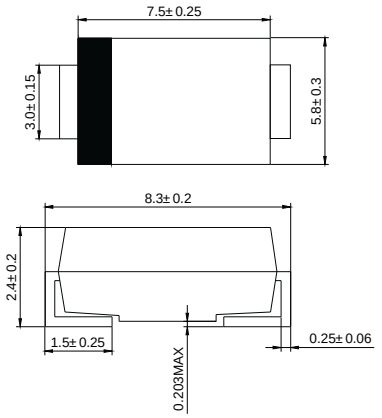
Transient Voltage Suppressor: SMCJ5.0 - SMCJ188CA

Features:
- 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 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

DO-214AB(SMC)



Dimensions in millimeters

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.

	Symbol:	Value:	Unit:
Peak power dissiation with a 10/1000µs waveform (NOTE1,2,FIG1)	P_{PPM}	Minimum 1500	W
Peak pulse current with a 10/1000µs waveform (NOTE1)	I_{PPM}	See table below	A
Peak forward surge current, 8.3ms single half sine-wave uni-directional only (NOTE2)	I_{FSM}	200.0	A
Typical thermal resistance, junction to ambient (NOTE3)	R_{thJA}	100.0	°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 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

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	**Device Marking Code:**		$V_{(BR)}$			V_{WM}	I_{RM} @V_{WM}	I_{PPM}	V_c@ I_{PPM}
	UNI	**BI**	**Min (V)**	**Max (V)**	**mA (@I_T)**	**V**	**µA**	**A**	**V**
SMCJ5.0 (C)	CAD	CWD	6.40	7.82	10	5.0	800	62.5	9.6
SMCJ5.0 (C)A	CAE	CWE	6.40	7.07	10	5.0	800	65.2	9.2
SMCJ6.0 (C)	CAF	CWF	6.67	8.15	10	6.0	800	52.6	11.4
SMCJ6.0 (C)A	CAG	CWG	6.67	8.15	10	6.0	800	58.3	10.3
SMCJ6.5 (C)	CAH	CWH	7.22	8.82	10	6.5	500	48.8	12.3
SMCJ6.5 (C)A	CAK	CWK	7.22	7.98	10	6.5	500	53.6	11.2
SMCJ7.0 (C)	CAL	CWL	7.78	9.51	10	7.0	200	45.1	13.3
SMCJ7.0 (C)A	CAM	CWM	7.78	8.60	10	7.0	200	50.0	12.0
SMCJ7.5 (C)	CAN	CWN	8.33	10.2	1.0	7.5	100	42.0	14.3
SMCJ7.5 (C)A	CAP	CWP	8.33	9.21	1.0	.5	100	46.5	12.9
SMCJ8.0 (C)	CAQ	BWQ	8.89	10.9	1.0	8.0	50	40.0	15.0
SMCJ8.0 (C)A	CAR	CWR	8.89	9.83	1.0	8.0	50	44.1	13.6
SMCJ8.5 (C)	CAS	CWS	9.44	11.5	1.0	8.5	20	37.7	15.9
SMCJ8.5 (C)A	CAT	CWT	9.44	10.4	1.0	8.5	20	41.7	14.4
SMCJ9.0 (C)	CAU	CWU	10.0	12.2	1.0	9.0	10	35.5	16.9
SMCJ9.0 (C)A	CAV	CWV	10.0	11.1	1.0	9.0	10	39.0	15.4
SMCJ10 (C)	CAW	CWW	11.1	13.6	1.0	10	5.0	31.9	18.8
SMCJ10 (C)A	CAX	CWX	11.1	12.3	1.0	10	5.0	35.3	17.0
SMCJ11 (C)	CAY	CWY	12.2	14.9	1.0	11	5.0	29.9	20.1
SMCJ11 (C)A	CAZ	CWZ	12.2	13.5	1.0	11	5.0	33.0	18.2
SMCJ12 (C)	CBD	CXD	13.3	16.2	1.0	12	5.0	27.3	22.0
SMCJ12 (C)A	CBE	CXE	13.3	14.7	1.0	12	5.0	30.2	19.9
SMCJ13 (C)	CBF	CXF	14.4	17.6	1.0	13	5.0	25.2	23.8
SMCJ13 (C)A	CBG	CXG	14.4	15.9	1.0	13	5.0	27.9	21.5
SMCJ14 (C)	CBH	CXH	15.6	19.1	1.0	14	5.0	23.3	25.8
SMCJ14 (C)A	CBK	CXK	15.6	17.2	1.0	14	5.0	25.9	23.2
SMCJ15 (C)	CBL	CXL	16.7	20.4	1.0	15	5.0	22.3	26.9
SMCJ15 (C)A	CBM	CXM	16.7	18.5	1.0	15	5.0	24.6	24.4
SMCJ16 (C)	CBN	CXN	17.8	21.8	1.0	16	5.0	20.8	28.8
SMCJ16 (C)A	CBP	CXP	17.8	19.7	1.0	16	5.0	23.1	26.0
SMCJ17 (C)	CBQ	CXQ	18.9	23.1	1.0	17	5.0	19.7	30.5
SMCJ17 (C)A	CBR	CXR	18.9	20.9	1.0	17	5.0	21.7	27.6
SMCJ18 (C)	CBS	CXS	20.0	24.4	1.0	18	5.0	18.6	32.2
SMCJ18 (C)A	CBT	CXT	20.0	22.1	1.0	18	5.0	20.5	29.2
SMCJ20 (C)	CBU	CXU	22.2	27.1	1.0	20	5.0	16.8	35.8
SMCJ20 (C)A	CBV	CXV	22.2	24.5	1.0	20	5.0	18.5	32.4

