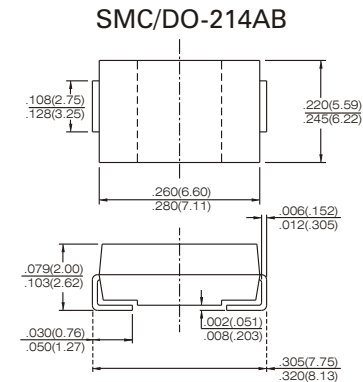


# SMCJ Series

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

PEAK PULSE POWER **1500 WATTS**  
 REVERSE VOLTAGE **6.8 to 520 Volts**



### FEATURES

- Glass passivated chip
- 1500W peak pulse power capability with a 10/1000 $\mu$ s waveform, repetitive rate (duty cycle) 0.01%
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time

### MECHANICAL DATA

Case : Molded plastic  
 Epoxy: UL 94V-0 rate flame retardant  
 Lead : Solderable per MIL-STD-750, method 2026  
 Polarity : Color band denotes cathode end except Bipolar  
 Mounting position: Any

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified  
 Single phase, half wave, 60 Hz, resistive or inductive load.  
 For capacitive load, derate current by 20%

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 $\mu$ s waveform	$P_{PP}$	Minimum 1500	Watts
Peak pulse current with a 10/1000 $\mu$ s waveform	$I_{PP}$	See Next Table	Amps.
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	$P_D$	6.5	Watts
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(1)</sup>	$I_{FSM}$	200	Amps.
Maximum instantaneous forward voltage at 100 A for unidirectional only <sup>(2)</sup>	$V_F$	3.5/5.0	Volts
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	°C

**Note:**

- (1) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.  
 (2)  $V_F = 3.5V$  on SMCJ5.0 thru SMCJ90A devices and  $V_F = 5.0V$  on SMCJ100 thru SMCJ440A devices.

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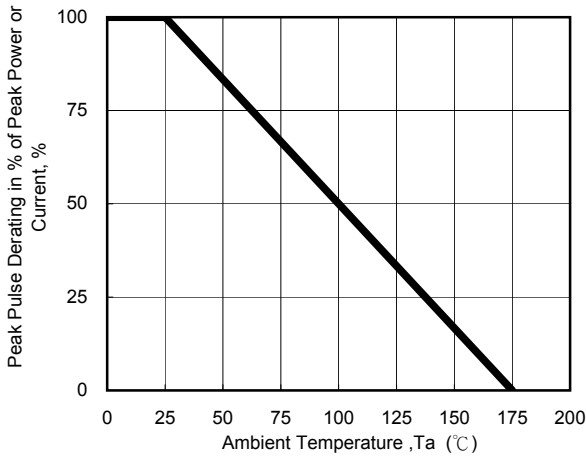


