

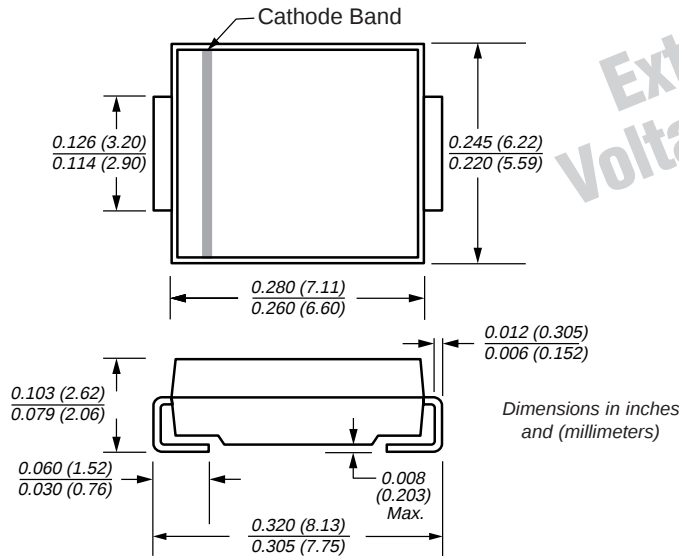


DO-214AB (SMC J-Bend)

Surface Mount TRANSZORB® Transient Voltage Suppressors

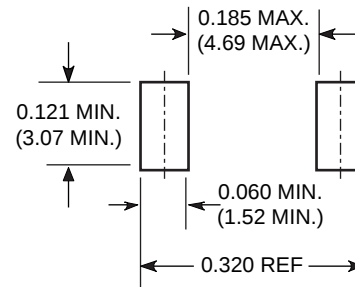
Stand-off Voltage 5.0 to 188V

Peak Pulse Power 1500W



**Extended
Voltage Range**

Mounting Pad Layout



Mechanical Data

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

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

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

Weight: 0.007oz., 0.21g

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

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 1500W peak pulse power capability with a 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- Very fast response time
- High temperature soldering guaranteed: 250°C/10 seconds at terminals
- Contact local sales office for gull-wing lead (SMCG prefix) form (DO-215AB)

Devices for Bidirectional Applications

For bi-directional devices, use suffix C or CA (e.g. SMCJ10C, SMCJ10CA). 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⁾	PPPM	Minimum 1500	W
Peak pulse current with a 10/1000μs waveform ⁽¹⁾	IPPM	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave ⁽²⁾ uni-directional only	IFSM	200	A
Typical thermal resistance, junction to ambient ⁽³⁾	RθJA	75	°C/W
Typical thermal resistance, junction to lead	RθJL	15	°C/W
Operating junction and storage temperature range	TJ, TSTG	-55 to +150	°C

Notes: (1) Non-repetitive current pulse, per Fig.3 and derated above TA = 25°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

Surface Mount TRANSZORB® Transient Voltage Suppressors

Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified. $V_F = 3.5V$ at $I_F = 100A$ (uni-directional only)