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	**Device Marking Code:**		$V_{(BR)}$			V_{WM}	I_{RM} @V_{WM}	I_{PPM}	V_c@ I_{PPM}
	UNI	**BI**	**Min (V)**	**Max (V)**	**mA (@I_T)**	**V**	**µA**	**A**	**V**
SMCJ22 (C)	CBW	CXW	24.4	29.8	1.0	22	5.0	15.2	39.4
SMCJ22 (C)A	CBX	CXX	24.4	26.9	1.0	22	5.0	16.9	35.5
SMCJ24 (C)	CBY	CXY	26.7	32.6	1.0	24	5.0	14.0	43.0
SMCJ24 (C)A	CBZ	CXZ	26.7	29.5	1.0	24	5.0	15.4	38.9
SMCJ26 (C)	CCD	CYD	28.9	35.3	1.0	26	5.0	12.9	46.6
SMCJ26 (C)A	CCE	CYE	28.9	31.9	1.0	26	5.0	14.3	42.1
SMCJ28 (C)	CCF	CYF	31.1	38.0	1.0	28	5.0	12.0	50.0
SMCJ28 (C)A	CCG	CYG	31.1	34.4	1.0	28	5.0	13.2	45.4
SMCJ30 (C)	CCH	CYH	33.3	40.7	1.0	30	5.0	11.2	53.5
SMCJ30 (C)A	CCK	CYK	33.3	36.8	1.0	30	5.0	12.4	48.4
SMCJ33 (C)	CCL	CYL	36.7	44.9	1.0	33	5.0	10.2	59.0
SMCJ33 (C)A	CCM	CYM	36.7	40.6	1.0	33	5.0	11.3	53.3
SMCJ36 (C)	CCN	CYN	40.0	48.9	1.0	36	5.0	9.3	64.3
SMCJ36 (C)A	CCP	CYP	40.0	44.2	1.0	36	5.0	10.3	58.1
SMCJ40 (C)	CCQ	CYQ	44.4	54.3	1.0	40	5.0	8.4	71.4
SMCJ40 (C)A	CCR	CYR	44.4	49.1	1.0	40	5.0	9.3	64.5
SMCJ43 (C)	CCS	CYS	47.8	58.4	1.0	43	5.0	7.8	76.7
SMCJ43 (C)A	CCT	CYT	47.8	52.8	1.0	43	5.0	8.6	69.4
SMCJ45 (C)	CCU	CYU	50.0	61.1	1.0	45	5.0	7.5	80.3
SMCJ45 (C)A	CCV	CYV	50.0	55.3	1.0	45	5.0	8.3	72.7
SMCJ48 (C)	CCW	CYW	53.3	65.1	1.0	48	5.0	7.0	85.5
SMCJ48 (C)A	CCX	CYX	53.3	58.9	1.0	48	5.0	7.8	77.4
SMCJ51 (C)	CCY	CYY	56.7	69.3	1.0	51	5.0	6.6	91.1
SMCJ51 (C)A	CCZ	CYZ	56.7	62.7	1.0	51	5.0	7.3	82.4
SMCJ54 (C)	CRD	CZD	60.0	73.3	1.0	54	5.0	6.2	96.3
SMCJ54 (C)A	CRE	CZE	60.0	66.3	1.0	54	5.0	6.9	87.1
SMCJ58 (C)	CRF	CZF	64.4	78.7	1.0	58	5.0	5.8	103
SMCJ58 (C)A	CRG	CZG	64.4	71.2	1.0	58	5.0	6.4	93.6
SMCJ60 (C)	CRH	CZH	66.7	81.5	1.0	60	5.0	5.6	107
SMCJ60 (C)A	CRK	CZK	66.7	73.7	1.0	60	5.0	6.2	96.8
SMCJ64 (C)	CRL	CZL	71.1	86.9	1.0	64	5.0	5.3	114
SMCJ64 (C)A	CRM	CZM	71.1	78.6	1.0	64	5.0	5.8	103
SMCJ70 (C)	CRN	CZN	77.8	95.1	1.0	70	5.0	4.8	125
SMCJ70 (C)A	CRP	CZP	77.8	86.0	1.0	70	5.0	5.3	113
SMCJ75 (C)	CRQ	CZQ	83.3	102	1.0	75	5.0	4.5	134
SMCJ75 (C)A	CRR	CZR	83.3	92.1	1.0	75	5.0	5.0	121

