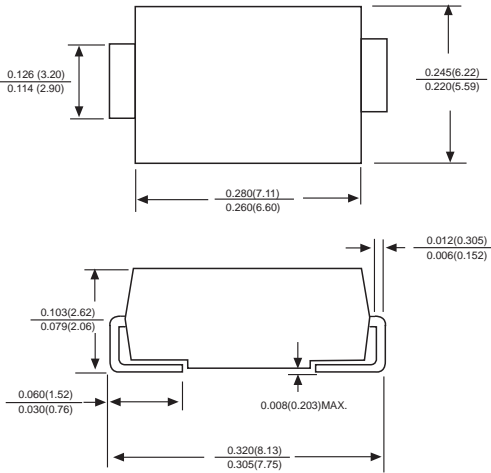


SMCJ5.0 THRU SMCJ170CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

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

DO-214AB



Dimensions in inches and (millimeters)

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 junction

Terminals: Solder plated, solderable per MIL-STD 750, method 2026

Polarity: Color band denotes cathode except for bidirectional types

Mounting Position: Any

Weight: 0.007 ounce, 0.25 grams

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 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 _{PPM}	Minimum 1500	Watts
Peak forward surge current (Note 1,2,3)	I _{FSM}	200.0	Amps
Peak pulse current with a 10/1000μs waveform(NOTE 1)	I _{PPM}	See Table 1	Amps
Steady state power dissipation (Note 3)	P _{M(AV)}	5.0	Watts
Maximum instantaneous forward voltage at 50A(Note 3,4) unidirectional only	V _F	3.5/5.0	Volts
Operating junction and storage temperature range	T _{STG} , T _J	-55 to + 150	°C

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2

2. Mounted on 5.0mm² copper pads to each terminal

3. Measured on 8.3ms single half sine-wave. For uni-directional devices only.

4. V_F=3.5V on SMC-5.0 thru SMC-90 devices and V_F=5.0V on SMC-100 thru SMC-170 devices

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

Device	Working Peak Reverse Voltage V _{WM} (Volts)	Breakdown Voltage V _(BR) (NOTE1) (Volts) at I _T		Test Current I _T (mA)	Maximum Clamping Voltage at I _{PPM} V _C (Volts) (NOTE5)	Maximum Peak Pulse Reverse Current I _{PPM} (NOTE 5) (Amps)	Maximum Reverse Leakage a V _{WM} (NOTE3) I _D (μA)
		MIN	MAX				
SMCJ5.0	5.0	6.40	7.82	10	9.6	156.3	800
SMCJ5.0A	5.0	6.40	7.07	10	9.2	163.0	800
SMCJ6.0	6.0	6.67	8.15	10	11.4	131.6	800
SMCJ6.0A	6.0	6.67	7.37	10	10.3	145.6	800
SMCJ6.5	6.5	7.22	8.82	10	12.3	122.0	500
SMCJ6.5A	6.5	7.22	7.98	10	11.2	133.9	500
SMCJ7.0	7.0	7.78	9.51	10	13.3	112.8	200
SMCJ7.0A	7.0	7.78	8.60	10	12.0	125.0	200
SMCJ7.5	7.5	8.33	10.20	1.0	14.3	104.9	100
SMCJ7.5A	7.5	8.33	9.21	1.0	12.9	116.3	100
SMCJ8.0	8.0	8.89	10.9	1.0	15.0	100.0	50.0
SMCJ8.0A	8.0	8.89	9.83	1.0	13.6	110.3	50.0
SMCJ8.5	8.5	9.44	11.5	1.0	15.9	94.3	20.0
SMCJ8.5A	8.5	9.44	10.4	1.0	14.4	104.3	20.0
SMCJ9.0	9.0	10.0	12.2	1.0	16.9	88.8	10.0
SMCJ9.0A	9.0	10.0	11.1	1.0	15.4	97.4	10.0
SMCJ10	10.00	11.1	13.6	1.0	18.8	79.8	5.0
SMCJ10A	10.00	11.1	12.3	1.0	17.0	88.2	5.0
SMCJ11	11.00	12.2	14.9	1.0	20.1	74.6	5.0
SMCJ11A	11.00	12.2	13.5	1.0	18.2	82.4	5.0
SMCJ12	12.00	13.3	16.3	1.0	22.0	68.2	5.0
SMCJ12A	12.00	13.3	14.7	1.0	19.9	75.4	5.0
SMCJ13	13.00	14.4	17.6	1.0	23.8	63.0	5.0
SMCJ13A	13.00	14.4	15.9	1.0	21.5	69.8	5.0
SMCJ14	14.00	15.6	19.1	1.0	25.8	58.1	5.0
SMCJ14A	14.00	15.6	17.2	1.0	23.2	64.7	5.0
SMCJ15	15.00	16.7	20.4	1.0	26.9	55.8	5.0
SMCJ15A	15.00	16.7	18.5	1.0	24.4	61.5	5.0
SMCJ16	16.00	17.8	21.8	1.0	28.8	52.1	5.0
SMCJ16A	16.00	17.8	19.7	1.0	26.0	57.7	5.0
SMCJ17	17.00	18.9	23.1	1.0	30.5	49.2	5.0
SMCJ17A	17.00	18.9	20.9	1.0	27.6	54.3	5.0
SMCJ18	18.00	20.0	24.4	1.0	32.2	46.6	5.0
SMCJ18A	18.00	20.0	22.1	1.0	29.2	51.4	5.0
SMCJ20	20.00	22.2	27.1	1.0	35.8	41.9	5.0
SMCJ20A	20.00	22.2	24.5	1.0	32.4	46.3	5.0
SMCJ22	22.00	24.4	29.8	1.0	39.4	38.1	5.0
SMCJ22A	22.00	24.4	26.9	1.0	35.5	42.3	5.0
SMCJ24	24.00	26.7	32.6	1.0	43.0	34.9	5.0
SMCJ24A	24.00	26.7	29.5	1.0	38.9	38.6	5.0
SMCJ26	26.00	28.9	35.3	1.0	46.6	32.2	5.0
SMCJ26A	26.00	28.9	31.9	1.0	42.1	35.6	5.0
SMCJ28	28.00	31.1	38.0	1.0	50.0	30.0	5.0
SMCJ28A	28.00	31.1	34.4	1.0	45.4	33.0	5.0
SMCJ30	30.00	33.3	40.7	1.0	53.5	28.0	5.0
SMCJ30A	30.00	33.3	36.8	1.0	48.4	31.0	5.0