Device Type Modified "J" Bend Lead	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) ⁽³⁾	Maximum Peak Pulse Surge Current I_{PPM} (A) ⁽²⁾	Maximum Clamping Voltage at I_{PPM} V_C (V)
	UNI	BI	Min	Max					
SMCJ5.0	GDD	GDD	6.40	7.82	10.0	5.0	1000	156.3	9.6
SMCJ5.0A ⁽⁵⁾	GDE	GDE	6.40	7.07	10.0	5.0	1000	163.0	9.2
SMCJ6.0	GDF	GDF	6.67	8.15	10.0	6.0	1000	131.6	11.4
SMCJ6.0A	GDG	GDG	6.67	7.37	10.0	6.0	1000	145.6	10.3
SMCJ6.5	GDH	BDH	7.22	8.82	10.0	6.5	500	122.0	12.3
SMCJ6.5A	GDK	BDK	7.22	7.98	10.0	6.5	500	133.9	11.2
SMCJ7.0	GDL	GDL	7.78	9.51	10.0	7.0	200	112.8	13.3
SMCJ7.0A	GDM	GDM	7.78	8.60	10.0	7.0	200	125.0	12.0
SMCJ7.5	GDN	BDN	8.33	10.2	1.0	7.5	100	104.9	14.3
SMCJ7.5A	GDP	BDP	8.33	9.21	1.0	7.5	100	116.3	12.9
SMCJ8.0	GDQ	BDG	8.89	10.9	1.0	8.0	50	100.0	15.0
SMCJ8.0A	GDR	BDR	8.89	9.83	1.0	8.0	50	110.3	13.6
SMCJ8.5	GDS	BDS	9.44	11.5	1.0	8.5	20	94.3	15.9
SMCJ8.5A	GDT	BDT	9.44	10.4	1.0	8.5	20	104.2	14.4
SMCJ9.0	GDU	BDU	10.0	12.2	1.0	9.0	10	88.8	16.9
SMCJ9.0A	GDV	BDV	10.0	11.1	1.0	9.0	10	97.4	15.4
SMCJ10	GDW	BDW	11.1	13.6	1.0	10	5.0	79.8	18.8
SMCJ10A	GDX	BDX	11.1	12.3	1.0	10	5.0	88.2	17.0
SMCJ11	GDY	GDY	12.2	14.9	1.0	11	5.0	74.6	20.1
SMCJ11A	GDZ	GDZ	12.2	13.5	1.0	11	5.0	82.4	18.2
SMCJ12	GED	BED	13.3	16.3	1.0	12	5.0	68.2	22.0
SMCJ12A	GEE	BEE	13.3	14.7	1.0	12	5.0	75.4	19.9
SMCJ13	GEF	GEF	14.4	17.6	1.0	13	1.0	63.0	23.8
SMCJ13A	GEG	GEG	14.4	15.9	1.0	13	1.0	69.8	21.5
SMCJ14	GEH	BEH	15.6	19.1	1.0	14	1.0	58.1	25.8
SMCJ14A	GEK	BEK	15.6	17.2	1.0	14	1.0	64.7	23.2
SMCJ15	GEL	BEL	16.7	20.4	1.0	15	1.0	55.8	26.9
SMCJ15A	GEM	BEM	16.7	18.5	1.0	15	1.0	61.5	24.4
SMCJ16	GEN	GEN	17.8	21.8	1.0	16	1.0	52.1	28.8
SMCJ16A	GEP	GEP	17.8	19.7	1.0	16	1.0	57.7	26.0
SMCJ17	GEQ	GEQ	18.9	23.1	1.0	17	1.0	49.2	30.5
SMCJ17A	GER	GER	18.9	20.9	1.0	17	1.0	54.3	27.6
SMCJ18	GES	BES	20.0	24.4	1.0	18	1.0	46.6	32.2
SMCJ18A	GET	BET	20.0	22.1	1.0	18	1.0	51.4	29.2
SMCJ20	GEU	BEU	22.2	27.1	1.0	20	1.0	41.9	35.8
SMCJ20A	GEV	BEV	22.2	24.5	1.0	20	1.0	46.3	32.4
SMCJ22	GEW	BEW	24.4	29.8	1.0	22	1.0	38.1	39.4
SMCJ22A	GEX	BEX	24.4	26.9	1.0	22	1.0	42.3	35.5
SMCJ24	GEY	BEY	26.7	32.6	1.0	24	1.0	34.9	43.0
SMCJ24A	GEZ	BEZ	26.7	29.5	1.0	24	1.0	38.6	38.9
SMCJ26	GFD	BFD	28.9	35.3	1.0	26	1.0	32.2	46.6
SMCJ26A	GFE	BFE	28.9	31.9	1.0	26	1.0	35.6	42.1
SMCJ28	GFF	BFF	31.1	38.0	1.0	28	1.0	30.0	50.0
SMCJ28A	GFG	BFG	31.1	34.4	1.0	28	1.0	33.0	45.4
SMCJ30	GFH	BFH	33.3	40.7	1.0	30	1.0	28.0	53.5
SMCJ30A	GFK	BFK	33.3	36.8	1.0	30	1.0	31.0	48.4

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

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

(3) For bi-directional types having V_{WM} of 10 Volts and less, the I_D limit is doubled

(4) All terms and symbols are consistent with ANSI/IEEE C62.35

(5) For the bi-directional SMCJ5.0CA, the maximum V_{BR} is 7.25V

Surface Mount TRANSZORB® Transient Voltage Suppressors

Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified. $V_F = 3.5V$ at $I_F = 100A$ (uni-directional only)

