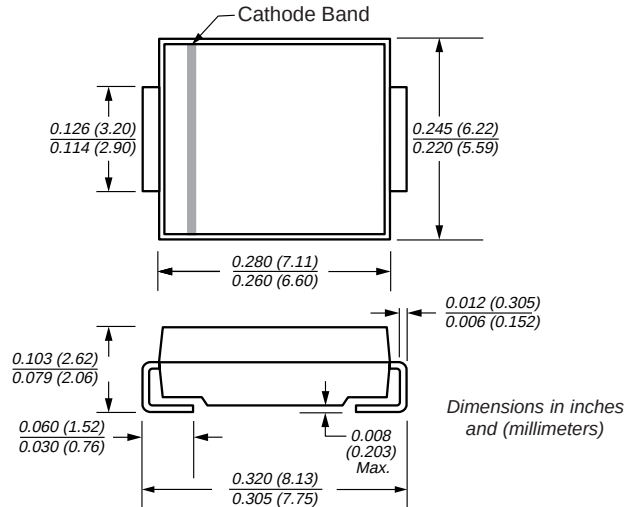


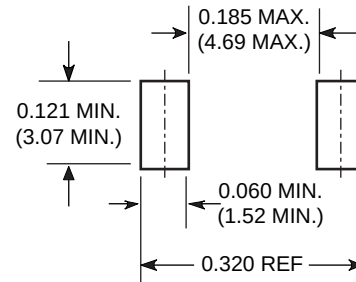


Surface Mount TRANSZORB® Transient Voltage Suppressors

DO-214AB (SMC J-Bend)

Breakdown Voltage 6.8 to 220V
Peak Pulse Power 1500W

Mounting Pad Layout



Mechanical Data

Case: JEDEC DO-214AB (SMC) molded plastic over passivated junction

Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Polarity: For uni-directional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation

Standard Packaging: 12mm tape (EIA STD RS-481)

Weight: 0.003 oz., 0.093 g

Packaging Codes – Options (Antistatic):

- 51 – 1K per Bulk box, 10K/carton
- 57 – 850 per 7" plastic Reel (16mm tape), 8.5K/carton
- 9A – 3.5K per 13" plastic Reel (16mm tape), 35K/carton

Features

- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 1500W peak pulse power capability with a 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- Fast response time: theoretically (with no parasitic inductance) less than 1ps from 0 Volts to V_{BR} for unidirectional and 5ns for bidirectional types
- High temperature soldering: 250°C/10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0

Devices for Bidirectional Applications

For bi-directional devices, use suffix CA (e.g. SM15T10CA). Electrical characteristics apply in both directions.

Maximum Ratings & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000μs waveform ⁽¹⁾⁽²⁾ (Fig. 1)	PPPM	Minimum 1500	W
Peak pulse current with a 10/1000μs waveform ⁽¹⁾ (Fig. 3)	IPPM	See Next Table	A
Power dissipation on infinite heatsink, $T_A = 50^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak forward surge current 10ms single half sine-wave uni-directional only ⁽²⁾	I_{FSM}	200	A
Typical thermal resistance junction to ambient air ⁽³⁾	$R_{\theta JA}$	75	°C/W
Typical thermal resistance junction to leads	$R_{\theta JL}$	15	°C/W
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +150	°C

Notes: (1) Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 2

(2) Mounted on 0.31 x 0.31" (8.0 x 8.0mm) copper pads to each terminal

(3) Mounted on minimum recommended pad layout

Electrical Characteristics (T_A=25°C unless otherwise noted)