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	**Device Marking Code:**		$V_{(BR)}$			V_{WM}	I_{RM} @V_{WM}	I_{PPM}	V_c@ I_{PPM}
	UNI	**BI**	**Min (V)**	**Max (V)**	**mA (@I_T)**	**V**	**µA**	**A**	**V**
SMCJ78 (C)	CRS	CZS	86.7	106	1.0	78	5.0	4.3	139
SMCJ78 (C)A	CRT	CZT	86.7	95.8	1.0	78	5.0	4.8	126
SMCJ85 (C)	CRU	CZU	94.4	115	1.0	85	5.0	4.0	151
SMCJ85 (C)A	CRV	CZV	94.4	104	1.0	85	5.0	4.4	137
SMCJ90 (C)	CRW	CZW	100	122	1.0	90	5.0	3.8	160
SMCJ90 (C)A	CRX	CZX	100	111	1.0	90	5.0	4.1	146
SMCJ100 (C)	CRY	CZY	111	136	1.0	100	5.0	3.4	179
SMCJ100 (C)A	CRZ	CZZ	111	123	1.0	100	5.0	3.7	162
SMCJ110 (C)	CSD	CVD	122	149	1.0	110	5.0	3.1	196
SMCJ110 (C)A	CSE	CVE	122	135	1.0	110	5.0	3.4	177
SMCJ120 (C)	CSF	CVF	133	163	1.0	120	5.0	2.8	214
SMCJ120 (C)A	CSG	CVG	133	147	1.0	120	5.0	3.1	193
SMCJ130 (C)	CSH	CVH	144	176	1.0	130	5.0	2.6	231
SMCJ130 (C)A	CSK	CVK	144	159	1.0	130	5.0	2.9	209
SMCJ150 (C)	CSL	CVL	167	204	1.0	150	5.0	2.2	268
SMCJ150 (C)A	CSM	CVM	167	185	1.0	150	5.0	2.5	243
SMCJ160 (C)	CSN	CVN	178	218	1.0	160	5.0	2.1	287
SMCJ160 (C)A	CSP	CVP	178	197	1.0	160	5.0	2.3	259
SMCJ170 (C)	CSQ	CVQ	189	231	1.0	170	5.0	2.0	304
SMCJ170 (C)A	CSR	CVR	189	209	1.0	170	5.0	2.2	275
SMCJ188 (C)	CST	CVT	209	255	1.0	168	5.0	1.7	344
SMCJ188 (C)A	CSS	CVS	209	231	1.0	188	5.0	2.0	328