Device Type Modified "J" Bend Lead	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) ⁽³⁾	Maximum Peak Pulse Surge Current I_{PPM} (A) ⁽²⁾	Maximum Clamping Voltage at I_{PPM} V_C (V)
	UNI	BI	Min	Max					
SMCJ33	GFL	BFL	36.7	44.9	1.0	33	1.0	25.4	59.0
SMCJ33A	GFM	BFM	36.7	40.6	1.0	33	1.0	28.1	53.3
SMCJ36	GFN	BFN	40.0	48.9	1.0	36	1.0	23.3	64.3
SMCJ36A	GFP	BFP	40.0	44.2	1.0	36	1.0	25.8	58.1
SMCJ40	GFQ	BFQ	44.4	54.3	1.0	40	1.0	21.0	71.4
SMCJ40A	GFR	BFR	44.4	49.1	1.0	40	1.0	23.3	64.5
SMCJ43	GFS	BFS	47.8	58.4	1.0	43	1.0	19.6	76.7
SMCJ43A	GFT	BFT	47.8	52.8	1.0	43	1.0	21.6	69.4
SMCJ45	GFU	GFU	50.0	61.1	1.0	45	1.0	18.7	80.3
SMCJ45A	GFV	GFV	50.0	55.3	1.0	45	1.0	20.6	72.7
SMCJ48	GFW	GFW	53.3	65.1	1.0	48	1.0	17.5	85.5
SMCJ48A	GFX	GFX	53.3	58.9	1.0	48	1.0	19.4	77.4
SMCJ51	GFY	GFY	56.7	69.3	1.0	51	1.0	16.5	91.1
SMCJ51A	GFZ	GFZ	56.7	62.7	1.0	51	1.0	18.2	82.4
SMCJ54	GGD	GGD	60.0	73.3	1.0	54	1.0	15.6	96.3
SMCJ54A	GGE	GGE	60.0	66.3	1.0	54	1.0	17.2	87.1
SMCJ58	GGF	GGF	64.4	78.7	1.0	58	1.0	14.6	103
SMCJ58A	GGG	GGG	64.4	71.2	1.0	58	1.0	16.0	93
SMCJ60	GGH	GGH	66.7	81.5	1.0	60	1.0	14.0	107
SMCJ60A	GGK	GGK	66.7	73.7	1.0	60	1.0	15.5	96
SMCJ64	GGL	GGL	71.1	86.9	1.0	64	1.0	13.2	114
SMCJ64A	GGM	GGM	71.1	78.6	1.0	64	1.0	14.6	103
SMCJ70	GGN	GGN	77.8	95.1	1.0	70	1.0	12.0	125
SMCJ70A	GGP	GGP	77.8	86.0	1.0	70	1.0	13.3	113
SMCJ75	GGQ	GGQ	83.3	102	1.0	75	1.0	11.2	134
SMCJ75A	GGR	GGR	83.3	92.1	1.0	75	1.0	12.4	121
SMCJ78	GGS	GGS	86.7	106	1.0	78	1.0	10.8	139
SMCJ78A	GGT	GGT	86.7	95.8	1.0	78	1.0	11.9	126
SMCJ85	GGU	GGU	94.4	115	1.0	85	1.0	9.9	151
SMCJ85A	GGV	GGV	94.4	104	1.0	85	1.0	10.9	137
SMCJ90	GGW	GGW	100	122	1.0	90	1.0	9.4	160
SMCJ90A	GGX	GGX	100	111	1.0	90	1.0	10.3	146
SMCJ100	GGY	GGY	111	136	1.0	100	1.0	8.4	179
SMCJ100A	GGZ	GGZ	111	123	1.0	100	1.0	9.3	162
SMCJ110	GHD	GHD	122	149	1.0	110	1.0	7.7	196
SMCJ110A	GHE	GHE	122	135	1.0	110	1.0	8.5	177
SMCJ120	GHF	GHF	133	163	1.0	120	1.0	7.0	214
SMCJ120A	GHG	GHG	133	147	1.0	120	1.0	7.8	193
SMCJ130	GHH	GHH	144	176	1.0	130	1.0	6.5	231
SMCJ130A	GHK	GHK	144	159	1.0	130	1.0	7.2	209
SMCJ150	GHL	GHL	167	204	1.0	150	1.0	5.6	268
SMCJ150A	GHM	GHM	167	185	1.0	150	1.0	6.2	243
SMCJ160	GHN	GHN	178	218	1.0	160	1.0	5.2	287
SMCJ160A	GHP	GHP	178	197	1.0	160	1.0	5.8	259
SMCJ170	GHQ	GHQ	189	231	1.0	170	1.0	4.9	304
SMCJ170A	GHR	GHR	189	209	1.0	170	1.0	5.5	275
SMCJ188	GHT	GHT	209	255	1.0	188	1.0	4.4	344
SMCJ188A	GHS	GHS	209	231	1.0	188	1.0	4.6	328

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

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

(3) For bi-directional types having V_{WM} of 10 Volts and less, the I_D limit is doubled

