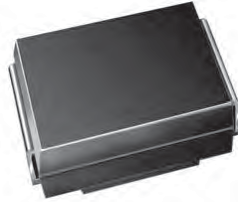


Surface Mount TRANSZORB® Transient Voltage Suppressors



DO-214AA (SMB J-Bend)

PRIMARY CHARACTERISTICS	
V_{BR} (bi-directional)	6.4 V to 231 V
V_{BR} (uni-directional)	6.4 V to 231 V
V_{WM}	5.0 V to 188 V
P_{PPM}	600 W
I_{FSM} (uni-directional only)	100 A
T_J max.	150 °C
Polarity	Uni-directional, bi-directional
Package	DO-214AA (SMBJ)

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, and telecommunication.

DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional use CA suffix (e.g. SMBJ10CA). Electrical characteristics apply in both directions.

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 μs waveform (fig. 1)	$P_{PPM}^{(1)(2)}$	600	W
Peak pulse current with a 10/1000 μs waveform	$I_{PPM}^{(1)}$	See next table	A
Peak forward surge current 8.3 ms single half sine-wave uni-directional only	$I_{FSM}^{(2)}$	100	A
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 $T_A = 25\text{ °C}$ per fig. 2

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

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 600 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle): 0.01 %
- 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



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: DO-214AA (SMBJ)

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: For uni-directional types the band denotes cathode end, no marking on bi-directional types



ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Table with 10 columns: DEVICE TYPE MODIFIED "J" BEND LEAD, DEVICE MARKING CODE (UNI, BI), BREAKDOWN VOLTAGE VBR AT IT (1) (V) (MIN., MAX.), TEST CURRENT IT (mA), STAND-OFF VOLTAGE VWM (V), MAXIMUM REVERSE LEAKAGE AT VWM ID (3) (A), MAXIMUM PEAK PULSE SURGE CURRENT IPPM (A) (2), MAXIMUM CLAMPING VOLTAGE AT IPPM VC (V). Rows list various diode models from (+)SMBJ5.0A to SMBJ188A.

Notes

- (1) Pulse test: tp ≤ 50 ms
(2) Surge current waveform per fig. 3 and derate per fig. 2
(3) For bi-directional types having VWM of 10 V and less, the ID limit is doubled
(4) All terms and symbols are consistent with ANSI/IEEE C62.35
(5) For the bi-directional SMBJ5.0CA, the maximum VBR is 7.25 V
(6) VF = 3.5 V max. at IF = 50 A (uni-directional only)
(+) Underwriters laboratory recognition for the classification of protectors (QVGQ2) under the UL standard for safety 497B and file number E136766 for both uni-directional and bi-directional devices

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

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to ambient	$R_{\theta JA}^{(1)}$	100	$^\circ\text{C/W}$
Typical thermal resistance, junction to lead	$R_{\theta JL}$	20	$^\circ\text{C/W}$

Note

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SMBJ5.0A-M3/52	0.096	52	750	7" diameter plastic tape and reel
SMBJ5.0A-M3/5B	0.096	5B	3200	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

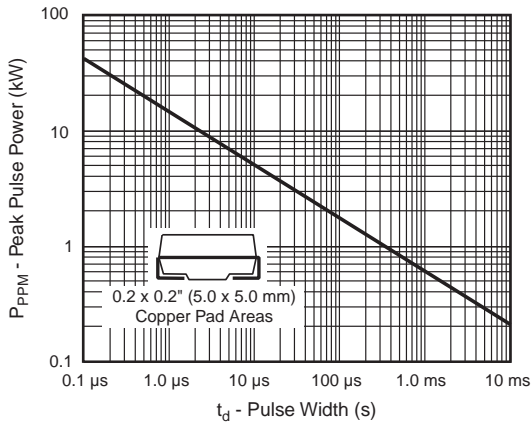
 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Peak Pulse Power Rating Curve

