Surface-Mount TRANSZORB® Transient Voltage Suppressors



SMA (DO-214AC)

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
V_{BR}	130 V to 220 V
P_{PPM}	200 W
P_D	0.5 W
V_{WM}	111 V to 185 V
T_J max.	150 °C
Polarity	Uni-directional
Package	SMA (DO-214AC)

FEATURES

RoHS COMPLIANT
HALOGEN FREE

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional 200 W peak pulse power capability with a 10/1000 µs waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

MECHANICAL DATA

Case: SMA (DO-214AC)
Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

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 for consumer, computer, industrial, automotive, and telecommunication.

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Peak pulse power dissipation with a 10/1000 µs waveform (fig. 1)	P_{PPM} (1)(2)	200	W
Peak pulse current with a 10/1000 µs waveform (fig. 3)	I_{PPM} (1)	See next table	A
Power dissipation at T_A = 25 °C (fig. 6)	P_D	0.5	W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Notes

(1) Non-repetitive current pulse, per fig. 3 and derated above T_A = 25 °C per fig. 2

(2) Mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads to each terminal

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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) (1)	MAXIMUM PEAK PULSE SURGE CURRENT I_{PPM} (A) (2)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)	MAXIMUM TEMPERATURE OF V_{BR} (%/°C)
		MIN.	MAX.						
P2SMA130A	2VK	124	137	1.0	111	1.0	1.11	179	0.140
P2SMA140A	2VL	133	147	1.0	119	1.0	1.04	192	0.140
P2SMA150A	2VM	143	158	1.0	128	1.0	0.97	207	0.140
P2SMA170A	2VN	162	179	1.0	145	1.0	0.85	234	0.150
P2SMA180A	2VP	171	189	1.0	154	1.0	0.81	246	0.150
P2SMA200A	2VQ	190	210	1.0	171	1.0	0.73	274	0.150
P2SMA220A	2VR	209	231	1.0	185	1.0	0.61	328	0.150

Notes

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

(2) Surge current waveform per fig. 3 and derate per fig. 2

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance, junction to ambient air	$R_{\theta JA}$ (1)	250	°C/W
Thermal resistance, junction to mount	$R_{\theta JM}$ (1)	50	°C/W

Note

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
P2SMA130A-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel
P2SMA130A-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

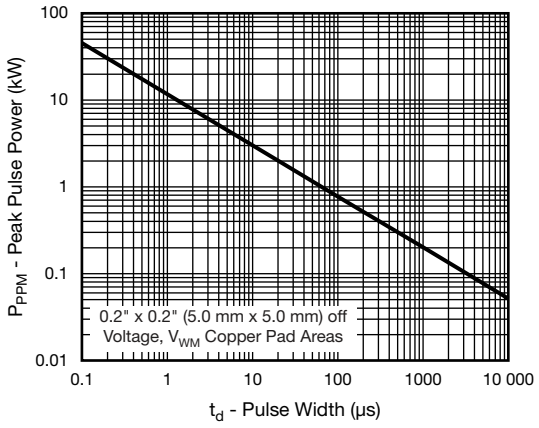

Fig. 1 - Peak Pulse Power Rating Curve

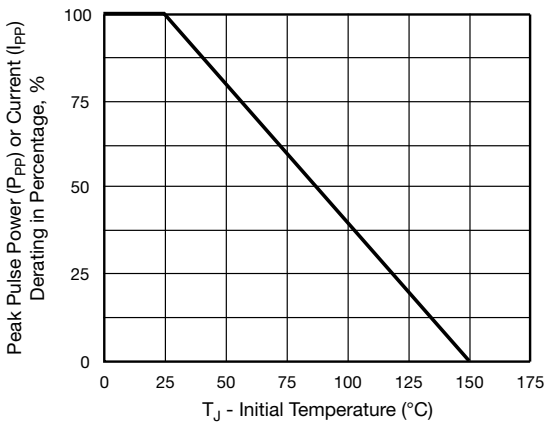

Fig. 2 - Pulse Derating Curve

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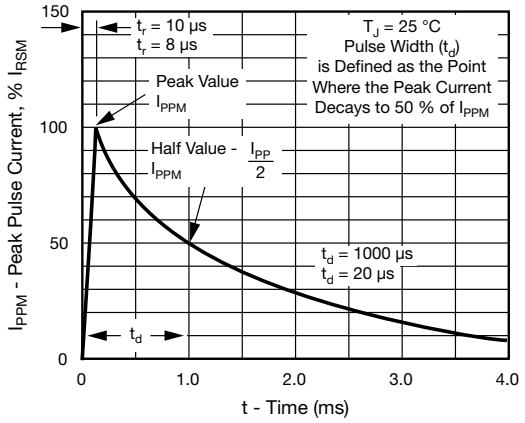