Fig. 1 - Pulse Derating Curve

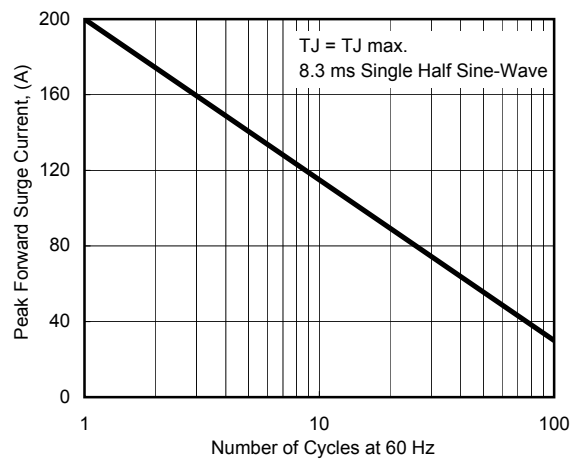


Fig. 2 - Maximum Non-Repetitive Surge Current

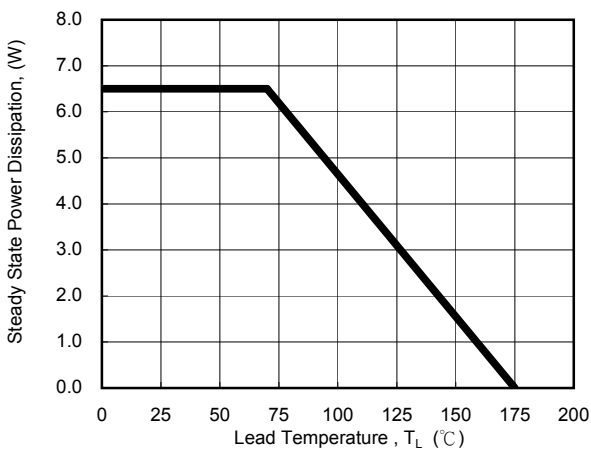


Fig. 3 - Steady State Power Derating Curve

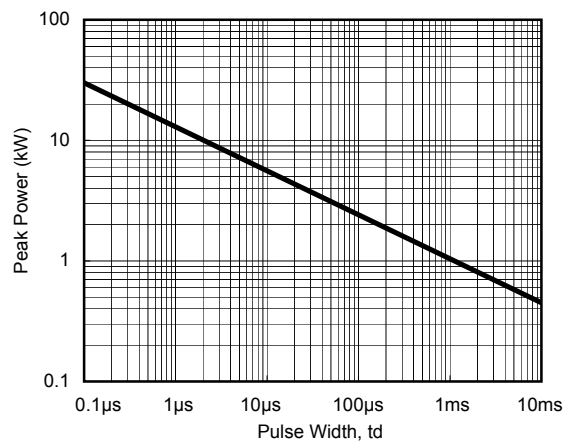


Fig. 4 - Peak Pulse Power Rating Curve

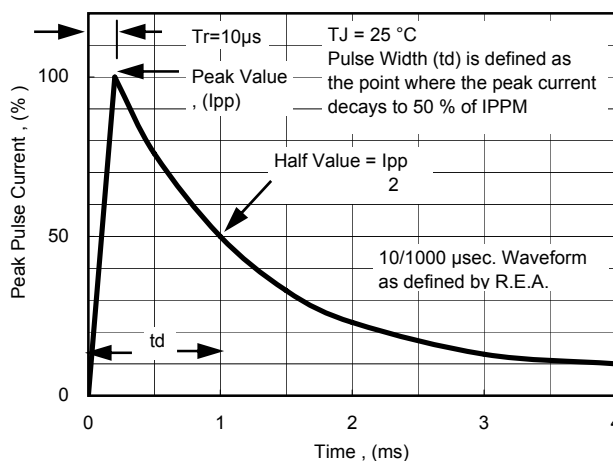


Fig. 5 - Pulse Waveform

# SMCJ Series

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

TECHNOLOGIES SMCJ SERIES		Device Marking Code		Breakdown voltage VBR @ IT			Maximum Reverse Leakage IR(μA) @VRWM	Working Peak Reverse Voltage VRWM (Volts)	Maximum Reverse Surge Current Ipp(A) @10x1000us sinewave	Maximum Clamping Voltage Vc (Volts) @Ipp
Uni-polar	Bi-polar	Uni	Bi	Min (V)	Max (V)	IT (mA)				
SMCJ5.0	SMCJ5.0C	GDD	BDD	6.40	7.30	10	1000	5.0	156	9.6
SMCJ5.0A	SMCJ5.0CA	GDE	BDE	6.40	7.00	10	1000	5.0	163	9.2
SMCJ6.0	SMCJ6.0C	GDF	BDF	6.67	8.15	10	1000	6.0	132	11.4
SMCJ6.0A	SMCJ6.0CA	GDG	BDG	6.67	7.37	10	1000	6.0	146	10.3
SMCJ6.5	SMCJ6.5C	GDH	BDH	7.22	8.82	10	500	6.5	122	12.3
SMCJ6.5A	SMCJ6.5CA	GDK	BDK	7.22	7.98	10	500	6.5	134	11.2
SMCJ7.0	SMCJ7.0C	GDL	BDL	7.78	9.51	10	200	7.0	113	13.3
SMCJ7.0A	SMCJ7.0CA	GDM	BDM	7.78	8.60	10	200	7.0	125	12.0
SMCJ7.5	SMCJ7.5C	GDN	BDN	8.33	10.2	1	100	7.5	105	14.3
SMCJ7.5A	SMCJ7.5CA	GDP	BDP	8.33	9.21	1	100	7.5	116	12.9
SMCJ8.0	SMCJ8.0C	GDQ	BDQ	8.89	10.9	1	50	8.0	100	15.0
SMCJ8.0A	SMCJ8.0CA	GDR	BDR	8.89	9.83	1	50	8.0	110	13.6
SMCJ8.5	SMCJ8.5C	GDS	BDS	9.44	11.5	1	20	8.5	94.3	15.9
SMCJ8.5A	SMCJ8.5CA	GDT	BDT	9.44	10.4	1	20	8.5	104	14.4
SMCJ9.0	SMCJ9.0C	GDU	BDU	10.0	12.2	1	10	9.0	88.8	16.9
SMCJ9.0A	SMCJ9.0CA	GDV	BDV	10.0	11.1	1	10	9.0	97.4	15.4
SMCJ10	SMCJ10C	GDW	BDW	11.1	13.6	1	5.0	10	79.8	18.8
SMCJ10A	SMCJ10CA	GDX	BDX	11.1	12.3	1	5.0	10	88.2	17.0
SMCJ11	SMCJ11C	GDY	BDY	12.2	14.9	1	5.0	11	74.6	20.1
SMCJ11A	SMCJ11CA	GDZ	BDZ	12.2	13.5	1	5.0	11	82.4	18.2
SMCJ12	SMCJ12C	GED	BED	13.3	16.3	1	5.0	12	68.2	22.0
SMCJ12A	SMCJ12CA	GEE	BEE	13.3	14.7	1	5.0	12	75.4	19.9
SMCJ13	SMCJ13C	GEF	BEF	14.4	17.6	1	5.0	13	63.0	23.8
SMCJ13A	SMCJ13CA	GEG	BEG	14.4	15.9	1	5.0	13	69.8	21.5
SMCJ14	SMCJ14C	GEH	BEH	15.6	19.1	1	5.0	14	58.1	25.8
SMCJ14A	SMCJ14CA	GEK	BEK	15.6	17.2	1	5.0	14	64.7	23.2
SMCJ15	SMCJ15C	GEL	BEL	16.7	20.4	1	5.0	15	55.8	26.9
SMCJ15A	SMCJ15CA	GEM	BEM	16.7	18.5	1	5.0	15	61.5	24.4
SMCJ16	SMCJ16C	GEN	BEN	17.8	21.8	1	5.0	16	52.1	28.8
SMCJ16A	SMCJ16CA	GEP	BEP	17.8	19.7	1	5.0	16	57.7	26.0
SMCJ17	SMCJ17C	GEQ	BEQ	18.9	23.1	1	5.0	17	49.2	30.5
