Transient Voltage Suppressor
SMCJ5.0 - SMCJ188CA

Features:

- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 1,500W peak pulse power capability with a 10/1,000µs waveform, repetition rate (duty cycle): 0.01%
- Very fast response time
- High temperature soldering guaranteed : 250°C/10 secs at terminals

Mechanical Data:

- Case : JEDEC DO-214AB moulded plastic over glass passivated junction
- Polarity : Foruni-directional types the colour band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- Weight : 0.007 ounces, 0.21 grams
- Flammability : epoxy is rated UL 94V-0

Devices for Bidirectional Applications:

For bi-directional deviced, use suffix C or CA (eg SMCJ10C, SMCJ10CA). Electrical characteristics apply in both directions. No colour band on bi-directional devices.

Maximum Ratings & Characteristics: Tamb = 25°C, unless otherwise specified.

Description	Symbol	Value	Unit
Peak power dissiation with a 10/1,000µs waveform (Note1 & 2, Fig 1)	P_{PPM}	1.500 (Min.)	W
Peak pulse current with a 10/1,000µs waveform (Note1)	I_{PPM}	See table below	A
Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 2)	I_{FSM}	200	A
Typical thermal resistance, junction to ambient (Note 3)	R_{thJA}	100	°C/W
Typical thermal resistance, junction to lead	R_{thJL}	20	°C/W
Operational junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulses, per fig.3 and derated above TA = 25°C per fig.2
2. Mounted on 0.2 × 0.2” (5.0 × 5.0mm) copper pads to each terminal
3. Mounted on minimum recommended pad layout

Electrical Characteristics: Tamb = 25°C Unless otherwise specified V_F = 3.5V @ I_F = 50A (uni-directional only)

Type: Part No add C for Bi-directional	Alternative Device Marking		Reverse Stand-off Voltage V_{WM}	$V_{(BR)}$			I_{RM} @V_{WM}	I_{PPM}	V_C@ I_{PPM}
	UNI	BI	V	Min (V)	Max (V)	mA (@I_T)	µA	A	V
SMCJ5.0 (C)	GDD	BDD	5	6.4	7.82	10	800	62.5	9.6
SMCJ5.0 (C)A	DGE	BGE	5	6.4	7.07	10	800	65.2	9.2
SMCJ6.0 (C)	GDF	BDF	6	6.67	8.15	10	800	52.6	11.4
SMCJ6.0 (C)A	GDG	BDG	6	6.67	8.15	10	800	58.3	10.3