Fig. 3 - Pulse Waveform

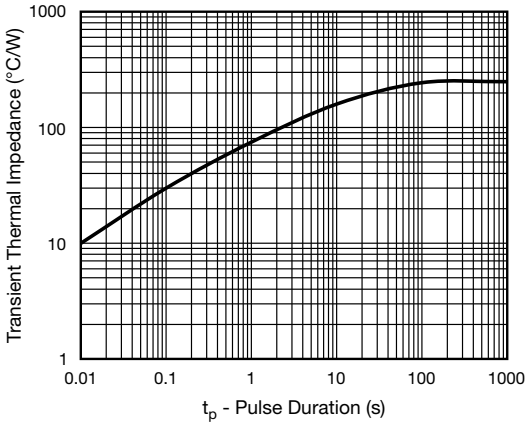

Fig. 5 - Typical Transient Thermal Impedance

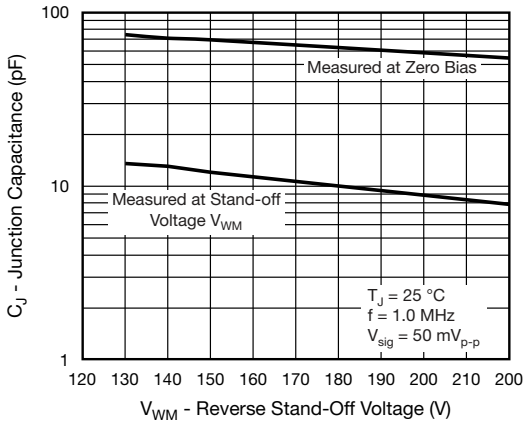

Fig. 4 - Typical Junction Capacitance

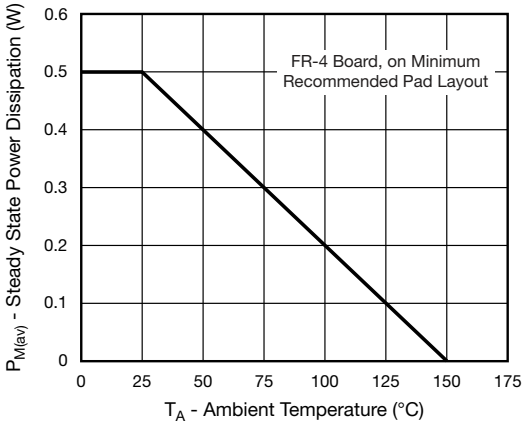

Fig. 6 - Power Derating Curve

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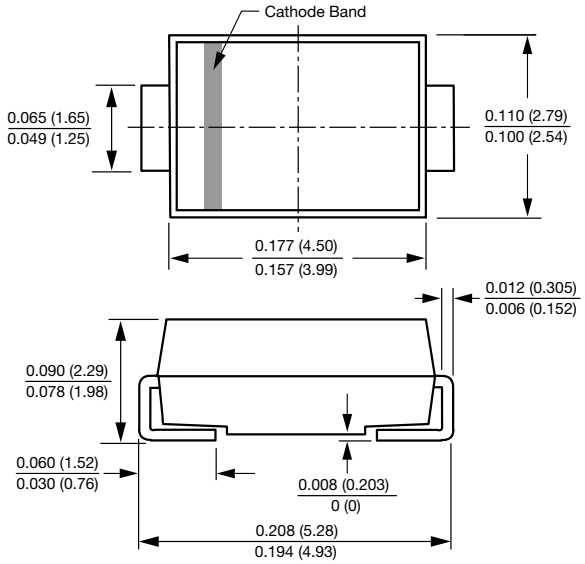
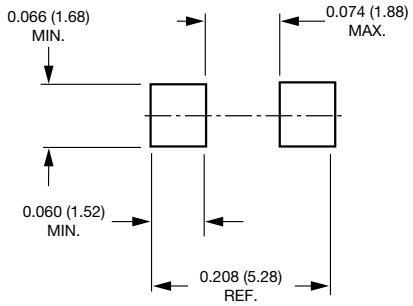
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)



Mounting Pad Layout



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