Transient Voltage Suppressor: SMCJ5.0 - SMCJ188CA

Ratings & Characteristic Curves

FIG.1 – PEAK PULSE POWER RATING CURVE

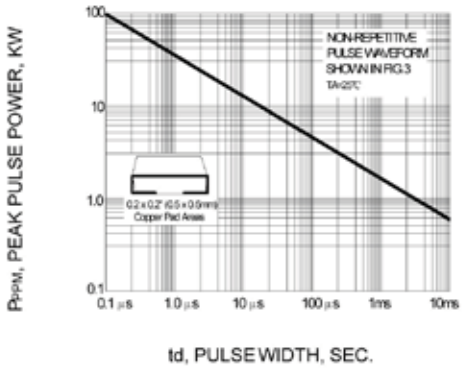


FIG.2 – PULSE DERATING CURVE

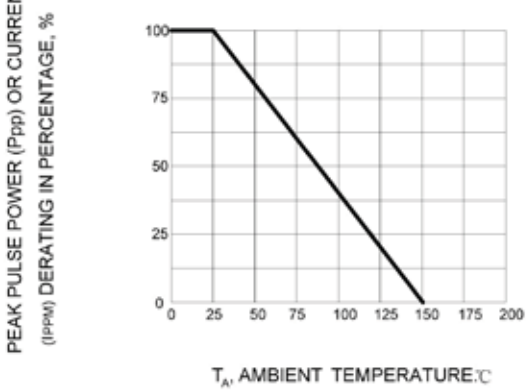


FIG.3 – PULSE WAVEFORM

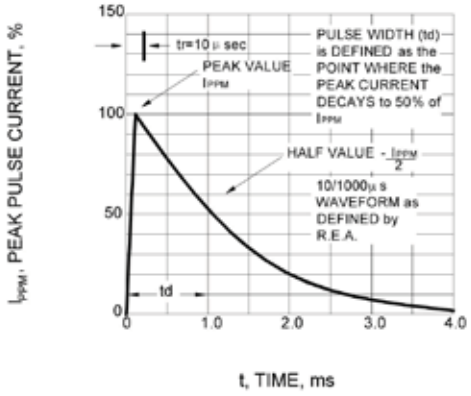


FIG.4 – TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

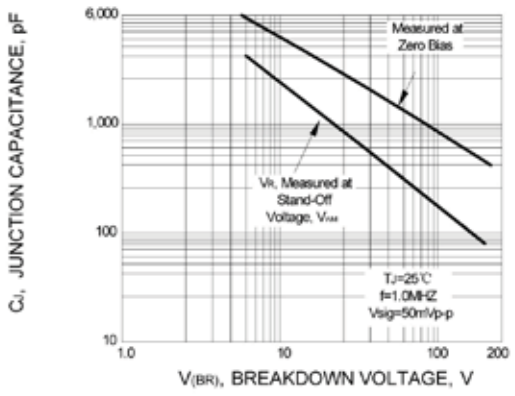


FIG.5 – TYPICAL TRANSIENT THERMAL IMPEDANCE

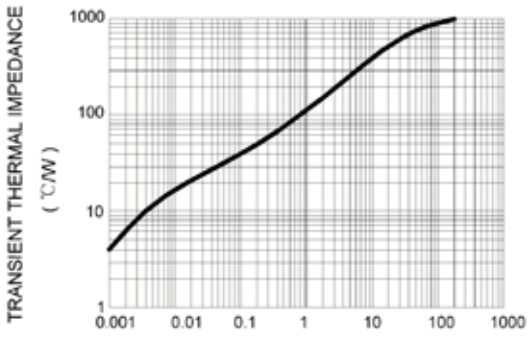


FIG.6 – MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT