



## 3.0SMCJ SERIES

### Surface Mount Transient Voltage Suppressor



Voltage Range  
5.0 to 170 Volts  
3000 Watts Peak Power

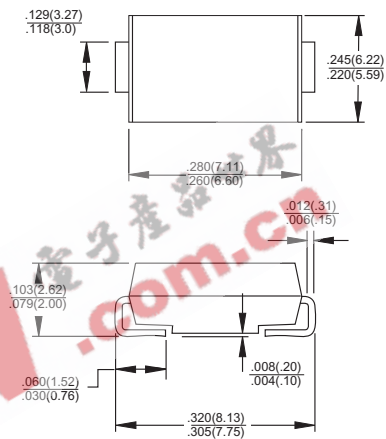
#### Features

- ✧ For surface mounted application
- ✧ Low profile package
- ✧ Built-in strain relief
- ✧ Glass passivated junction
- ✧ Excellent clamping capability
- ✧ Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- ✧ Typical  $I_R$  less than  $1 \mu A$  above 10V
- ✧ High temperature soldering guaranteed:  
260°C / 10 seconds at terminals
- ✧ Plastic material used carries Underwriters Laboratory  
Flammability Classification 94V-0
- ✧ 3000 watts peak pulse power capability with a 10 X 1000 us  
waveform by 0.01% duty cycle

#### Mechanical Data

- ✧ Case: Molded plastic
- ✧ Terminals: Solder plated
- ✧ Polarity: Indicated by cathode band
- ✧ Standard packaging: 16mm tape (EIA STD RS-481)
- ✧ Weight: 0.21gram

#### SMC/DO-214AB



#### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Type Number	Symbol	Value	Units
Peak Power Dissipation at $T_A=25^\circ C$ , $T_p=1ms$ (Note 1)	$P_{PK}$	Minimum 3000	Watts
Steady State Power Dissipation	$P_d$	5	Watts
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 2, 3) - Unidirectional Only	$I_{FSM}$	200	Amps
Maximum Instantaneous Forward Voltage at 100.0A for Unidirectional Only (Note 4)	$V_F$	3.5 / 5.0	Volts
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	$^\circ C$

Notes: 1. Non-repetitive Current Pulse Per Fig. 3 and Derated above  $T_A=25^\circ C$  Per Fig. 2.

2. Mounted on  $8.0mm^2$  (.013mm Thick) Copper Pads to Each Terminal.

3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minute Maximum.

4.  $V_F=3.5V$  on 3.0SMCJ5.0 thru 3.0SMCJ90 Devices and  $V_F=5.0V$  on 3.0SMCJ100 thru 3.0SMCJ170 Devices.

Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types 3.0SMCJ5.0 through Types 3.0SMCJ170.