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	UNI	BI	V	Min (V)	Max (V)	mA (@I_T)	µA	A	V
SMCJ6.5 (C)	GDH	BDH	6.5	7.22	8.82	10	500	48.8	12.3
SMCJ6.5 (C)A	GDK	BDK	6.5	7.22	7.98	10	500	53.6	11.2
SMCJ7.0 (C)	GDL	BDL	7	7.78	9.51	10	200	45.1	13.3
SMCJ7.0 (C)A	GDM	BDM	7	7.78	8.6	10	200	50	12
SMCJ7.5 (C)	GDN	BDN	7.5	8.33	10.2	1	100	42	14.3
SMCJ7.5 (C)A	GDP	BDP	0.5	8.33	9.21	1	100	46.5	12.9
SMCJ8.0 (C)	GDQ	BDQ	8	8.89	10.9	1	50	40	15
SMCJ8.0 (C)A	GDR	BDR	8	8.89	9.83	1	50	44.1	13.6
SMCJ8.5 (C)	GDS	BDS	8.5	9.44	11.5	1	20	37.7	15.9
SMCJ8.5 (C)A	GDT	BDT	8.5	9.44	10.4	1	20	41.7	14.4
SMCJ9.0 (C)	GDU	BDU	9	10	12.2	1	10	35.5	16.9
SMCJ9.0 (C)A	GDV	BDV	9	10	11.1	1	10	39	15.4
SMCJ10 (C)	GDW	BDW	10	11.1	13.6	1	5	31.9	18.8
SMCJ10 (C)A	GDX	BDX	10	11.1	12.3	1	5	35.3	17
SMCJ11 (C)	GDY	BDY	11	12.2	14.9	1	5	29.9	20.1
SMCJ11 (C)A	GDZ	BDZ	11	12.2	13.5	1	5	33	18.2
SMCJ12 (C)	GED	BED	12	13.3	16.2	1	5	27.3	22
SMCJ12 (C)A	GEE	BEE	12	13.3	14.7	1	5	30.2	19.9
SMCJ13 (C)	GEF	BEF	13	14.4	17.6	1	5	25.2	23.8
SMCJ13 (C)A	GEG	BEG	13	14.4	15.9	1	5	27.9	21.5
SMCJ14 (C)	GEH	BEH	14	15.6	19.1	1	5	23.3	25.8
SMCJ14 (C)A	GEK	BEK	14	15.6	17.2	1	5	25.9	23.2
SMCJ15 (C)	GEL	BEL	15	16.7	20.4	1	5	22.3	26.9
SMCJ15 (C)A	GEM	BEM	15	16.7	18.5	1	5	24.6	24.4
SMCJ16 (C)	GEN	BEN	16	17.8	21.8	1	5	20.8	28.8
SMCJ16 (C)A	GEP	BEP	16	17.8	19.7	1	5	23.1	26
SMCJ17 (C)	GEQ	BEQ	17	18.9	23.1	1	5	19.7	30.5
SMCJ17 (C)A	GER	BER	17	18.9	20.9	1	5	21.7	27.6
SMCJ18 (C)	GES	BES	18	20	24.4	1	5	18.6	32.2
SMCJ18 (C)A	GET	BET	18	20	22.1	1	5	20.5	29.2
SMCJ20 (C)	GEU	BEU	20	22.2	27.1	1	5	16.8	35.8
SMCJ20 (C)A	GEV	BEV	20	22.2	24.5	1	5	18.5	32.4
SMCJ22 (C)	GEW	BEW	22	24.4	29.8	1	5	15.2	39.4
SMCJ22 (C)A	GEX	BEX	22	24.4	26.9	1	5	16.9	35.5
SMCJ24 (C)	GEY	BEY	24	26.7	32.6	1	5	14	43

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	UNI	BI	V	Min (V)	Max (V)	mA (@I_T)	µA	A	V
SMCJ24 (C)A	GEZ	BEZ	24	26.7	29.5	1	5	15.4	38.9
SMCJ26 (C)	GFD	BFD	26	28.9	35.3	1	5	12.9	46.6
SMCJ26 (C)A	GFE	BFE	26	28.9	31.9	1	5	14.3	42.1
SMCJ28 (C)	GFF	BFF	28	31.1	38	1	5	12	50
SMCJ28 (C)A	GFG	BFG	28	31.1	34.4	1	5	13.2	45.4
SMCJ30 (C)	GFH	BFH	30	33.3	40.7	1	5	11.2	53.5
SMCJ30 (C)A	GFK	BFK	30	33.3	36.8	1	5	12.4	48.4
SMCJ33 (C)	GFL	BFL	33	36.7	44.9	1	5	10.2	59
SMCJ33 (C)A	GFM	BFM	33	36.7	40.6	1	5	11.3	53.3
SMCJ36 (C)	GFN	BFN	36	40	48.9	1	5	9.3	64.3
SMCJ36 (C)A	GFP	BFP	36	40	44.2	1	5	10.3	58.1
SMCJ40 (C)	GFQ	BFQ	40	44.4	54.3	1	5	8.4	71.4
SMCJ40 (C)A	GFR	BFR	40	44.4	49.1	1	5	9.3	64.5
SMCJ43 (C)	GFS	BFS	43	47.8	58.4	1	5	7.8	76.7
SMCJ43 (C)A	GFT	BFT	43	47.8	52.8	1	5	8.6	69.4
SMCJ45 (C)	GFU	BFU	45	50	61.1	1	5	7.5	80.3
SMCJ45 (C)A	GFV	BFV	45	50	55.3	1	5	8.3	72.7
SMCJ48 (C)	GEH	BEH	48	53.3	65.1	1	5	7	85.5
SMCJ48 (C)A	GEK	BEK	48	53.3	58.9	1	5	7.8	77.4
SMCJ51 (C)	GEL	BEL	51	56.7	69.3	1	5	6.6	91.1
SMCJ51 (C)A	GEM	BEM	51	56.7	62.7	1	5	7.3	82.4
SMCJ54 (C)	GFW	BFW	54	60	73.3	1	5	6.2	96.3
SMCJ54 (C)A	GFX	BFX	54	60	66.3	1	5	6.9	87.1
SMCJ58 (C)	GFY	BFY	58	64.4	78.7	1	5	5.8	103
SMCJ58 (C)A	GFZ	BFZ	58	64.4	71.2	1	5	6.4	93.6
SMCJ60 (C)	GGD	BGD	60	66.7	81.5	1	5	5.6	107
SMCJ60 (C)A	GGE	BGE	60	66.7	73.7	1	5	6.2	96.8
SMCJ64 (C)	GGF	BGF	64	71.1	86.9	1	5	5.3	114
SMCJ64 (C)A	GGG	BGG	64	71.1	78.6	1	5	5.8	103
SMCJ70 (C)	GGH	BGH	70	77.8	95.1	1	5	4.8	125
SMCJ70 (C)A	GGK	BGK	70	77.8	86	1	5	5.3	113
SMCJ75 (C)	GGL	BGL	75	83.3	102	1	5	4.5	134
SMCJ75 (C)A	GGM	BGM	75	83.3	92.1	1	5	5	121
SMCJ78 (C)	GGN	BGN	78	86.7	106	1	5	4.3	139
SMCJ78 (C)A	GGP	BGP	78	86.7	95.8	1	5	4.8	126