Type ⁽¹⁾	Device Marking Code		Standoff Voltage V _{RM} (V)	Leakage Current ⁽³⁾ I _{RM} @V _{RM} (μA)	Breakdown Voltage V _{BR} @I _T ⁽²⁾ (V)		Test Current I _T (mA)	Clamping Voltage V _C @I _{PP} (10/1000μs) (V) (A)		Clamping Voltage V _C @I _{PP} (8/20μs) (V) (A)		α _T Max 10 ⁻⁴ /°C
	Uni	Bi			Min	Max						
SM15T6V8A	GDE7	GDE7	5.80	1000	6.45	7.14	10	10.5	143	13.4	746	5.7
SM15T7V5A	GDK7	BDK7	6.40	500	7.13	7.88	10	11.3	132	14.5	690	6.1
SM15T10A	GDT7	BDT7	8.55	10.0	9.50	10.5	1.0	14.5	103	18.6	538	7.3
SM15T12A	GDX7	BDX7	10.2	5.0	11.4	12.6	1.0	16.7	90.0	21.7	461	7.8
SM15T15A	GEG7	GEG7	12.8	1.0	14.3	15.8	1.0	21.2	71.0	27.2	368	8.4
SM15T18A	GEM7	BEM7	15.3	1.0	17.1	18.9	1.0	25.2	59.5	32.5	308	8.8
SM15T22A	GET7	BET7	18.8	1.0	20.9	23.1	1.0	30.6	49.0	39.3	254	9.2
SM15T24A	GEV7	GEV7	20.5	1.0	22.8	25.2	1.0	33.2	45.0	42.8	234	9.4
SM15T27A	GEX7	BEX7	23.1	1.0	25.7	28.4	1.0	37.5	40.0	48.3	207	9.6
SM15T30A	GFE7	BFE7	25.6	1.0	28.5	31.5	1.0	41.5	36.0	53.5	187	9.7
SM15T33A	GFG7	GFG7	28.2	1.0	31.4	34.7	1.0	45.7	33.0	59.0	169	9.8
SM15T36A	GFK7	BFK7	30.8	1.0	34.2	37.8	1.0	49.9	30.0	64.3	156	9.9
SM15T39A	GFM7	BFM7	33.3	1.0	37.1	41.0	1.0	53.9	28.0	69.7	143	10.0
SM15T68A	GGG7	GGG7	58.1	1.0	64.6	71.4	1.0	92.0	16.3	121	83	10.4
SM15T100A	GGV7	GGV7	85.5	1.0	95.0	105	1.0	137	11.0	178	56	10.6
SM15T150A	GHK7	GHK7	128	1.0	143	158	1.0	207	7.20	265	38	10.8
SM15T200A	GHR7	GHR7	171	1.0	190	210	1.0	274	5.50	353	28	10.8
SM15T220A	GHR8	GHR8	188	1.0	209	231	1.0	328	4.60	388	26	10.8

Notes:

- (1) For bi-directional devices add suffix "CA" instead of "A"
- (2) V_{BR} measured after I_T applied for 300μs square wave pulse
- (3) For bipolar devices with V_R=10 Volts or under, the I_T limit is doubled

Application Notes

A 1500W (SMC) device is normally selected when the threat of transients is from lightning induced transients, conducted via external leads or I/O lines. It is also used to protect against switching transients induced by large coils or industrial motors. Source impedance at component level in a system is usually high enough to limit the current within the peak pulse current (I_{PP}) rating of this series. In an overstress condition, the failure mode is a short circuit.

