GENERAL SEMICONDUCTOR®

SMA6J5.0 thru 40A

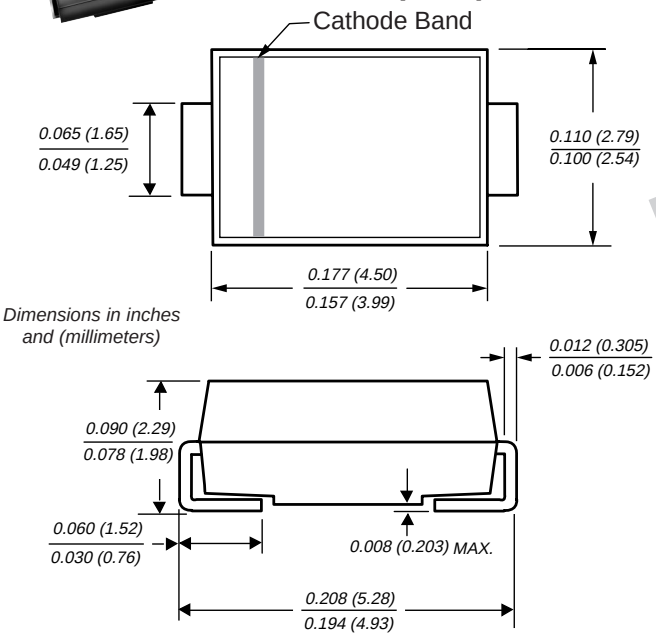
Surface Mount TRANSZORB® Transient Voltage Suppressors

Stand-off Voltage 5.0 to 40V

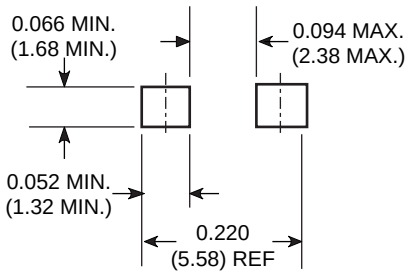
Peak Pulse Power 600W

New Product

DO-214AC (SMA)



Mounting Pad Layout



Mechanical Data

Case: JEDEC DO-214AC molded plastic over passivated chip

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

High temperature soldering guaranteed: 250°C/10 seconds at terminals

Polarity: The band denotes the cathode, which is positive with respect to the anode under normal TVS operation

Mounting Position: Any **Weight:** 0.002oz., 0.064g

Packaging Codes – Options (Antistatic):

51 – 1K per Bulk box, 20K/carton

61 – 1.8K per 7" plastic Reel (12mm tape), 36K/carton

5A – 7.5K per 13" plastic Reel (12mm tape), 75K/carton

Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 1000-4-2 (IEC801-2)
- Ideal for EFT protection of data lines in accordance with IEC 1000-4-4 (IEC801-4)
- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 600W peak pulse power capability with a 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- Very fast response time

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) (see fig. 1)	P_{PPM}	600	W
Peak pulse current with a 10/1000μs waveform(1)	I_{PPM}	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave uni-directional only(2)	I_{FSM}	70	A
Typical thermal resistance, junction to ambient(3)	$R_{\theta JA}$	110	°C/W
Typical thermal resistance, junction to lead	$R_{\theta JL}$	25	°C/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 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. V_F = 3.5V at I_F = 25A (uni-directional only)