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	UNI	BI	V	Min (V)	Max (V)	mA (@I_T)	µA	A	V
SMCJ85 (C)	GGQ	BGQ	85	94.4	115	1	5	4	151
SMCJ85 (C)A	GGR	BGR	85	94.4	104	1	5	4.4	137
SMCJ90 (C)	GGS	BGS	90	100	122	1	5	3.8	160
SMCJ90 (C)A	GGT	BGT	90	100	111	1	5	4.1	146
SMCJ100 (C)	GGU	BGU	100	111	136	1	5	3.4	179
SMCJ100 (C)A	GGV	BGV	100	111	123	1	5	3.7	162
SMCJ110 (C)	GGW	BGW	110	122	149	1	5	3.1	196
SMCJ110 (C)A	GGX	BGX	110	122	135	1	5	3.4	177
SMCJ120 (C)	GGY	BGY	120	133	163	1	5	2.8	214
SMCJ120 (C)A	GGZ	BGZ	120	133	147	1	5	3.1	193
SMCJ130 (C)	GHD	BHD	130	144	176	1	5	2.6	231
SMCJ130 (C)A	GHE	BHE	130	144	159	1	5	2.9	209
SMCJ150 (C)	GHF	BHF	150	167	204	1	5	2.2	268
SMCJ150 (C)A	GHG	BHG	150	167	185	1	5	2.5	243
SMCJ160 (C)	GHH	BHH	160	178	218	1	5	2.1	287
SMCJ160 (C)A	GHK	BHK	160	178	197	1	5	2.3	259
SMCJ170 (C)	GHL	BHL	170	189	231	1	5	2	304
SMCJ170 (C)A	GHM	BHM	170	189	209	1	5	2.2	275
SMCJ188 (C)	GHN	BHN	168	209	255	1	5	1.7	344
SMCJ188 (C)A	GHP	BHP	188	209	231	1	5	2	328

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Ratings & Characteristic Curves