2. Electrical Characteristics Apply in Both Directions.



## RATINGS AND CHARACTERISTIC CURVES (3.0SMCJ SERIES)

FIG.1- PEAK PULSE POWER RATING CURVE

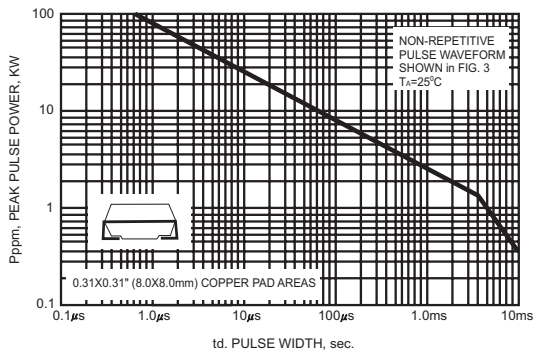


FIG.2- PULSE DERATING CURVE

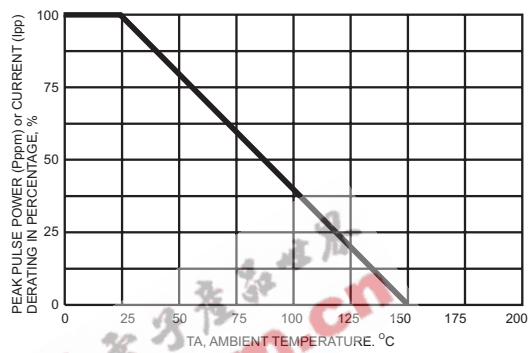


FIG.3- PULSE WAVEFORM

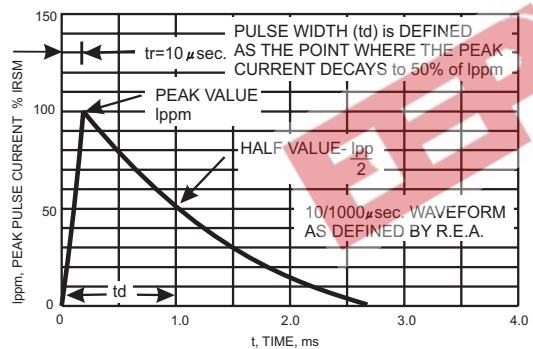


FIG.4- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

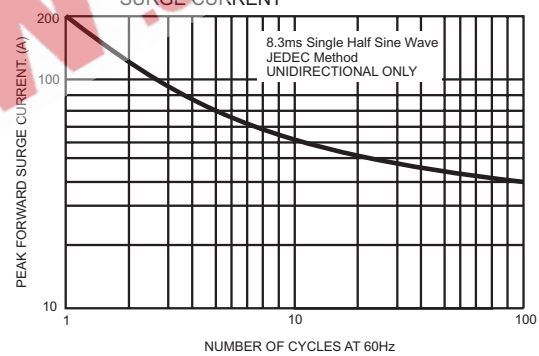


FIG.5- TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL

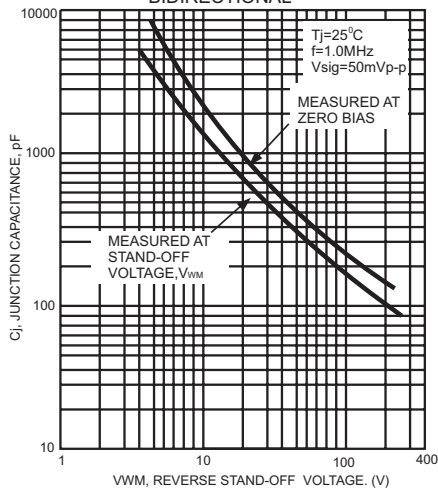
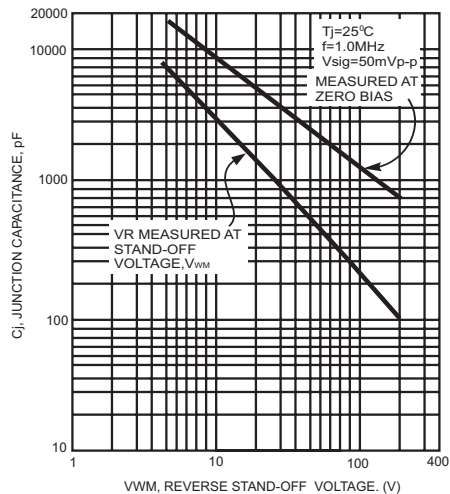