Device Type	Device Marking Code	Breakdown Voltage $V_{(BR)}$ (V)(1)		Test Current at I_T (mA)	Stand-off Voltage V_{WM} (V)	Maximum Reverse Leakage at V_{WM} I_D (μA)	Maximum Peak Pulse Surge Current I_{PPM} (A)(2)	Maximum Clamping Voltage at I_{PPM} V_C (V)
		Min	Max					
SMA6J5.0	6AD	6.40	7.82	10	5.0	800	62.5	9.6
SMA6J5.0A	6AE	6.40	7.07	10	5.0	800	65.2	9.2
SMA6J6.0	6AF	6.67	8.15	10	6.0	800	52.6	11.4
SMA6J6.0A	6AG	6.67	7.37	10	6.0	800	58.3	10.3
SMA6J6.5	6AH	7.22	8.82	10	6.5	500	48.8	12.3
SMA6J6.5A	6AK	–7.22	7.98	10	6.5	500	53.6	11.2
SMA6J7.0	6AL	7.78	9.51	10	7.0	200	45.1	13.3
SMA6J7.0A	6AM	7.78	8.60	10	7.0	200	50.0	12.0
SMA6J7.5	6AN	8.33	10.2	1.0	7.5	100	42.0	14.3
SMA6J7.5A	6AP	8.33	9.21	1.0	7.5	100	46.5	12.9
SMA6J8.0	6AQ	8.89	10.9	1.0	8.0	50	40.0	15.0
SMA6J8.0A	6AR	8.89	9.83	1.0	8.0	50	44.1	13.6
SMA6J8.5	6AS	9.44	11.5	1.0	8.5	10	37.7	15.9
SMA6J8.5A	6AT	9.44	10.4	1.0	8.5	10	41.7	14.4
SMA6J9.0	6AU	10.0	12.2	1.0	9.0	5.0	35.5	16.9
SMA6J9.0A	6AV	10.0	11.1	1.0	9.0	5.0	39.0	15.4
SMA6J10	6AW	11.1	13.6	1.0	10	1.0	31.9	18.8
SMA6J10A	6AX	11.1	12.3	1.0	10	1.0	35.3	17.0
SMA6J11	6AY	12.2	14.9	1.0	11	1.0	29.9	20.1
SMA6J11A	6AZ	12.2	13.5	1.0	11	1.0	33.0	18.2
SMA6J12	6BD	13.3	16.3	1.0	12	1.0	27.3	22.0
SMA6J12A	6BE	13.3	14.7	1.0	12	1.0	30.2	19.9
SMA6J13	6BF	14.4	17.6	1.0	13	1.0	25.2	23.8
SMA6J13A	6BG	14.4	15.9	1.0	13	1.0	27.9	21.5
SMA6J14	6BH	15.6	19.1	1.0	14	1.0	23.3	25.8
SMA6J14A	6BK	15.6	17.2	1.0	14	1.0	25.9	23.2
SMA6J15	6BL	16.7	20.4	1.0	15	1.0	22.3	26.9
SMA6J15A	6BM	16.7	18.5	1.0	15	1.0	24.6	24.4
SMA6J16	6BN	17.8	21.8	1.0	16	1.0	20.8	28.8
SMA6J16A	6BP	17.8	19.7	1.0	16	1.0	23.1	26.0
SMA6J17	6BQ	18.9	23.1	1.0	17	1.0	19.7	30.5
SMA6J17A	6BR	18.9	20.9	1.0	17	1.0	21.7	27.6
SMA6J18	6BS	20.0	24.4	1.0	18	1.0	18.6	32.2
SMA6J18A	6BT	20.0	22.1	1.0	18	1.0	20.5	29.2
SMA6J20	6BU	22.2	27.1	1.0	20	1.0	16.8	35.8
SMA6J20A	6BV	22.2	24.5	1.0	20	1.0	18.5	32.4
SMA6J22	6BW	24.4	29.8	1.0	22	1.0	15.2	39.4
SMA6J22A	6BX	24.4	26.9	1.0	22	1.0	16.9	35.5
SMA6J24	6BY	26.7	32.6	1.0	24	1.0	14.0	43.0
SMA6J24A	6BZ	26.7	29.5	1.0	24	1.0	15.4	38.9
SMA6J26	6CD	28.9	35.3	1.0	26	1.0	12.9	46.6
SMA6J26A	6CE	28.9	31.9	1.0	26	1.0	14.3	42.1
SMA6J28	6CF	31.1	38.0	1.0	28	1.0	12.0	50.0
SMA6J28A	6CG	31.1	34.4	1.0	28	1.0	13.2	45.4
SMA6J30	6CH	33.3	40.7	1.0	30	1.0	11.2	53.5
SMA6J30A	6CK	33.3	36.8	1.0	30	1.0	12.4	48.4