FIG.1 – PEAK PULSE POWER RATING CURVE

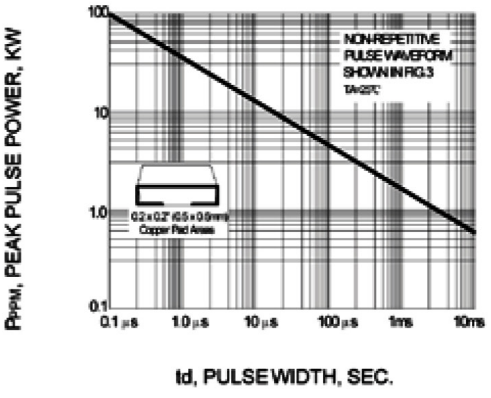


FIG.2 – PULSE DERATING CURVE

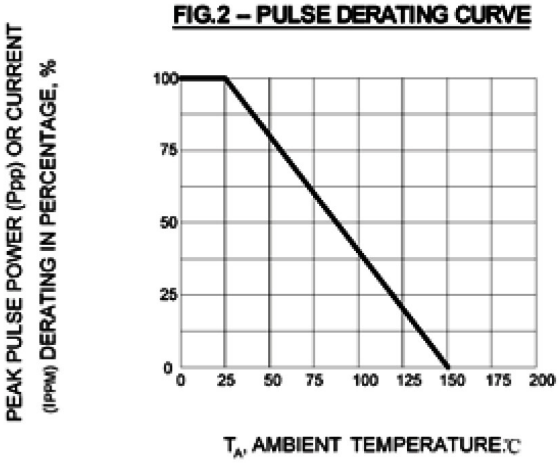


FIG.3 – PULSE WAVEFORM

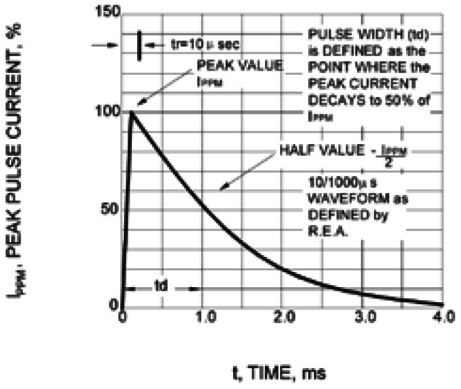


FIG.4 – TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

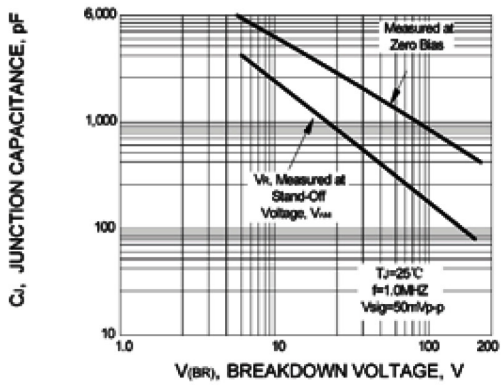


FIG.5 – TYPICAL TRANSIENT THERMAL IMPEDANCE

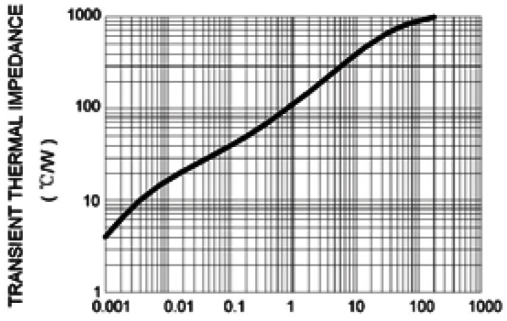
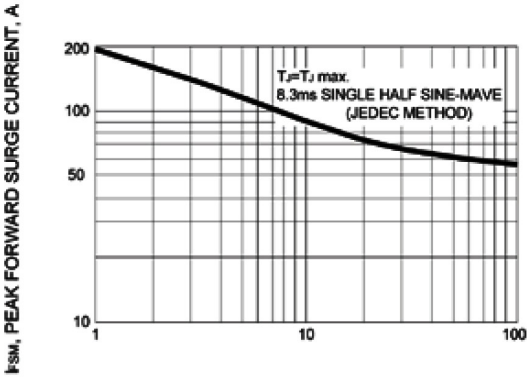
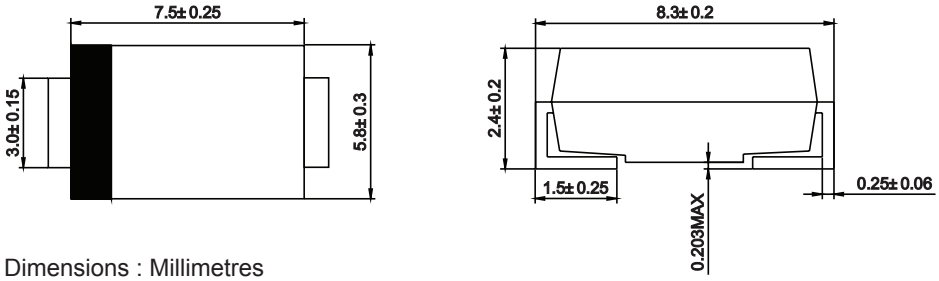


FIG.6 – MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



DO-214AB(SMC)



Dimensions : Millimetres