FIG.6- TYPICAL JUNCTION CAPACITANCE



ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Device Type Modified "J" Bend Lead	Device Marking Code	Breakdown Voltage V(BR) (Volts) (Note 1) (MIN / MAX)	Test Current at Ir(mA)	Stand-off voltage Vwm(Volts)	Maximum Reverse Leakage at Vwm (Note 3) I <sub>b</sub> (uA)	Maximum Peak Pulse Surge Current I <sub>PPM</sub> (Note 2) (Amps)	Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>c</sub> (Volts)
3.0SMCJ5.0	HDD	6.40 / 7.3	10	5.0	1000	312.5	9.6
3.0SMCJ5.0A	HDE	6.40 / 7.0	10	5.0	1000	326.0	9.2
3.0SMCJ6.0	HDF	6.67 / 8.15	10	6.0	1000	263.2	11.4
3.0SMCJ6.0A	HDG	6.67 / 7.37	10	6.0	1000	291.3	10.3
3.0SMCJ6.5	HDH	7.22 / 8.82	10	6.5	500	243.9	12.3
3.0SMCJ6.5A	HDK	7.22 / 7.98	10	6.5	500	267.9	11.2
3.0SMCJ7.0	HDL	7.78 / 9.51	10	7.0	200	225.6	13.3
3.0SMCJ7.0A	HDM	7.78 / 8.60	10	7.0	200	250.0	12.0
3.0SMCJ7.5	HDN	8.33 / 10.2	1.0	7.5	100	209.8	14.3
3.0SMCJ7.5A	HDP	8.33 / 9.21	1.0	7.5	100	232.6	12.9
3.0SMCJ8.0	HDQ	8.89 / 10.9	1.0	8.0	50	200.0	15.0
3.0SMCJ8.0A	HDR	8.89 / 9.83	1.0	8.0	50	220.6	13.6
3.0SMCJ8.5	HDS	9.44 / 11.5	1.0	8.5	25	188.6	15.9
3.0SMCJ8.5A	HDT	9.44 / 10.4	1.0	8.5	25	208.4	14.4
3.0SMCJ9.0	HDU	10.0 / 12.2	1.0	9.0	10	177.4	16.9
3.0SMCJ9.0A	HDV	10.0 / 11.1	1.0	9.0	10	194.8	15.4
3.0SMCJ10	HDW	11.1 / 13.6	1.0	10	5.0	159.6	18.8
3.0SMCJ10A	HDX	11.1 / 12.3	1.0	10	5.0	176.4	17.0
3.0SMCJ11	HDY	12.2 / 14.9	1.0	11	5.0	149.2	20.1
3.0SMCJ11A	HDZ	12.2 / 13.5	1.0	11	5.0	164.8	18.2
3.0SMCJ12	HED	13.3 / 16.3	1.0	12	5.0	136.4	22.0
3.0SMCJ12A	HEE	13.3 / 14.7	1.0	12	5.0	150.6	19.9
3.0SMCJ13	HEF	14.4 / 17.6	1.0	13	5.0	126.0	23.8
3.0SMCJ13A	HEG	14.4 / 15.9	1.0	13	5.0	139.4	21.5
3.0SMCJ14	HEH	15.6 / 19.1	1.0	14	2.0	116.2	25.8
3.0SMCJ14A	HEK	15.6 / 17.2	1.0	14	2.0	129.4	23.2
3.0SMCJ15	HEL	16.7 / 20.4	1.0	15	2.0	111.6	26.9
3.0SMCJ15A	HEM	16.7 / 18.5	1.0	15	2.0	123.0	24.4
3.0SMCJ16	HEN	17.8 / 21.8	1.0	16	2.0	104.2	28.8
3.0SMCJ16A	HEP	17.8 / 19.7	1.0	16	2.0	115.4	26.0
3.0SMCJ17	HEQ	18.9 / 23.1	1.0	17	2.0	98.4	30.5
3.0SMCJ17A	HER	18.9 / 20.9	1.0	17	2.0	106.6	27.6
3.0SMCJ18	HES	20.0 / 24.4	1.0	18	2.0	93.2	32.2
3.0SMCJ18A	HET	20.0 / 22.1	1.0	18	2.0	102.8	29.2
3.0SMCJ20	HEU	22.2 / 27.1	1.0	20	2.0	83.8	35.8
3.0SMCJ20A	HEV	22.2 / 24.5	1.0	20	2.0	92.6	32.4
3.0SMCJ22	HEW	24.4 / 29.8	1.0	22	2.0	74.2	39.4
3.0SMCJ22A	HEX	24.4 / 26.9	1.0	22	2.0	84.4	35.5
3.0SMCJ24	HEY	26.7 / 32.6	1.0	24	2.0	69.8	43.0
3.0SMCJ24A	HEZ	26.7 / 29.5	1.0	24	2.0	77.2	38.9
3.0SMCJ26	HFD	28.9 / 35.3	1.0	26	2.0	64.4	46.6
3.0SMCJ26A	HFE	28.9 / 31.9	1.0	26	2.0	71.2	42.1
3.0SMCJ28	HFF	31.1 / 38.0	1.0	28	2.0	60.0	50.0
3.0SMCJ28A	HFG	31.1 / 34.4	1.0	28	2.0	66.0	45.4
3.0SMCJ30	HFH	33.3 / 40.7	1.0	30	2.0	56.0	53.5
3.0SMCJ30A	HFK	33.3 / 36.8	1.0	30	2.0	62.0	48.4
3.0SMCJ33	HFL	36.7 / 44.9	1.0	33	2.0	50.4	59.0
3.0SMCJ33A	HFM	36.7 / 40.6	1.0	33	2.0	56.2	53.3
3.0SMCJ36	HFN	40.0 / 48.9	1.0	36	2.0	46.6	64.3
3.0SMCJ36A	HFP	40.0 / 44.2	1.0	36	2.0	51.6	58.1
3.0SMCJ40	HFQ	44.4 / 54.3	1.0	40	2.0	42.0	71.4
3.0SMCJ40A	HFR	44.4 / 49.1	1.0	40	2.0	46.4	64.5
3.0SMCJ43	HFS	47.8 / 58.4	1.0	43	2.0	39.2	76.7
3.0SMCJ43A	HFT	47.8 / 52.8	1.0	43	2.0	43.2	69.4

ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Device Type Modified "J" Bend Lead	Device Marking Code	Breakdown Voltage V <sub>(BR)</sub> (Volts) (Note 1) (MIN / MAX)	Test Current at I <sub>T</sub> (mA)	Stand-off voltage V <sub>WM</sub> (Volts)	Maximum Reverse Leakage at V <sub>WM</sub> (Note 3) I <sub>B</sub> (uA)	Maximum Peak Pulse Surge Current I <sub>PPM</sub> (Note 2) (Amps)	Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>C</sub> (Volts)
3.0SMCJ45	HFU	50.0 / 61.1	1.0	45	2.0	37.4	80.3
3.0SMCJ45A	HFV	50.0 / 55.3	1.0	45	2.0	41.2	72.7
3.0SMCJ48	HFV	53.3 / 65.1	1.0	48	2.0	35.0	85.5
3.0SMCJ48A	HFX	53.3 / 58.9	1.0	48	2.0	38.8	77.4
3.0SMCJ51	HFY	56.7 / 69.3	1.0	51	2.0	37.0	91.1
3.0SMCJ51A	HFZ	56.7 / 62.7	1.0	51	2.0	36.4	82.4
3.0SMCJ54	HGD	60.0 / 73.3	1.0	54	2.0	31.2	96.3
3.0SMCJ54A	HGE	60.0 / 66.3	1.0	54	2.0	34.4	87.1
3.0SMCJ58	HGF	64.4 / 78.7	1.0	58	2.0	39.2	103
3.0SMCJ58A	HGG	64.4 / 71.2	1.0	58	2.0	32.0	93.6
3.0SMCJ60	HGH	66.7 / 81.5	1.0	60	2.0	28.0	107
3.0SMCJ60A	HGK	66.7 / 73.7	1.0	60	2.0	31.0	96.8
3.0SMCJ64	HGL	71.1 / 86.9	1.0	64	2.0	26.4	114
3.0SMCJ64A	HGM	71.1 / 78.6	1.0	64	2.0	29.2	103
3.0SMCJ70	HGN	77.8 / 95.1	1.0	70	2.0	24.0	125
3.0SMCJ70A	HGP	77.8 / 86.0	1.0	70	2.0	26.6	113
3.0SMCJ75	HGQ	83.3 / 102	1.0	75	2.0	22.4	134
3.0SMCJ75A	HGR	83.3 / 92.1	1.0	75	2.0	24.8	121
3.0SMCJ78	HGS	86.7 / 106	1.0	78	2.0	21.6	139
3.0SMCJ78A	HGT	86.7 / 95.8	1.0	78	2.0	22.8	126
3.0SMCJ85	HGU	94.4 / 115	1.0	85	2.0	19.8	151
3.0SMCJ85A	HGV	94.4 / 104	1.0	85	2.0	20.8	137
3.0SMCJ90	HGW	100 / 122	1.0	90	2.0	18.8	160
3.0SMCJ90A	HGX	100 / 111	1.0	90	2.0	20.6	146
3.0SMCJ100	HGY	111 / 136	1.0	100	2.0	16.8	179
3.0SMCJ100A	HGZ	111 / 123	1.0	100	2.0	18.6	162
3.0SMCJ110	HHD	122 / 149	1.0	110	2.0	15.4	196
3.0SMCJ110A	HHE	122 / 135	1.0	110	2.0	16.8	177
3.0SMCJ120	HHF	133 / 163	1.0	120	2.0	14.0	214
3.0SMCJ120A	HHG	133 / 147	1.0	120	2.0	15.6	193
3.0SMCJ130	HHH	144 / 176	1.0	130	2.0	13.0	231
3.0SMCJ130A	HHK	144 / 159	1.0	130	2.0	14.4	209
3.0SMCJ150	HHL	167 / 204	1.0	150	2.0	11.2	268
3.0SMCJ150A	HHM	167 / 185	1.0	150	2.0	12.4	243
3.0SMCJ160	HHN	178 / 218	1.0	160	2.0	10.4	287
3.0SMCJ160A	HHP	178 / 197	1.0	160	2.0	11.6	259
3.0SMCJ170	HHQ	189 / 231	1.0	170	2.0	9.8	304
3.0SMCJ170A	HHR	189 / 209	1.0	170	2.0	11.0	275

Notes:

1. V<sub>(BR)</sub> measured after I<sub>T</sub> applied for 300us, I<sub>T</sub>=Square wave pulse or equivalent.
2. Surge current waveform per Fig. 3 and derate per Figure 2.
3. For bidirectional types having V<sub>WM</sub> of 10 Volts and less, the I<sub>B</sub> limit is doubled
4. all terms and symbols are consistent with ANSI/IEEE C62.35