

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

### SMCJ5.0 THRU SMCJ170CA

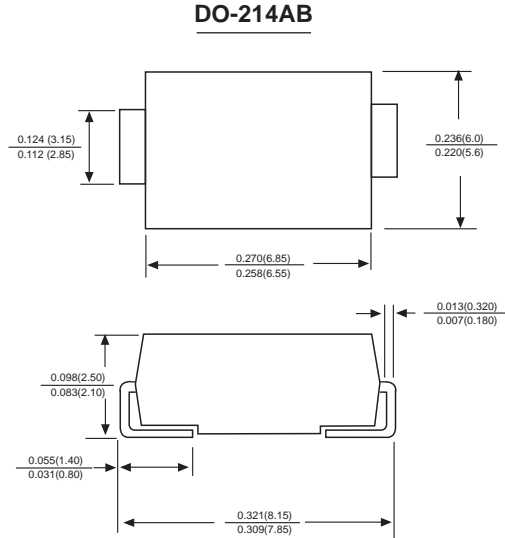
Breskdown voltage: 5.0-170 Volts  
Peak pulse power: 1500 Wallts

#### FEATURE

- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 1000-4-2(IEC801-2)
- Ideal for EFT protection of data lines in accordance with IEC1000-4-4(IEC801-2)
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- 1500w peak pulse power capability
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time: typically less than 1.0ps from 0v to  $V_{(BR)}$  min
- High temperature soldering guaranteed: 260°C/10S at terminals

#### MECHANICAL DATA

- Case : JEDEC DO-214AB molded plastic body over passivated chip
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Color band denotes cathode end
- Mounting Position : Any
- Weight :0.007 ounce, 0.25grams



Dimensions in inches and (millimeters)

#### DEVICES FOR BIDIRECTIONAL APPLICATIONS

- For bidirectional use suffix C or CA for types SMCJ5.0 thru SMCJ170 (e.g. SMCJ5.0C, SMCJ170CA)
- Electrical characteristics apply in both directions.

#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOLS	VALUE	UNITS
Peak pulse power dissipation with a 10/1000μs wavetorm(NOTE 1,2,FIG.1)	P <sub>PPM</sub>	Minimum 1500	Watts
Peak forward surge current (Note 1,2,3)	I <sub>FSM</sub>	100.0	Amps
Peak pulse current with a 10/1000μs waveform(NOTE 1)	I <sub>PPM</sub>	See Table 1	Amps
Steady state power dissipation (Note 3)	P <sub>PK</sub>	1500	Watts
Maximum instantaneous forward voltage at 50A(Note 3,4) unidirectional only	V <sub>F</sub>	3.5/5.0	Volts
Operating junction and storage temperature range	T <sub>STG</sub> , T <sub>J</sub>	-55 to + 150	°C

- Notes:**
1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2
  2. Mounted on 5.0mm<sup>2</sup> copper pads to each terminal
  3. Measured on 8.3ms single half sine-wave. For uni-directional devices only.
  4. V<sub>F</sub>=3.5V on SMC-5.0 thru SMC-90 devices and V<sub>F</sub>=5.0V on SMC-100 thru SMC-170 devices



## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

**SMCJ5.0 THRU SMCJ170CA**

Breakdown voltage: 5.0-170 Volts  
Peak pulse power: 1500 Watts

Device	Breakdown Voltage		Testing Current	Working Peak Reverse Voltage	Maximum Peak Pulse Reverse Current@V <sub>WM</sub>	Maximum Peak Pulse Reverse Current	Maximum Clamping Voltage @I <sub>ppm</sub>
	V <sub>(BR)</sub> (Note 1)						
	MIN	MAX	mA	V	uA	A	V
SMCJ5.0	6.40	7.81	10.0	5.0	1000	164.0	9.60
SMCJ5.0A	6.40	7.05	10.0	5.0	1000	171.0	9.20
SMCJ6.0	6.67	8.15	10.0	6.0	1000	138.0	11.4
SMCJ6.0A	6.67	7.37	10.0	6.0	1000	152.0	10.3
SMCJ6.5	7.22	8.82	10.0	6.5	500	128.0	12.3
SMCJ6.5A	7.22	7.98	10.0	6.5	500	140.0	11.2
SMCJ7.0	7.78	9.51	10.0	7.0	200	118.0	13.3
SMCJ7.0A	7.78	8.60	10.0	7.0	200	131.0	12.0
SMCJ7.5	8.33	10.3	1.0	7.5	100	110.0	14.3
SMCJ7.5A	8.33	9.21	1.0	7.5	100	122.0	12.9
SMCJ8.0	8.89	10.9	1.0	8.0	50	105.0	15.0
SMCJ8.0A	8.89	9.83	1.0	8.0	50	115.0	13.6
SMCJ8.5	9.44	11.5	1.0	8.5	20	99.0	15.9
SMCJ8.5A	9.44	10.4	1.0	8.5	20	109.0	14.4
SMCJ9.0	10.0	12.2	1.0	9.0	10	93.0	16.9
SMCJ9.0A	10.0	11.1	1.0	9.0	10	102.0	15.4
SMCJ10	11.1	13.6	1.0	10.0	5	83.0	18.8
SMCJ10A	11.1	12.3	1.0	10.0	5	92.0	17.0
SMCJ11	12.2	14.9	1.0	11.0	5	78.0	20.1
SMCJ11A	12.2	13.5	1.0	11.0	5	86.0	18.2
SMCJ12	13.3	16.3	1.0	12.0	5	71.0	22.0
SMCJ12A	13.3	14.7	1.0	12.0	5	79.0	19.9
SMCJ13	14.4	17.6	1.0	13.0	5	66.0	23.8
SMCJ13A	14.4	15.9	1.0	13.0	5	73.0	21.5
SMCJ14	15.6	19.1	1.0	14.0	5	61.0	25.8
SMCJ14A	15.6	17.2	1.0	14.0	5	67.0	23.2
SMCJ15	16.7	20.4	1.0	15.0	5	58.0	26.9
SMCJ15A	16.7	18.5	1.0	15.0	5	64.0	24.4
SMCJ16	17.8	21.8	1.0	16.0	5	54.0	28.8
SMCJ16A	17.8	19.7	1.0	16.0	5	60.0	26.0
SMCJ17	18.9	23.1	1.0	17.0	5	51.0	30.5
SMCJ17A	18.9	20.9	1.0	17.0	5	57.0	27.6
SMCJ18	20.0	24.4	1.0	18.0	5	48.0	32.2
SMCJ18A	20.0	22.1	1.0	18.0	5	53.0	29.2
SMCJ20	22.2	27.1	1.0	20.0	5	43.0	35.8
SMCJ20A	22.2	24.5	1.0	20.0	5	48.0	32.4
SMCJ22	24.4	29.8	1.0	22.0	5	39.0	39.4
SMCJ22A	24.4	26.9	1.0	22.0	5	44.0	35.5
SMCJ24	26.7	32.6	1.0	24.0	5	36.0	43.0
SMCJ24A	26.7	29.5	1.0	24.0	5	40.0	38.9
SMCJ26	28.9	35.3	1.0	26.0	5	33.0	46.6
SMCJ26A	28.9	31.9	1.0	26.0	5	37.0	42.1
SMCJ28	31.1	38.0	1.0	28.0	5	31.0	50.0
SMCJ28A	31.1	34.4	1.0	28.0	5	34.0	45.4
SMCJ30	33.3	40.7	1.0	30.0	5	29.0	53.5
SMCJ30A	33.3	36.8	1.0	30.0	5	32.0	48.4



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# SMCJ5.0 THRU SMCJ170CA

Breakdown voltage: 5.0-170 Volts  
Peak pulse power: 1500 Watts

Device	Breakdown Voltage		Testing Current	Working Peak Reverse Voltage	Maximum Peak Pulse Reverse Current @V <sub>WM</sub>	Maximum Peak Pulse Reverse Current	Maximum Clamping Voltage @I <sub>ppm</sub>
	V <sub>(BR)</sub> (Note 1)						
	V		mA	V	uA	A	V
	MIN	MAX					
SMCJ33	36.7	44.9	1.0	33.0	5	26.0	59.0
SMCJ33A	36.7	40.6	1.0	33.0	5	29.0	53.3
SMCJ36	40.0	48.9	1.0	36.0	5	24.0	64.3
SMCJ36A	40.0	44.2	1.0	36.0	5	27.0	58.1
SMCJ40	44.4	54.3	1.0	40.0	5	22.0	71.4
SMCJ40A	44.4	49.1	1.0	40.0	5	24.0	64.5
SMCJ43	47.8	58.4	1.0	43.0	5	20.0	76.7
SMCJ43A	47.8	52.8	1.0	43.0	5	22.0	69.4
SMCJ45	50.0	61.1	1.0	45.0	5	19.0	80.3
SMCJ45A	50.0	55.3	1.0	45.0	5	21.0	72.7
SMCJ48	53.3	65.1	1.0	48.0	5	18.0	85.5
SMCJ48A	53.3	58.9	1.0	48.0	5	20.0	77.4
SMCJ51	56.7	69.3	1.0	51.0	5	17.0	91.1
SMCJ51A	56.7	62.7	1.0	51.0	5	19.0	82.4
SMCJ54	60.0	73.3	1.0	54.0	5	16.0	96.3
SMCJ54A	60.0	66.3	1.0	54.0	5	18.0	87.1
SMCJ58	64.4	78.7	1.0	58.0	5	15.0	103
SMCJ58A	64.4	71.2	1.0	58.0	5	16.0	93.6
SMCJ60	66.7	81.5	1.0	60.0	5	14.0	107
SMCJ60A	66.7	73.7	1.0	60.0	5	16.0	96.8
SMCJ64	71.1	86.9	1.0	64.0	5	13.8	114
SMCJ64A	71.1	78.6	1.0	64.0	5	15.0	103
SMCJ70	77.8	95.1	1.0	70.0	5	12.6	125
SMCJ70A	77.8	86.0	1.0	70.0	5	13.9	113
SMCJ75	83.3	102	1.0	75.0	5	11.7	134
SMCJ75A	83.3	92.1	1.0	75.0	5	13.0	121
SMCJ78	86.7	106	1.0	78.0	5	11.3	139
SMCJ78A	86.7	95.8	1.0	78.0	5	12.5	126
SMCJ85	94.4	115	1.0	85.0	5	10.4	151
SMCJ85A	94.4	104	1.0	85.0	5	11.5	137
SMCJ90	100	122	1.0	90.0	5	9.8	160
SMCJ90A	100	111	1.0	90.0	5	10.7	146
SMCJ100	111	136	1.0	100	5	8.8	179
SMCJ100A	111	123	1.0	100	5	9.7	162
SMCJ110	122	149	1.0	110	5	8.0	196
SMCJ110A	122	135	1.0	110	5	8.9	177
SMCJ120	133	163	1.0	120	5	7.3	214
SMCJ120A	133	147	1.0	120	5	8.1	193
SMCJ130	144	176	1.0	130	5	6.8	231
SMCJ130A	144	159	1.0	130	5	7.5	209
SMCJ150	167	204	1.0	150	5	5.8	268
SMCJ150A	167	185	1.0	150	5	6.4	243
SMCJ160	178	218	1.0	160	5	5.4	287
SMCJ160A	178	197	1.0	160	5	6.0	259
SMCJ170	189	231	1.0	170	5	5.1	304
SMCJ170A	189	209	1.0	170	5	5.7	275