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

Device	Working Peak Reverse Voltage V _{WM} (Volts)	Breakdown Voltage V _(BR) (NOTE 1) (Volts) at I _T		Test Current I _T (mA)	Maximum Clamping Voltage at I _{PPM} V _C (Volts) (NOTE5)	Maximum Peak Pulse Reverse Current I _{PPM} (NOTE 5) (Amps)	Maximum Reverse Leakage a V _{WM} (NOTE3) I _D (μA)
		MIN	MAX				
SMCJ33	33.00	36.7	44.9	1.0	59.0	25.4	5.0
SMCJ33A	33.00	36.7	40.6	1.0	53.3	28.1	5.0
SMCJ36	36.00	40.0	48.9	1.0	64.3	23.3	5.0
SMCJ36A	36.00	40.0	44.2	1.0	58.1	25.8	5.0
SMCJ40	40.00	44.4	54.3	1.0	71.4	21.0	5.0
SMCJ40A	40.00	44.4	49.1	1.0	64.5	23.3	5.0
SMCJ43	43.00	47.8	58.4	1.0	76.7	19.6	5.0
SMCJ43A	43.00	47.8	52.8	1.0	69.4	21.6	5.0
SMCJ45	45.00	50.0	61.1	1.0	80.3	18.7	5.0
SMCJ45A	45.00	50.0	55.3	1.0	72.7	20.6	5.0
SMCJ48	48.00	53.3	65.1	1.0	85.5	17.5	5.0
SMCJ48A	48.00	53.3	58.9	1.0	77.4	19.4	5.0
SMCJ51	51.00	56.7	69.3	1.0	91.1	16.5	5.0
SMCJ51A	51.00	56.7	62.7	1.0	82.4	18.2	5.0
SMCJ54	54.00	60.0	73.3	1.0	96.3	15.6	5.0
SMCJ54A	54.00	60.0	66.3	1.0	87.1	17.2	5.0
SMCJ58	58.00	64.4	78.7	1.0	103.0	14.6	5.0
SMCJ58A	58.00	64.4	71.2	1.0	93.0	16.0	5.0
SMCJ60	60.00	66.7	81.5	1.0	107.0	14.0	5.0
SMCJ60A	60.00	66.7	73.7	1.0	96.0	15.5	5.0
SMCJ64	64.00	71.1	86.9	1.0	114.0	13.2	5.0
SMCJ64A	64.00	71.1	78.6	1.0	103.0	14.6	5.0
SMCJ70	70.00	77.8	95.1	1.0	125	12.0	5.0
SMCJ70A	70.00	77.8	86.0	1.0	113	13.3	5.0
SMCJ75	75.00	83.3	102	1.0	134	11.2	5.0
SMCJ75A	75.00	83.3	92	1.0	121	12.4	5.0
SMCJ78	78.00	86.7	106	1.0	139	10.8	5.0
SMCJ78A	78.00	86.7	96	1.0	126	11.9	5.0
SMCJ85	85.00	94.4	115	1.0	151	9.9	5.0
SMCJ85A	85.00	94.4	104	1.0	137	10.9	5.0
SMCJ90	90.00	100	122	1.0	160	9.4	5.0
SMCJ90A	90.00	100	111	1.0	146	10.3	5.0
SMCJ100	100.00	111	136	1.0	179	8.4	5.0
SMCJ100A	100.00	111	123	1.0	162	9.3	5.0
SMCJ110	110.00	122	149	1.0	196	7.7	5.0
SMCJ110A	110.00	122	135	1.0	177	8.5	5.0
SMCJ120	120.00	133	163	1.0	214	7.0	5.0
SMCJ120A	120.00	133	147	1.0	193	7.8	5.0
SMCJ130	130.00	144	176	1.0	231	6.5	5.0
SMCJ130A	130.00	144	159	1.0	209	7.2	5.0
SMCJ150	150.00	167	204	1.0	268	5.6	5.0
SMCJ150A	150.00	167	185	1.0	243	6.2	5.0
SMCJ160	160.00	178	218	1.0	287	5.2	5.0
SMCJ160A	160.00	178	197	1.0	259	5.8	5.0
SMCJ170	170.00	189	231	1.0	304	4.9	5.0
SMCJ170A	170.00	189	209	1.0	275	5.5	5.0

