



New Product

SM6T Series

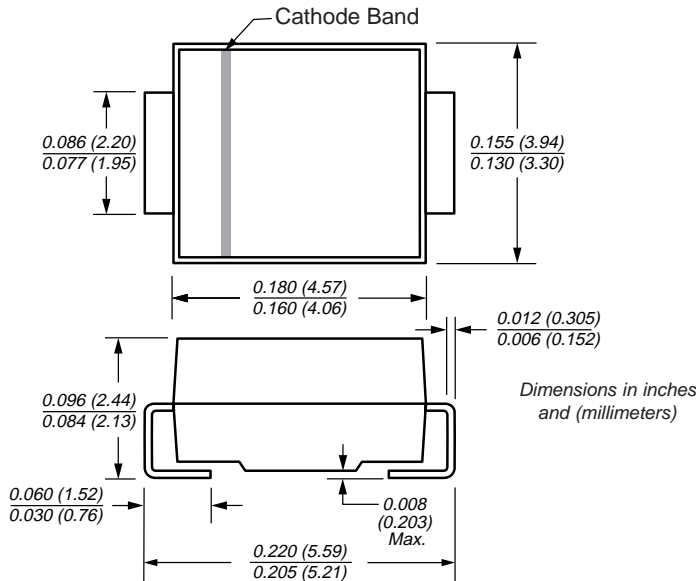
Vishay Semiconductors
formerly General Semiconductor



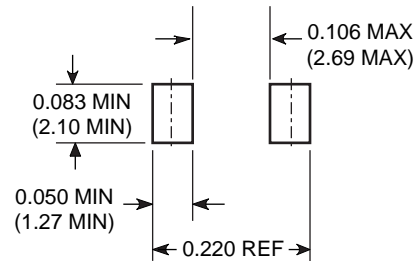
Surface Mount TRANSZORB[®] Transient Voltage Suppressors

DO-214AA (SMBJ)

Breakdown Voltage 6.8 to 220V
Peak Pulse Power 600W



Mounting Pad Layout



Mechanical Data

Case: JEDEC DO-214AA (SMB) 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 ounces, 0.093 grams

Packaging Codes – Options (Antistatic):

51 – 2K per Bulk box, 20K/carton

52 – 750 per 7" plastic Reel (12mm tape), 15K/carton

5B – 3.2K per 13" plastic Reel (12mm tape), 32K/carton

Features

- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 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

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000µs waveform ⁽¹⁾⁽²⁾ (Fig. 1)	P _{PPM}	Minimum 600	W
Peak pulse current with a 10/1000µs waveform ⁽¹⁾	I _{PPM}	See Next Table	A
Power dissipation on infinite heatsink, T _A = 50°C	P _{M(AV)}	5.0	W
Peak forward surge current 10ms single half sine-wave uni-directional only ⁽²⁾	I _{FSM}	100	A
Thermal resistance junction to ambient air ⁽³⁾	R _{θJA}	100	°C/W
Thermal resistance junction to leads	R _{θJL}	20	°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°C per Fig. 2

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

(3) Mounted on minimum recommended pad layout

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Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Type ⁽¹⁾	Device Marking Code		Breakdown Voltage V_{BR} @ I_T ⁽²⁾		Test Current (mA)	Standoff Voltage V_{RM} (V)	Leakage Current ⁽³⁾ I_{RM} @ V_{RM} (μ A)	Clamping Voltage V_c @ I_{PP} 10/1000 μ s		Clamping Voltage V_c @ I_{PP} 8/20 μ s		α_T Max $0^{-4}/^{\circ}C$
	UNI	BI	Min	Max				(V)	(A)	(V)	(A)	
SM6T6V8A	KE7	KE7	6.45	7.14	10	5.80	1000	10.5	57.0	13.4	298	5.7
SM6T7V5A	KK7	AK7	7.13	7.88	10	6.40	500	11.3	53.0	14.5	276	6.1
SM6T10A	KT7	AT7	9.50	10.5	1.0	8.55	10.0	14.5	41.0	18.6	215	7.3
SM6T12A	KX7	AX7	11.4	12.6	1.0	10.2	5.0	16.7	36.0	21.7	184	7.8
SM6T15A	LG7	LG7	14.3	15.8	1.0	12.8	1.0	21.2	28.0	27.2	147	8.4
SM6T18A	LM7	BM7	17.1	18.9	1.0	15.3	1.0	25.2	24.0	32.5	123	8.8
SM6T22A	LT7	BT7	20.9	23.1	1.0	18.8	1.0	30.6	20.0	39.3	102	9.2
SM6T24A	LV7	LV7	22.8	25.2	1.0	20.5	1.0	33.2	18.0	42.8	93	9.4
SM6T27A	LX7	BX7	25.7	28.4	1.0	23.1	1.0	37.5	16.0	48.3	83	9.6
SM6T30A	ME7	CE7	28.5	31.5	1.0	25.6	1.0	41.5	14.5	53.5	75	9.7
SM6T33A	MG7	MG7	31.4	34.7	1.0	28.2	1.0	45.7	13.1	59.0	68	9.8
SM6T36A	MK7	CK7	34.2	37.8	1.0	30.8	1.0	49.9	12.0	64.3	62	9.9
SM6T39A	MM7	CM7	37.1	41.0	1.0	33.3	1.0	53.9	11.1	69.7	57	10.0
SM6T68A	NG7	NG7	64.6	71.4	1.0	58.1	1.0	92.0	6.50	121	33	10.4
SM6T100A	NV7	NV7	95.0	105	1.0	85.5	1.0	137	4.40	178	22.5	10.6
SM6T150A	PK7	PK7	143	158	1.0	128	1.0	207	2.90	265	15	10.8
SM6T200A	PR7	PR7	190	210	1.0	171	1.0	274	2.20	353	11.3	10.8
SM6T220A	PR8	PR8	209	231	1.0	188	1.0	328	2.00	388	10.3	10.8