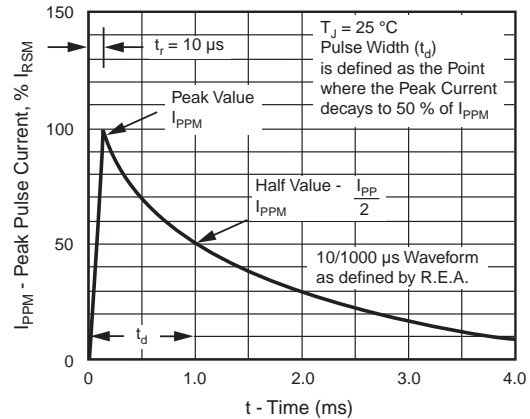


Fig. 3 - Pulse Waveform

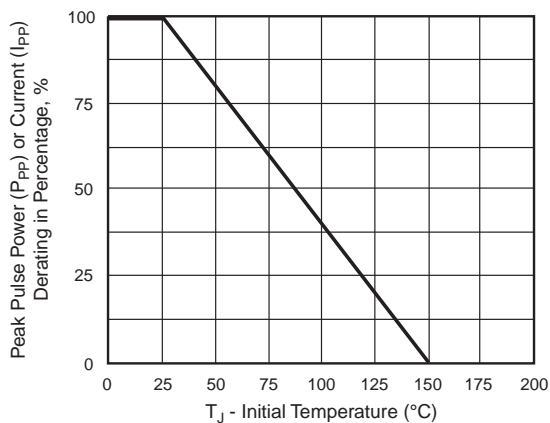


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

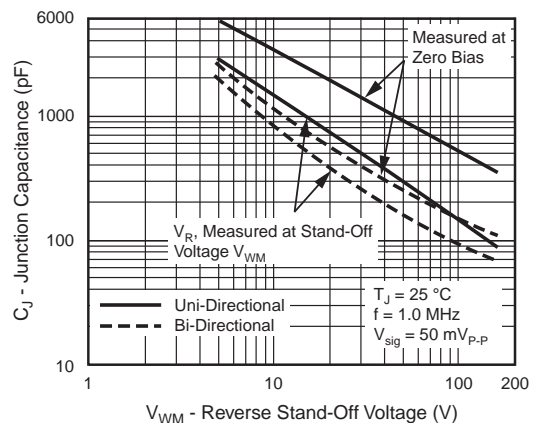


Fig. 4 - Typical Junction Capacitance

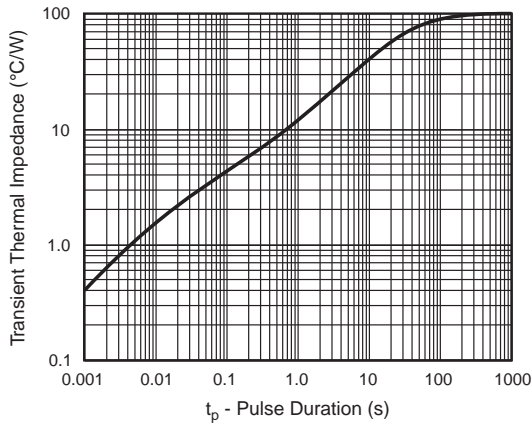


Fig. 5 - Typical Transient Thermal Impedance

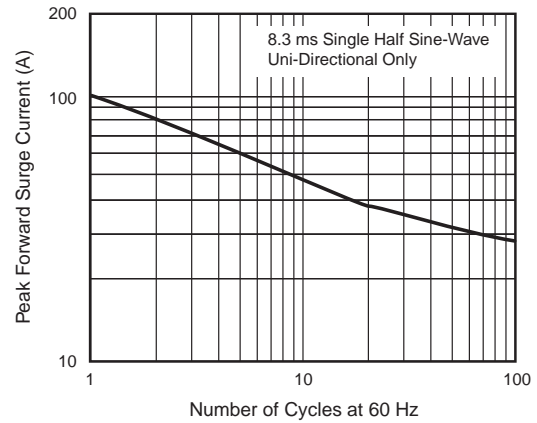
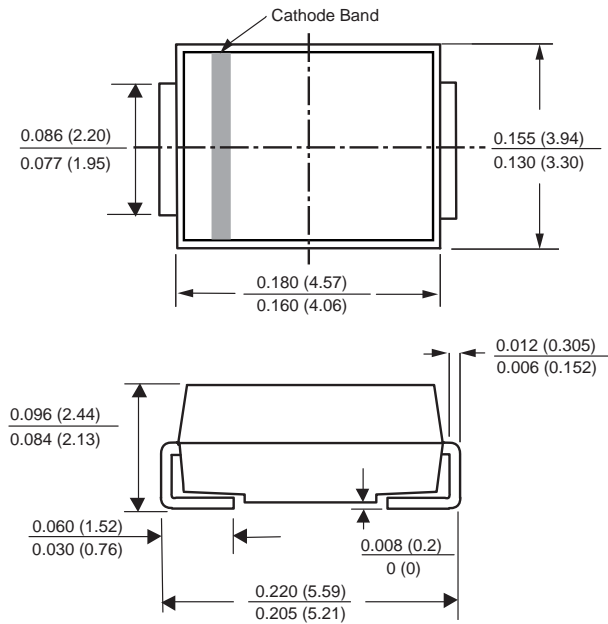


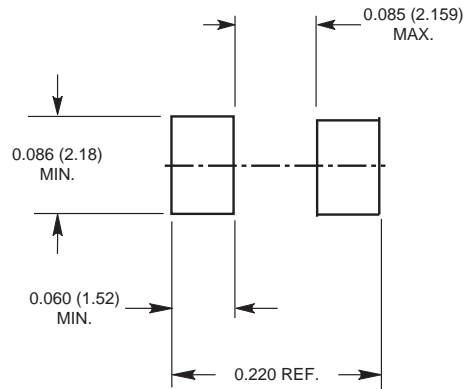
Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB-J-Bend)



Mounting Pad Layout





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