

# SMCJ 5.0C ~ 188CA

## SURFACE MOUNT BI-DIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

**Stand-off Voltage** : 5.0 to 188V

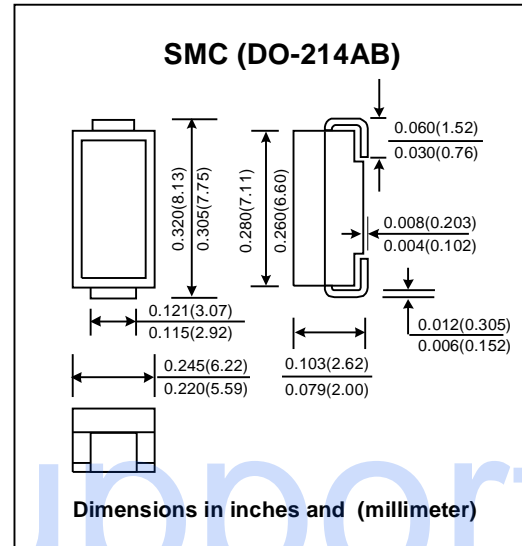
**Peak Pulse Power** : 1500 W

### FEATURES :

- \* 1500W peak pulse power capability with a 10/1000µs waveform
- \* Excellent clamping capability
- \* Very fast response time
- \* **Pb / RoHS Free**

### MECHANICAL DATA

- \* Case : SMC Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Lead Formed for Surface Mount
- \* Mounting position : Any
- \* Weight : 0.21 gram



### DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without "C"  
Electrical characteristics apply in both directions

### MAXIMUM RATINGS

Rating at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000ms waveform <sup>(1) (2)</sup>	PPPM	Minimum 1500	W
Peak Pulse Current on 10/1000µs waveform <sup>(1)</sup>	IPPM	See Next Table	A
Typical thermal resistance , Junction to ambient	RθJA	75	°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. 1
- (2) Mounted on 0.31x 0.31" (8.0 x 8.0mm) copper pads to each terminal.

## ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified

Type	Breakdown Voltage @ $I_T^{(1)}$			Working Peak Reverse Voltage $V_{WM}$ (V)	Maximum Reverse Leakage @ $V_{WM}$ $I_R$ ( $\mu$ A)	Maximum Peak Pulse Surge Current $I_{PPM}$ (A)	Maximum Clamping Voltage @ $I_{PPM}$ $V_C$ (V)
	$V_{BR}$ (V)		$I_T$ (mA)				
	Min.	Max.					
SMCJ5.0C	6.40	7.82	10	5.0	2000	156.3	9.6
SMCJ5.0CA	6.40	7.25	10	5.0	2000	163.0	9.2
SMCJ6.0C	6.67	8.15	10	6.0	2000	131.6	11.4
SMCJ6.0CA	6.67	7.37	10	6.0	2000	145.6	10.3
SMCJ6.5C	7.22	8.82	10	6.5	1000	122.0	12.3
SMCJ6.5CA	7.22	7.98	10	6.5	1000	133.9	11.2
SMCJ7.0C	7.78	9.51	10	7.0	400	112.8	13.3
SMCJ7.0CA	7.78	8.6	10	7.0	400	125.0	12.0
SMCJ7.5C	8.33	10.2	1.0	7.5	200	104.9	14.3
SMCJ7.5CA	8.33	9.21	1.0	7.5	200	116.3	12.9
SMCJ8.0C	8.89	10.9	1.0	8.0	100	100.0	15.0
SMCJ8.0CA	8.89	9.83	1.0	8.0	100	110.3	13.6
SMCJ8.5C	9.44	11.5	1.0	8.5	40	94.3	15.9
SMCJ8.5CA	9.44	10.4	1.0	8.5	40	104.2	14.4
SMCJ9.0C	10.0	12.2	1.0	9.0	20	88.8	16.9
SMCJ9.0CA	10.0	11.1	1.0	9.0	20	97.4	15.4
SMCJ10C	11.1	13.6	1.0	10	10	79.8	18.8
SMCJ10CA	11.1	12.3	1.0	10	10	88.2	17.0
SMCJ11C	12.2	14.9	1.0	11	10	74.6	20.1
SMCJ11CA	12.2	13.5	1.0	11	10	82.4	18.2
SMCJ12C	13.3	16.3	1.0	12	10	68.2	22.0
SMCJ12CA	13.3	14.7	1.0	12	10	75.4	19.9
SMCJ13C	14.4	17.6	1.0	13	1.0	63.0	23.8
SMCJ13CA	14.4	15.9	1.0	13	1.0	69.8	21.5
SMCJ14C	15.6	19.1	1.0	14	1.0	58.1	25.8
SMCJ14CA	15.6	17.2	1.0	14	1.0	64.7	23.2
SMCJ15C	16.7	20.4	1.0	15	1.0	55.8	26.9
SMCJ15CA	16.7	18.5	1.0	15	1.0	61.5	24.4
SMCJ16C	17.8	21.8	1.0	16	1.0	52.1	28.8
SMCJ16CA	17.8	19.7	1.0	16	1.0	57.7	26.0
SMCJ17C	18.9	23.1	1.0	17	1.0	49.2	30.5
SMCJ17CA	18.9	20.9	1.0	17	1.0	54.3	27.6
SMCJ18C	20.0	24.4	1.0	18	1.0	46.6	32.2
SMCJ18CA	20.0	22.1	1.0	18	1.0	51.4	29.2
SMCJ20C	22.2	27.1	1.0	20	1.0	41.9	35.8
SMCJ20CA	22.2	24.5	1.0	20	1.0	46.3	32.4
SMCJ22C	24.4	29.8	1.0	22	1.0	38.1	39.4
SMCJ22CA	24.4	26.9	1.0	22	1.0	42.3	35.5
SMCJ24C	26.7	32.6	1.0	24	1.0	34.9	43.0
SMCJ24CA	26.7	29.5	1.0	24	1.0	38.6	38.9
SMCJ26C	28.9	35.3	1.0	26	1.0	32.2	46.6
SMCJ26CA	28.9	31.9	1.0	26	1.0	35.6	42.1
SMCJ28C	31.1	38.0	1.0	28	1.0	30.0	50.0
SMCJ28CA	31.1	34.4	1.0	28	1.0	33.0	45.4
SMCJ30C	33.3	40.7	1.0	30	1.0	28.0	53.5
SMCJ30CA	33.3	36.8	1.0	30	1.0	31.0	48.4
SMCJ33C	36.7	44.9	1.0	33	1.0	25.4	59.0
SMCJ33CA	36.7	40.6	1.0	33	1.0	28.1	53.3

## ELECTRICAL CHARACTERISTICS

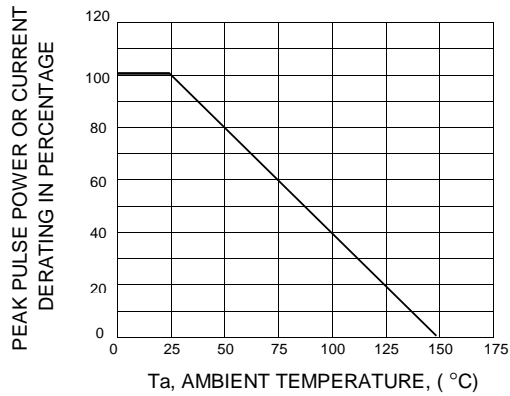
Rating at 25°C ambient temperature unless otherwise specified

Type	Breakdown Voltage @ $I_T^{(1)}$			Working Peak Reverse Voltage $V_{WM}$ (V)	Maximum Reverse Leakage @ $V_{WM}$ $I_R$ ( $\mu$ A)	Maximum Peak Pulse Surge Current $I_{PPM}$ (A)	Maximum Clamping Voltage @ $I_{PPM}$ $V_C$ (V)
	$V_{BR}$ (V)		$I_T$ (mA)				
	Min.	Max.					
SMCJ36C	40.0	48.9	1.0	36	1.0	23.3	64.3
SMCJ36CA	40.0	44.2	1.0	36	1.0	25.8	58.1
SMCJ40C	44.4	54.3	1.0	40	1.0	21.0	71.4
SMCJ40CA	44.4	49.1	1.0	40	1.0	23.3	64.5
SMCJ43C	47.8	58.4	1.0	43	1.0	19.6	76.7
SMCJ43CA	47.8	52.8	1.0	43	1.0	21.6	69.4
SMCJ45C	50.0	61.1	1.0	45	1.0	18.7	80.3
SMCJ45CA	50.0	55.3	1.0	45	1.0	20.6	72.7
SMCJ48C	53.3	65.1	1.0	48	1.0	17.5	85.5
SMCJ48CA	53.3	58.9	1.0	48	1.0	19.4	77.4
SMCJ51C	56.7	69.3	1.0	51	1.0	16.5	91.1
SMCJ51CA	56.7	62.7	1.0	51	1.0	18.2	82.4
SMCJ54C	60.0	73.3	1.0	54	1.0	15.6	96.3
SMCJ54CA	60.0	66.3	1.0	54	1.0	17.2	87.1
SMCJ58C	64.4	78.7	1.0	58	1.0	14.6	103
SMCJ58CA	64.4	71.2	1.0	58	1.0	16.0	93.6
SMCJ60C	66.7	81.5	1.0	60	1.0	14.0	107
SMCJ60CA	66.7	73.7	1.0	60	1.0	15.5	96
SMCJ64C	71.1	86.4	1.0	64	1.0	13.2	114
SMCJ64CA	71.1	78.6	1.0	64	1.0	14.6	103
SMCJ70C	77.8	95.1	1.0	70	1.0	12.0	125
SMCJ70CA	77.8	86	1.0	70	1.0	13.3	113
SMCJ75C	83.3	102	1.0	75	1.0	11.2	134
SMCJ75CA	83.3	92.1	1.0	75	1.0	12.4	121
SMCJ78C	86.7	106	1.0	78	1.0	10.8	139
SMCJ78CA	86.7	95.8	1.0	78	1.0	11.9	126
SMCJ85C	94.4	115	1.0	85	1.0	9.9	151
SMCJ85CA	94.4	104	1.0	85	1.0	10.9	137
SMCJ90C	100	122	1.0	90	1.0	9.4	160
SMCJ90CA	100	111	1.0	90	1.0	10.3	146
SMCJ100C	111	136	1.0	100	1.0	8.4	179
SMCJ100CA	111	123	1.0	100	1.0	9.3	162
SMCJ110C	122	149	1.0	110	1.0	7.7	196
SMCJ110CA	122	135	1.0	110	1.0	8.5	177
SMCJ120C	133	163	1.0	120	1.0	7.0	214
SMCJ120CA	133	147	1.0	120	1.0	7.8	193
SMCJ130C	144	176	1.0	130	1.0	6.5	231
SMCJ130CA	144	159	1.0	130	1.0	7.2	209
SMCJ150C	167	204	1.0	150	1.0	5.6	268
SMCJ150CA	167	185	1.0	150	1.0	6.2	243
SMCJ160C	178	218	1.0	160	1.0	5.2	287
SMCJ160CA	178	197	1.0	160	1.0	5.8	259
SMCJ170C	189	231	1.0	170	1.0	4.90	304
SMCJ170CA	189	209	1.0	170	1.0	5.50	275
SMCJ188C	209	255	1.0	188	1.0	4.40	344
SMCJ188CA	209	231	1.0	188	1.0	4.60	328

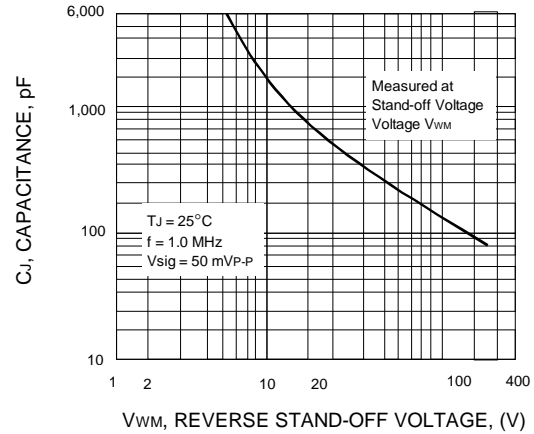
Note: (1) Pulse test :  $t_p \leq 50\text{ms}$ .

## RATING AND CHARACTERISTIC CURVES ( SMCJ5.0C - SMCJ188CA )

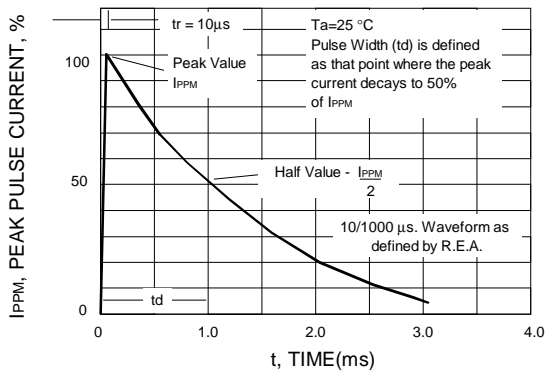
**FIG.1 - PULSE DERATING CURVE**



**FIG.2 - TYPICAL JUNCTION CAPACITANCE**



**FIG.3 - PULSE WAVEFORM**



**FIG.4 - PEAK PULSE POWER RATING CURVE**