SMCJ17A	SMCJ17CA	GER	BER	18.9	20.9	1	5.0	17	54.3	27.6
SMCJ18	SMCJ18C	GES	BES	20.0	24.4	1	5.0	18	46.6	32.2
SMCJ18A	SMCJ18CA	GET	BET	20.0	22.1	1	5.0	18	51.4	29.2
SMCJ19	SMCJ19C	GEA	BEA	21.1	25.8	1	5.0	19	44.1	34.0
SMCJ19A	SMCJ19CA	GEB	BEB	21.1	23.3	1	5.0	19	48.7	30.8
SMCJ20	SMCJ20C	GEU	BEU	22.2	27.1	1	5.0	20	41.9	35.8
SMCJ20A	SMCJ20CA	GEV	BEV	22.2	24.5	1	5.0	20	46.3	32.4
SMCJ22	SMCJ22C	GEW	BEW	24.4	29.8	1	5.0	22	38.1	39.4
SMCJ22A	SMCJ22CA	GEX	BEX	24.4	26.9	1	5.0	22	42.3	35.5
SMCJ24	SMCJ24C	GEY	BEY	26.7	32.6	1	5.0	24	34.9	43.0
SMCJ24A	SMCJ24CA	GEZ	BEZ	26.7	29.5	1	5.0	24	38.6	38.9
SMCJ26	SMCJ26C	GFD	bfd	28.9	35.3	1	5.0	26	32.2	46.6
SMCJ26A	SMCJ26CA	GFE	BFE	28.9	31.9	1	5.0	26	35.6	42.1
SMCJ28	SMCJ28C	GFF	BFF	31.1	38.0	1	5.0	28	30.0	50.0
SMCJ28A	SMCJ28CA	GFG	BFG	31.1	34.4	1	5.0	28	33.0	45.4
SMCJ30	SMCJ30C	GFH	BFH	33.3	40.7	1	5.0	30	28.0	53.5
SMCJ30A	SMCJ30CA	GFK	BFK	33.3	36.8	1	5.0	30	31.0	48.4
SMCJ33	SMCJ33C	GFL	BFL	36.7	44.9	1	5.0	33	25.4	59.0
SMCJ33A	SMCJ33CA	GFM	BFM	36.7	40.6	1	5.0	33	28.1	53.3
SMCJ36	SMCJ36C	GFN	BFN	40.0	48.9	1	5.0	36	23.3	64.3
SMCJ36A	SMCJ36CA	GFP	BFP	40.0	44.2	1	5.0	36	25.8	58.1
SMCJ40	SMCJ40C	GFQ	BFQ	44.4	54.3	1	5.0	40	21.0	71.4
SMCJ40A	SMCJ40CA	GFR	BFR	44.4	49.1	1	5.0	40	23.3	64.5