Notes: (1) $V_{(BR)}$ measured after I_T applied for 300μs square wave pulse or equivalent
(2) Surge current waveform per Fig. 3 and derate per Fig. 2
(3) All terms and symbols are consistent with ANSI/IEEE C62.35

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Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified. V_F = 3.5V at I_F = 25A (uni-directional only)

Device Type	Device Marking Code	Breakdown Voltage $V_{(BR)}$ (V)(1) Min	Max	Test Current at I_T (mA)	Stand-off Voltage V_{WM} (V)	Maximum Reverse Leakage at V_{WM} I_D (μA)	Maximum Peak Pulse Surge Current I_{PPM} (A)(2)	Maximum Clamping Voltage at I_{PPM} V_C (V)
SMA6J33	6CL	36.7	44.9	1.0	33	1.0	10.2	59.0
SMA6J33A	6CM	36.7	40.6	1.0	33	1.0	11.3	53.3
SMA6J36	6CN	40.0	48.9	1.0	36	1.0	9.3	64.3
SMA6J36A	6CP	40.0	44.2	1.0	36	1.0	10.3	58.1
SMA6J40	6CQ	44.4	54.3	1.0	40	1.0	8.4	71.4
SMA6J40A	6CR	44.4	49.1	1.0	40	1.0	9.3	64.5

Notes: (1) $V_{(BR)}$ measured after I_T applied for 300μs square wave pulse or equivalent
(2) Surge current waveform per Fig. 3 and derate per Fig. 2
(3) All terms and symbols are consistent with ANSI/IEEE C62.35

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 1 – Peak Pulse Power Rating Curve

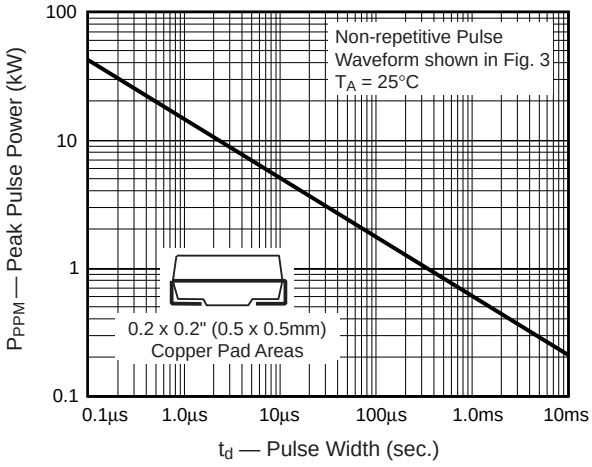

Fig. 2 – Pulse Derating Curve

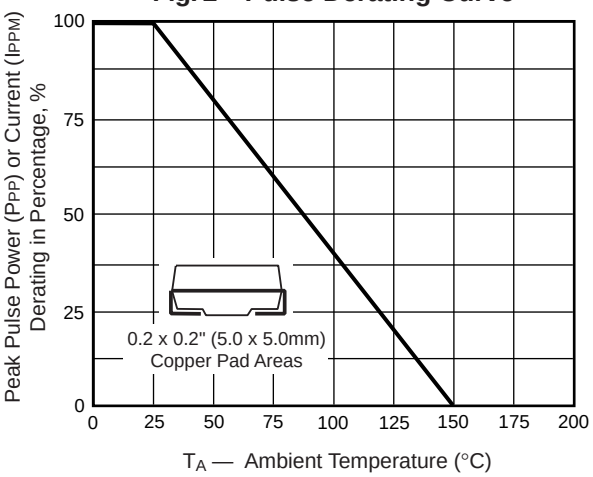

Fig. 3 – Pulse Waveform

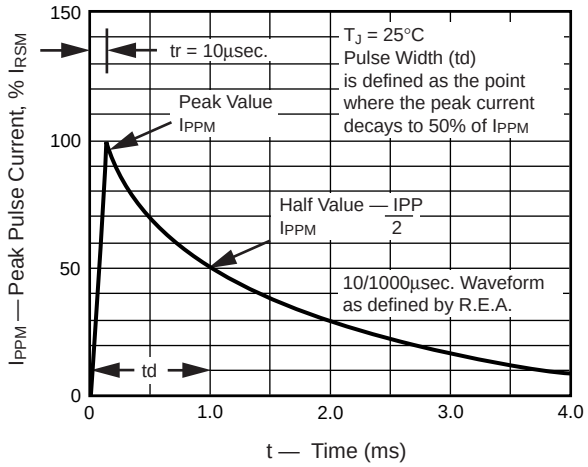

Fig. 4 – Typical Junction Capacitance

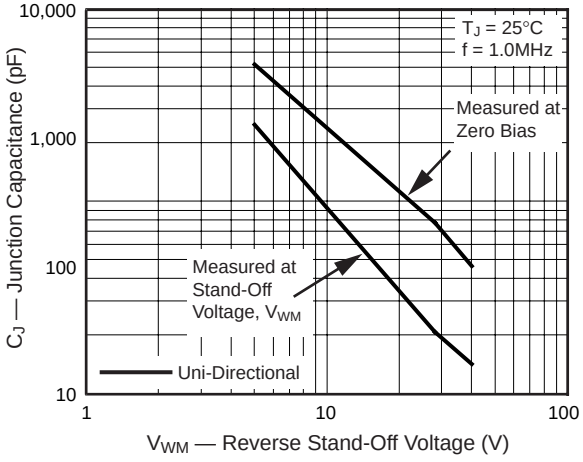

Fig. 5 – Typical Transient Thermal Impedance

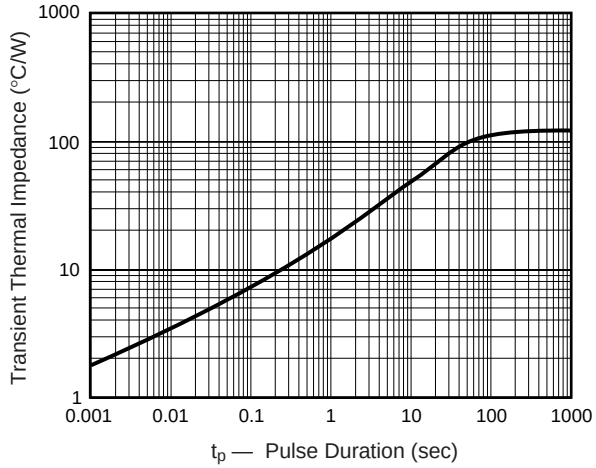
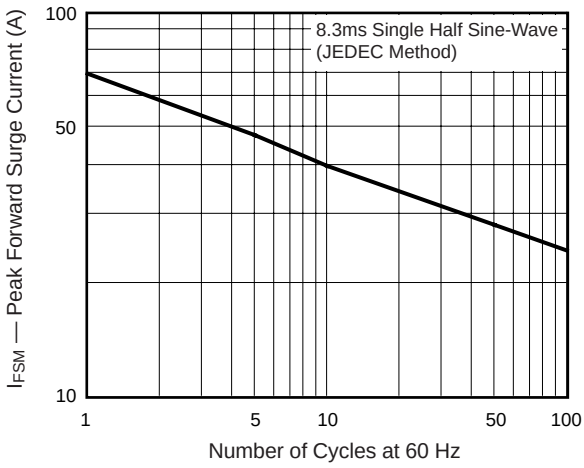
Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only