**NOTES:**

1. V<sub>(BR)</sub> measured after I<sub>T</sub> applied for 300μs, I<sub>T</sub>=square wave pulse or equivalent
2. For bidirectional types having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled
3. Surge current waveform per Fig.3 and derated per Fig.2
4. All items and symbols are consistent with ANSI/IEEE C62.35

FIG. 1 - PEAK PULSE POWER RATING CURVE

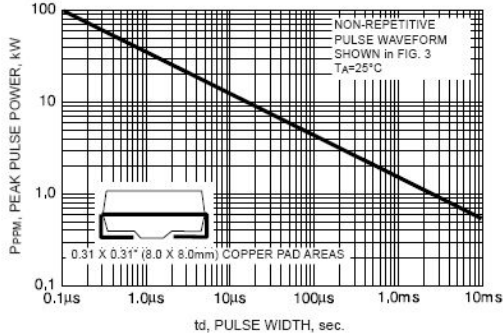


FIG. 2 - PULSE DERATING CURVE

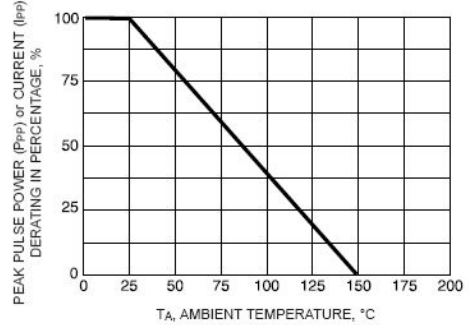


FIG. 3 - PULSE WAVEFORM

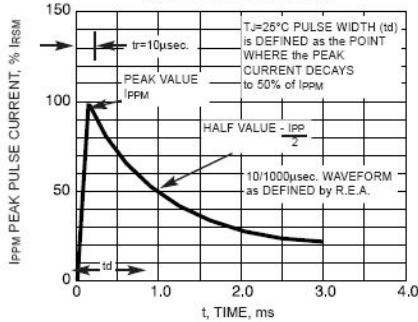


FIG. 4 - TYPICAL JUNCTION CAPACITANCE UNI-DIRECTIONAL

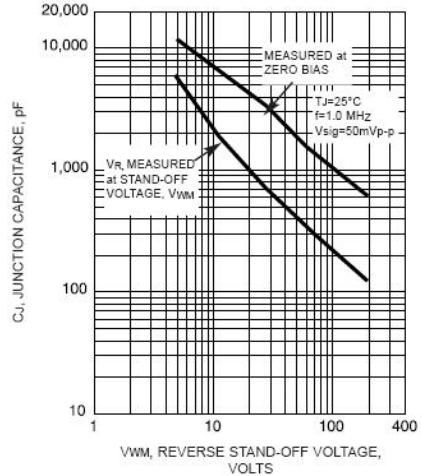


FIG. 5 - TYPICAL JUNCTION CAPACITANCE BI-DIRECTIONAL

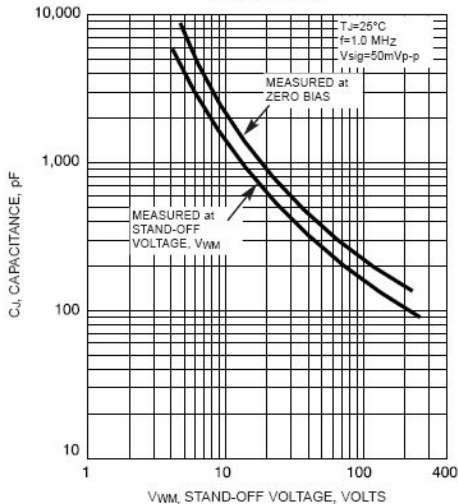


FIG. 6 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