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Uni-polar	Bi-polar	Uni	Bi	Min (V)	Max (V)	IT (mA)				
SMCJ43	SMCJ43C	GFS	BFS	47.8	58.4	1	5.0	43	19.6	76.7
SMCJ43A	SMCJ43CA	GFT	BFT	47.8	52.8	1	5.0	43	21.6	69.4
SMCJ45	SMCJ45C	GFU	BFU	50.0	61.1	1	5.0	45	18.7	80.3
SMCJ45A	SMCJ45CA	GFV	BFV	50.0	55.3	1	5.0	45	20.6	72.7
SMCJ48	SMCJ48C	GFW	BFW	53.3	65.1	1	5.0	48	17.5	85.5
SMCJ48A	SMCJ48CA	GFX	BFX	53.3	58.9	1	5.0	48	19.4	77.4
SMCJ51	SMCJ51C	GFY	BFY	56.7	69.3	1	5.0	51	16.5	91.1
SMCJ51A	SMCJ51CA	GFZ	BFZ	56.7	62.7	1	5.0	51	18.2	82.4
SMCJ54	SMCJ54C	GGD	BGD	60.0	73.3	1	5.0	54	15.6	96.3
SMCJ54A	SMCJ54CA	GGE	BGE	60.0	66.3	1	5.0	54	17.2	87.1
SMCJ58	SMCJ58C	GGF	BGF	64.4	78.7	1	5.0	58	14.6	103
SMCJ58A	SMCJ58CA	GGG	BGG	64.4	71.2	1	5.0	58	16.0	93.6
SMCJ60	SMCJ60C	GGH	BGH	66.7	81.5	1	5.0	60	14.0	107
SMCJ60A	SMCJ60CA	GGK	BGK	66.7	73.7	1	5.0	60	15.5	96.8
SMCJ64	SMCJ64C	GGL	BGL	71.1	86.9	1	5.0	64	13.2	114
SMCJ64A	SMCJ64CA	GGM	BGM	71.1	78.6	1	5.0	64	14.6	103
SMCJ70	SMCJ70C	GGN	BGN	77.8	95.1	1	5.0	70	12.0	125
SMCJ70A	SMCJ70CA	GGP	BGP	77.8	86.0	1	5.0	70	13.3	113
SMCJ75	SMCJ75C	GGQ	BGQ	83.3	102	1	5.0	75	11.2	134
SMCJ75A	SMCJ75CA	GGR	BGR	83.3	92.1	1	5.0	75	12.4	121
SMCJ78	SMCJ78C	GGS	BGS	86.7	106	1	5.0	78	10.8	139
SMCJ78A	SMCJ78CA	GGT	BGT	86.7	95.8	1	5.0	78	11.9	126
SMCJ80	SMCJ80C	GGA	BGA	89.0	109	1	5.0	80	10.5	143
SMCJ80A	SMCJ80CA	GGB	BGB	88.8	97.6	1	5.0	80	11.6	130
SMCJ85	SMCJ85C	GGU	BGU	94.4	115	1	5.0	85	9.93	151
SMCJ85A	SMCJ85CA	GGV	BGV	94.4	104	1	5.0	85	10.9	137
SMCJ90	SMCJ90C	GGW	BGW	100	122	1	5.0	90	9.38	160
SMCJ90A	SMCJ90CA	GGX	BGX	100	111	1	5.0	90	10.3	146
SMCJ100	SMCJ100C	GGY	BGY	111	136	1	5.0	100	8.38	179
SMCJ100A	SMCJ100CA	GGZ	BGZ	111	123	1	5.0	100	9.26	162
SMCJ110	SMCJ110C	GHD	BHD	122	149	1	5.0	110	7.65	196
SMCJ110A	SMCJ110CA	GHE	BHE	122	135	1	5.0	110	8.47	177
SMCJ120	SMCJ120C	GHF	BHF	133	163	1	5.0	120	7.01	214
SMCJ120A	SMCJ120CA	GHG	BHG	133	147	1	5.0	120	7.77	193
SMCJ130	SMCJ130C	GHH	BHH	144	176	1	5.0	130	6.49	231
SMCJ130A	SMCJ130CA	GHK	BHK	144	159	1	5.0	130	7.18	209
SMCJ140	SMCJ140C	GHA	BHA	156	190	1	5.0	140	5.99	251
SMCJ140A	SMCJ140CA	GHB	BHB	155	171	1	5.0	140	6.61	227
SMCJ150	SMCJ150C	GHL	BHL	167	204	1	5.0	150	5.60	268
SMCJ150A	SMCJ150CA	GHM	BHM	167	185	1	5.0	150	6.17	243
SMCJ160	SMCJ160C	GHN	BHN	178	218	1	5.0	160	5.23	287
SMCJ160A	SMCJ160CA	GHP	BHP	178	197	1	5.0	160	5.79	259
SMCJ170	SMCJ170C	GHQ	BHQ	189	231	1	5.0	170	4.93	304
SMCJ170A	SMCJ170CA	GHR	BHR	189	209	1	5.0	170	5.45	275
SMCJ180	SMCJ180C	GHS	BHS	200	245	1	5.0	180	4.66	322
SMCJ180A	SMCJ180CA	GHT	BHT	200	220	1	5.0	180	5.14	292
SMCJ190	SMCJ190C	GHU	BHU	211	258	1	5.0	190	4.41	340
SMCJ190A	SMCJ190CA	GHV	BHV	211	232	1	5.0	190	4.87	308
SMCJ200A	SMCJ200CA	GHW	BHW	224	247	1	5	200	4.63	324
SMCJ220A	SMCJ220CA	GHX	BHX	246	272	1	5	220	4.21	356
SMCJ250A	SMCJ250CA	GHZ	BHZ	279	309	1	5	250	3.70	405
SMCJ300A	SMCJ300CA	GJE	BJE	335	371	1	5	300	3.09	486
SMCJ350A	SMCJ350CA	GJG	BJG	391	432	1	5	350	2.65	567
SMCJ400A	SMCJ400CA	GJK	BJK	447	494	1	5	400	2.31	648

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Uni-polar	Bi-polar	Uni	Bi	Min (V)	Max (V)	IT (mA)				
SMCJ440A	SMCJ440CA	GJM	BJM	492	543	1	5	440	2.10	713

**Note:**

1. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device.
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having VR of 10 volts and under, the IR limit is double .