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

Fig. 1 – Peak Pulse Power Rating Curve

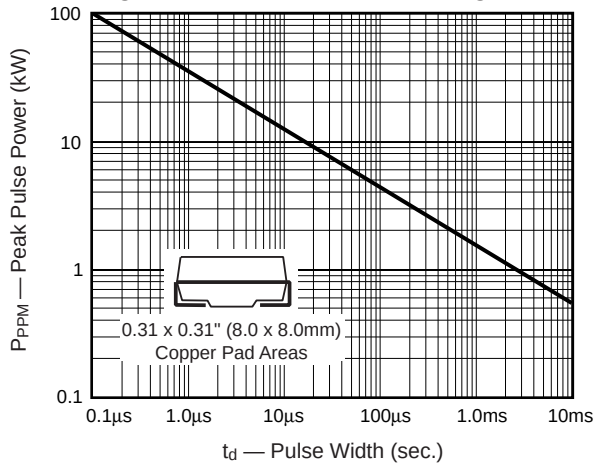


Fig. 2 – Pulse Derating Curve

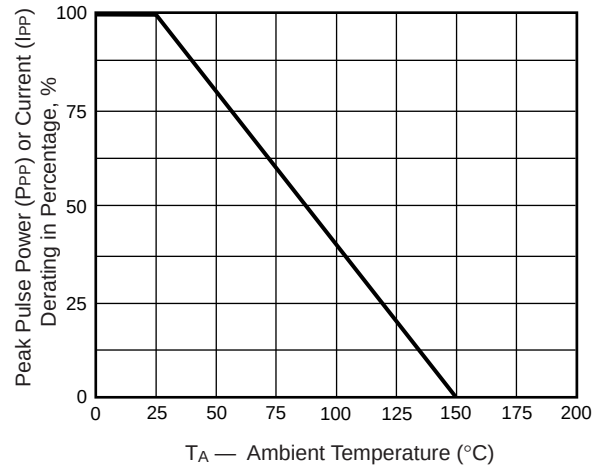


Fig. 3 – Pulse Waveform

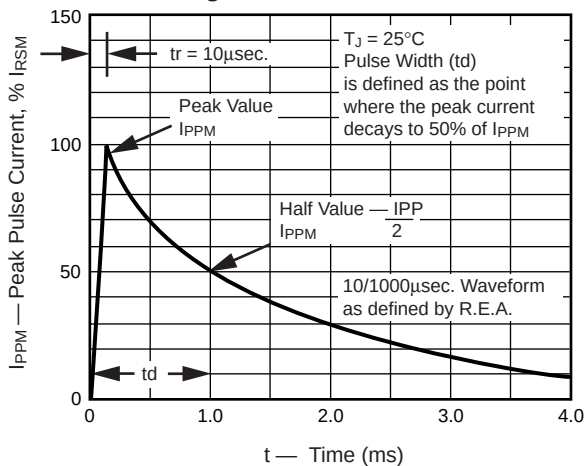


Fig. 4 – Typical Junction Capacitance Uni-Directional

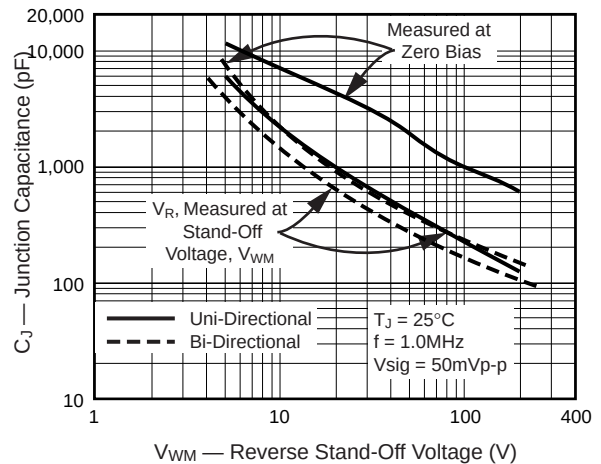


Fig. 5 – Typical Transient Thermal Impedance

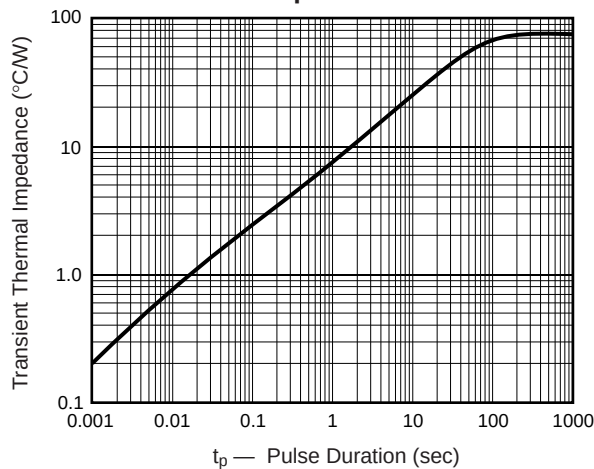


Fig. 6 – Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only