(4) All terms and symbols are consistent with ANSI/IEEE C62.35

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

Fig. 1 – Peak Pulse Power Rating Curve

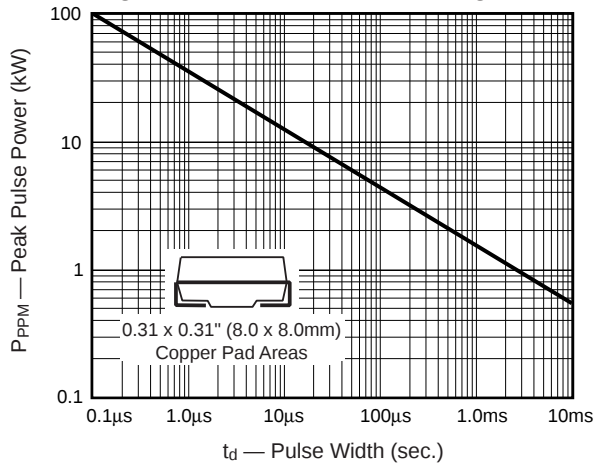


Fig. 2 – Pulse Derating Curve

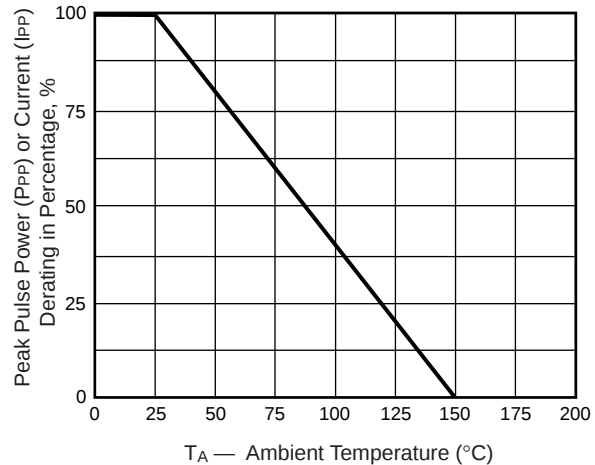
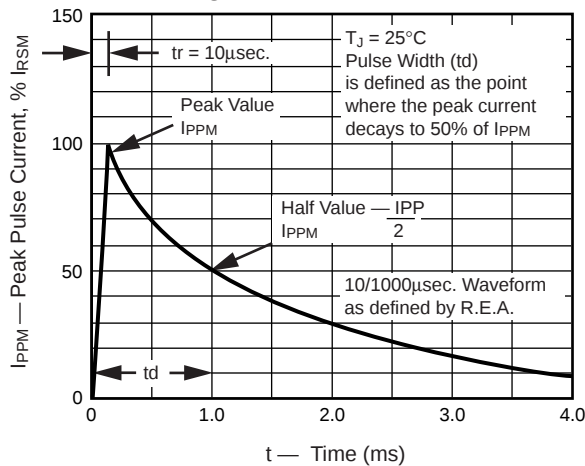
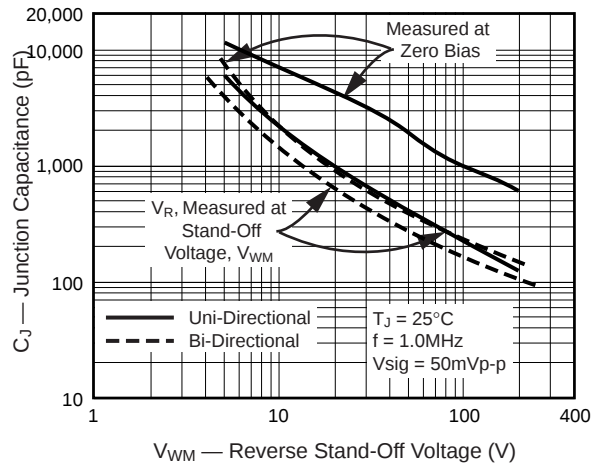


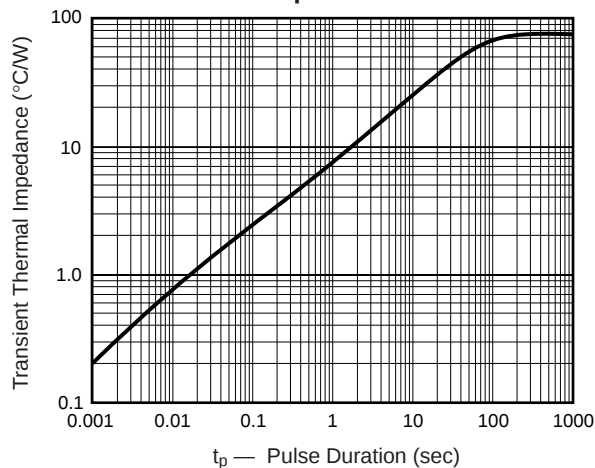
Fig. 3 – Pulse Waveform



**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**

