{\circ}\text{C/W}$
	$R_{\theta JL}^{(1)}$	30	

Note

(1) Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. with 6.0 mm x 6.0 mm copper pad areas. $R_{\theta JL}$ is measured at the terminal of cathode band.

IMMUNITY TO STATIC ELECTRICAL DISCHARGE TO THE FOLLOWING STANDARDS($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE
AEC-Q101-001	Human body model (contact mode)	$C = 100\text{ pF}$, $R = 1.5\text{ kW}$	V_C	H3B	$> 8\text{ kV}$
IEC 61000-4-2 ⁽²⁾	Human body model (air discharge mode) ⁽¹⁾	$C = 150\text{ pF}$, $R = 150\text{ W}$		4	$> 15\text{ kV}$

Notes

(1) Immunity to IEC 61000-4-2 air discharge mode has a typical performance $> 30\text{ kV}$

(2) System ESD standard

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MSP3V3-M3/89A	0.006	89A	4500	7" diameter plastic tape and reel
MSP3V3HM3/89A ⁽¹⁾	0.006	89A	4500	7" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

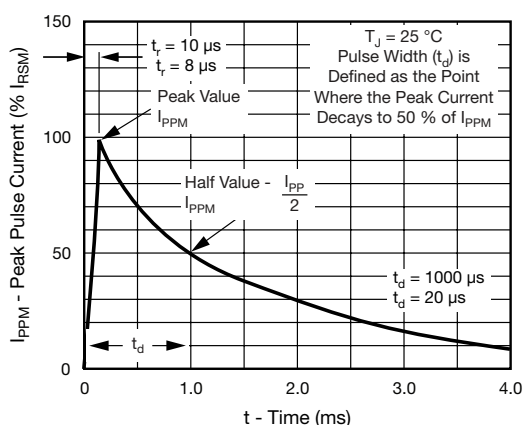
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Pulse Waveform

