Surface Mount TRANSZORB® Transient Voltage Suppressors

eSMP™ Series

Top View Bottom View

MicroSMP

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 µs)
- ESD capability: **15 kV (air), 8 kV (contact)**
- Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

PRIMARY CHARACTERISTICS	
V_{WM}	5.0 V
P_{PPM}	100 W
I_{FSM}	25 A
T_J 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 5.0 V supplied sensitive equipment against transient overvoltages.

MECHANICAL DATA

Case: MicroSMP

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
E3 suffix for commercial grade

Polarity: Color band denotes the cathode end

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

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation (1)(2)	P_{PPM}	100	W
Peak pulse current with a 10/1000 µs waveform (Fig. 1)	I_{PPM}	10.9	A
Non repetitive peak forward surge current 10 ms single half sine-wave (2)	I_{FSM}	25	A
Power dissipation T_L = 120 °C (2)	P_D	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 x 6.0 mm copper pads to each terminal

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)										
DEVICE TYPE	**DEVICE MARKING CODE**	**BREAKDOWN VOLTAGE V_{BR} AT I_T (1) (V)**		**TEST CURRENT I_T (mA)**	**STAND-OFF VOLTAGE V_{WM} (V)**	**MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA)**	**MAXIMUM CLAMPING VOLTAGE (2) V_C (V) AT I_{PPM} (A) 10/1000 µs**		**MAXIMUM CLAMPING VOLTAGE (2) V_C (V) AT I_{PPM} (A) 8/20 µs**	
		MIN	**MAX**							
MSP5.0A	AE	6.40	7.07	10	5.0	100	9.2	10.9	14.5	57

Notes:

(1) Pulse test: $t_p \leq 50$ ms

(2) Surge current waveform per Fig. 1 and derate per Fig. 2

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$	125 30	°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.

IMMUNITY TO STATIC ELECTRICAL DISCHARGE TO THE FOLLOWING STANDARDS (T_A = 25 °C unless otherwise noted)					
STANDARD	**TEST TYPE**	**TEST CONDITIONS**	**SYMBOL**	**CLASS**	**VALUE**
AEC Q101-001	Human body model (contact mode)	C = 100 pF, R = 1.5 kΩ	V_C	H3B	> 8 kV
IEC-61000-4-2 (2)	Human body model (air discharge mode) (1)	C = 150 pF, R = 150 Ω		4	> 15 kV

Notes:

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

(2) System ESD standard

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
MSP5.0A-E3/89A	0.006	89A	4500	7" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