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

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

Fig. 1 – Peak Pulse Power Rating Curve

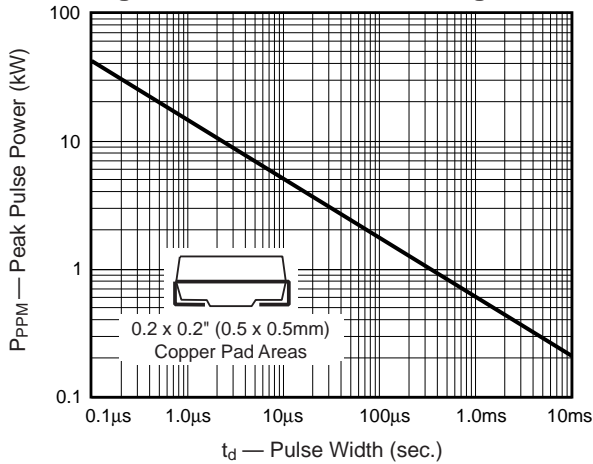


Fig. 2 – Pulse Derating Curve

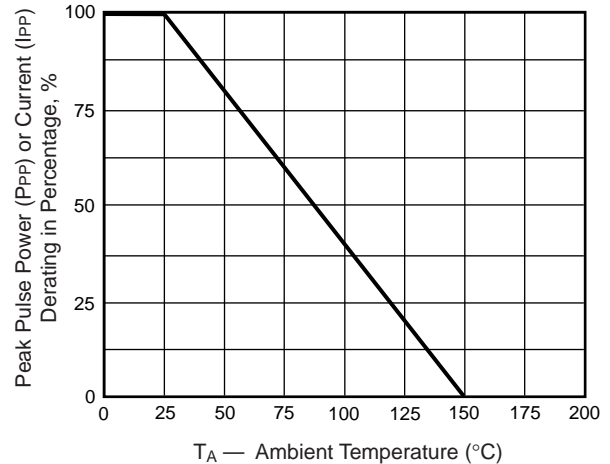


Fig. 3 – Pulse Waveform

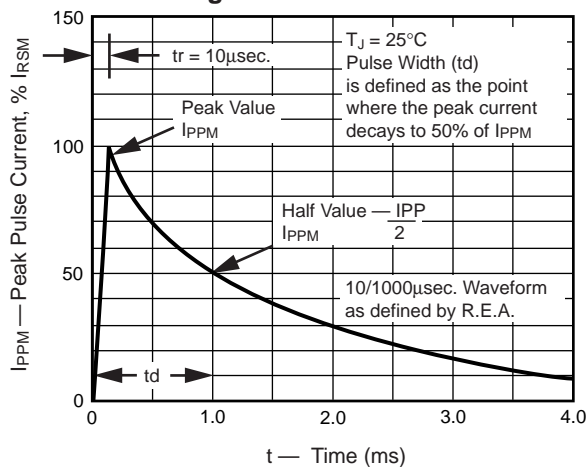


Fig. 4 – Typical Junction Capacitance

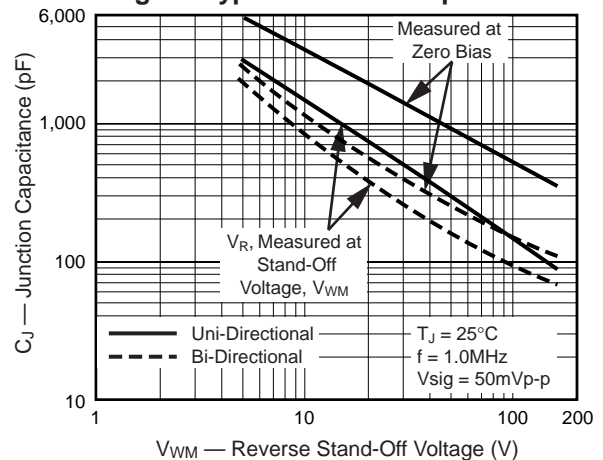


Fig. 5 – Typical Transient Thermal Impedance

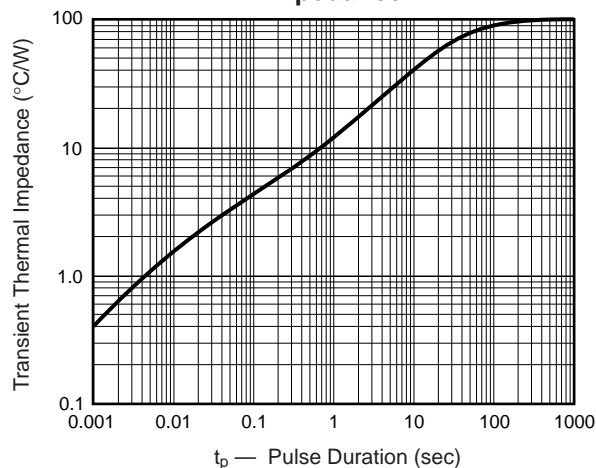


Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current