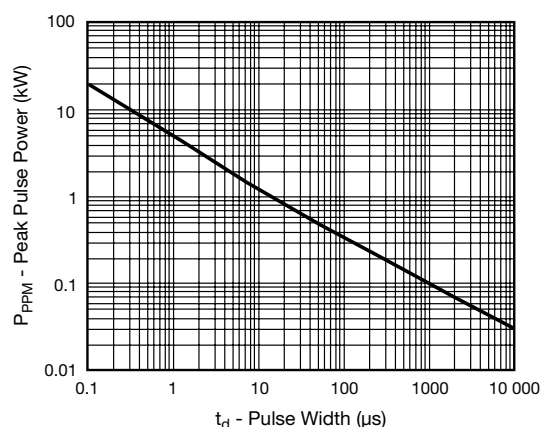


Fig. 2 - Peak Pulse Power Rating Curve

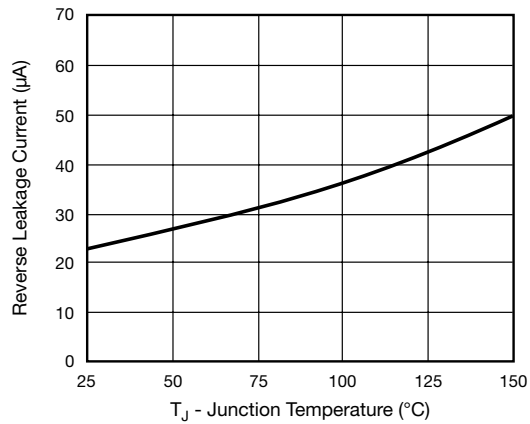


Fig. 3 - Relative Variation of Leakage Current vs. Junction Temperature

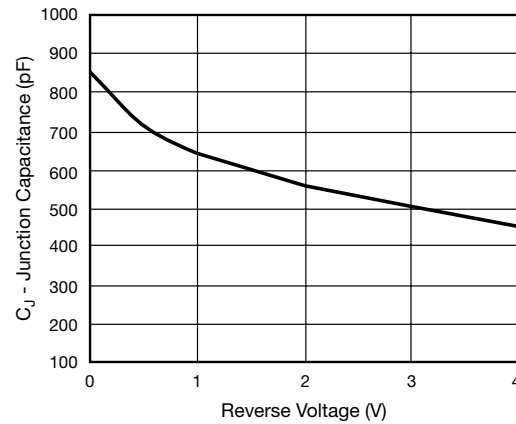


Fig. 5 - Typical Junction Capacitance

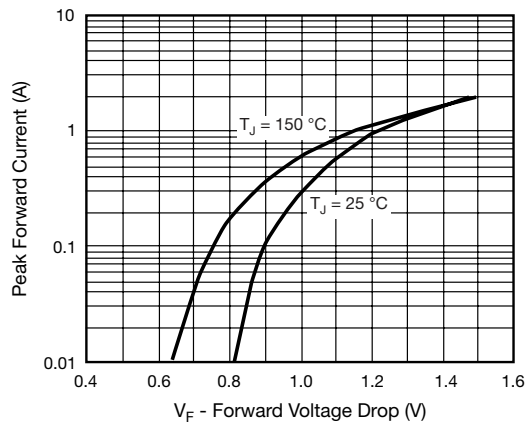


Fig. 4 - Typical Peak Forward Voltage Drop vs. Peak Forward Current

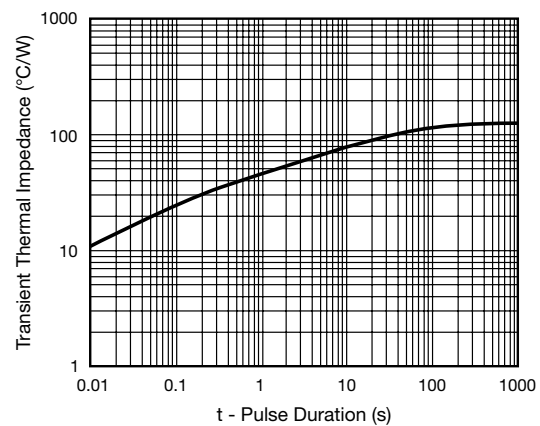
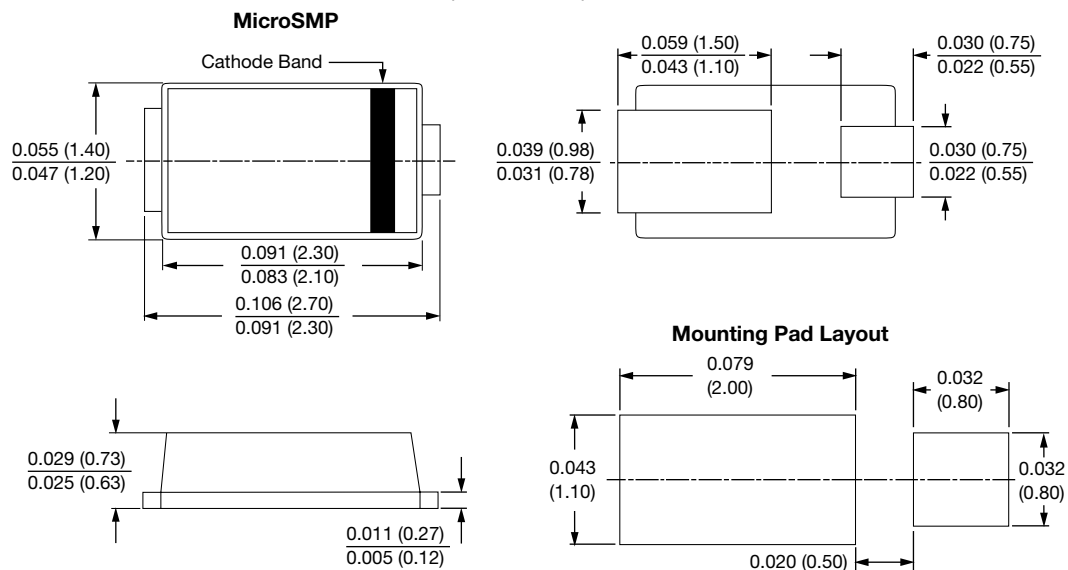


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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