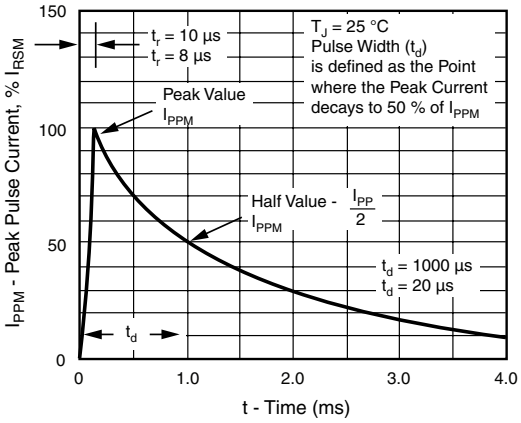


Figure 1. Pulse Waveform

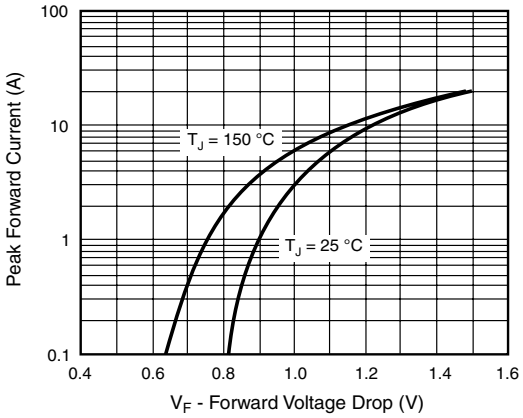


Figure 4. Typical Peak Forward Voltage Drop vs. Peak Forward Current

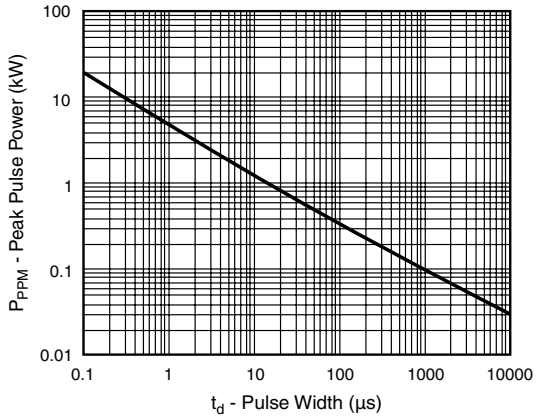


Figure 2. Peak Pulse Power Rating Curve

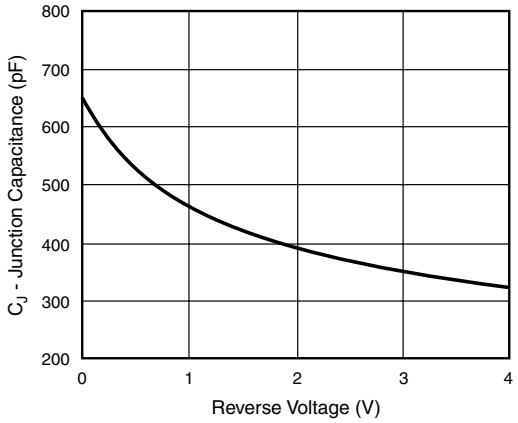


Figure 5. Typical Junction Capacitance

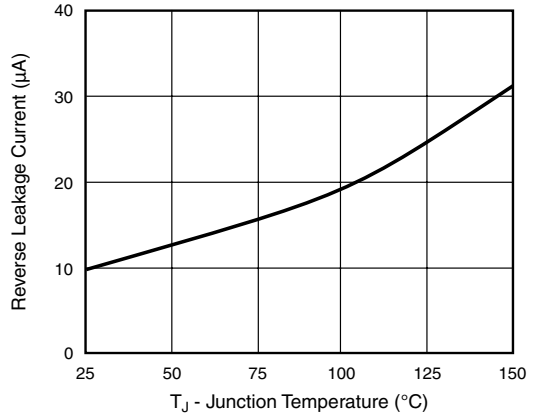


Figure 3. Relative Variation of Leakage Current vs. Junction Temperature

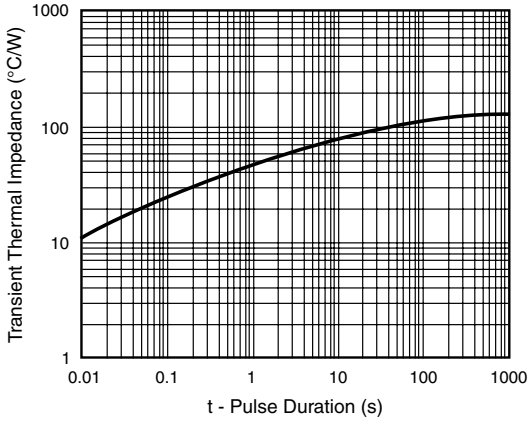
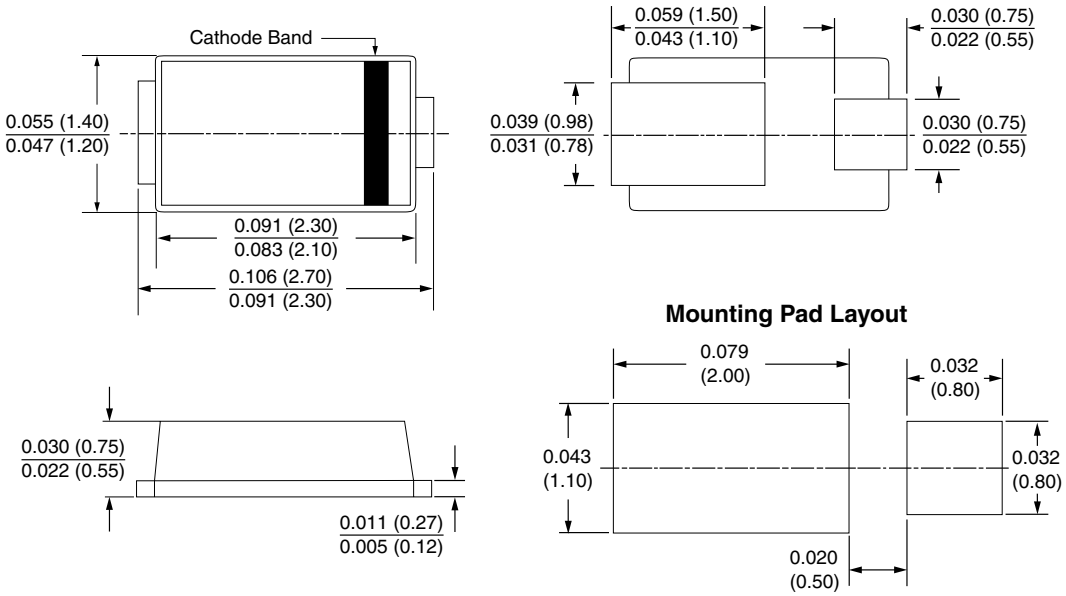


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

MicroSMP



Mounting Pad Layout

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