NOTES:

1. V_(BR) measured after I_T applied for 300μs, I_T=square wave pulse or equivalent
2. Surge current waveform per Fig.3 and derated per Fig.2
3. For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled
4. All items and symbols are consistent with ANSI/IEEE C62.35
5. Peak pulse power waveform is 10/1000

RATINGS AND CHARACTERISTIC CURVES SMCJ5.0 THUR 170CA

FIG. 1 - PEAK PULSE POWER RATING CURVE

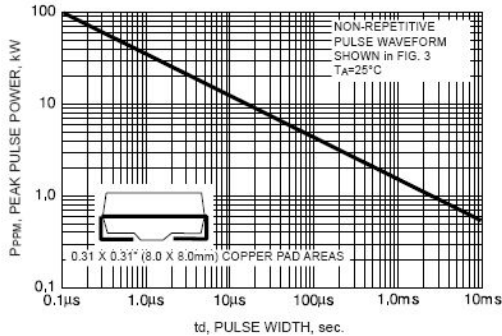


FIG. 2 - PULSE DERATING CURVE

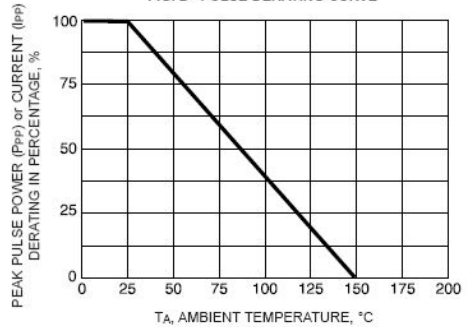


FIG. 3 - PULSE WAVEFORM

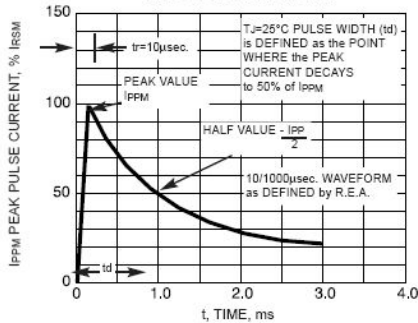


FIG. 4 - TYPICAL JUNCTION CAPACITANCE UNI-DIRECTIONAL

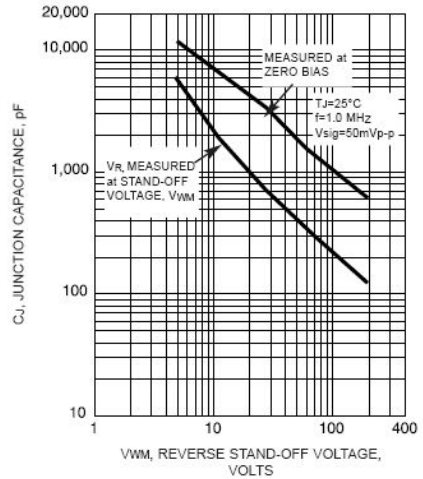


FIG. 5 - TYPICAL JUNCTION CAPACITANCE BI-DIRECTIONAL

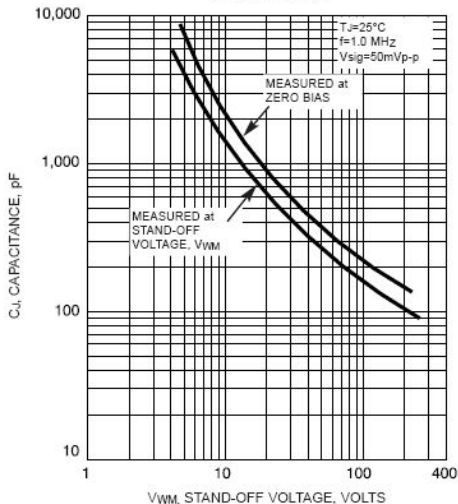


FIG. 6 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

