DC COMPONENTS CO., LTD.

RECTIFIER SPECIALISTS

SMCJ5.0 THRU SMCJ170CA

TECHNICAL SPECIFICATIONS OF SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE RANGE - 5.0 to 170 Volts *PEAK PULSE POWER - 1500 Watts*

FEATURES

* Ideal for surface mounted applications
* Glass passivated junction
* 1500 Watts Peak Pulse Power capability on 10/1000 µs waveform
* Excellent clamping capability
* Low zener impedance
* Fast response time

MECHANICAL DATA

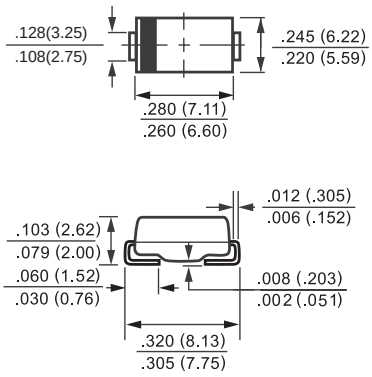
* Case: Molded plastic
* Epoxy: UL 94V-0 rate flame retardant
* Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
* Polarity: Indicated by cathode band except Bidirectional types.
* Mounting position: Any
* Weight: 0.21 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load,

SMC (DO-214AB)



Dimensions in inches and (millimeters)

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA suffix (e.g. SMCJ5.0C, SMCJ170CA)

Electrical characteristics apply in both directions

	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000µs waveform (Note 1,2,Fig.1)	P_{PPM}	Minimum 1500	Watts
Steady State Power Dissipation (Note 2)	$P_{M(AV)}$	5.0	Watts
Peak Forward Surge Current 8.3mS single half sine-wave superimposed on rated load (JEDEC method) (Note 3)	I_{FSM}	100	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-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 0.31 X 0.31"(8.0 X 8.0mm) copper pad to each terminal.
3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

NEXT BACK EXIT

FIG. 1 - PEAK PULSE POWER RATING CURVE

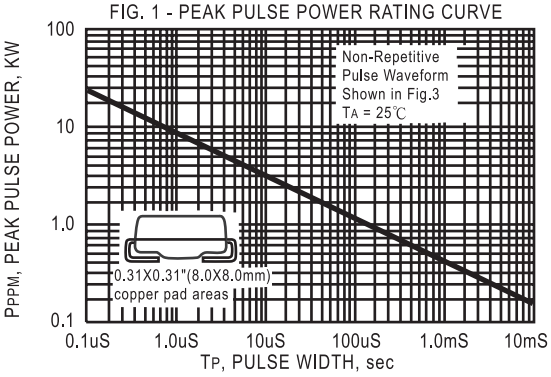


FIG. 2 - PULSE DERATING CURVE

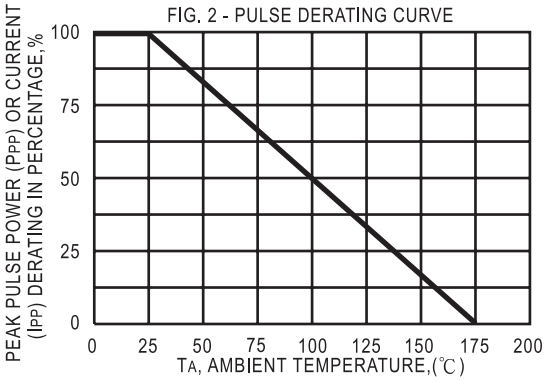


FIG. 3 - PULSE WAVEFORM

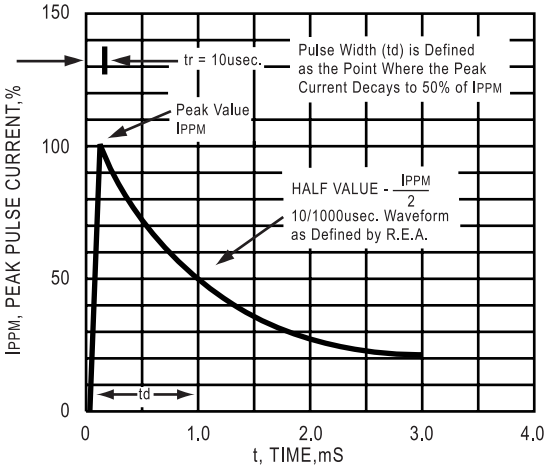


FIG. 4 - TYPICAL JUNCTION CAPACITANCE
UNIDIRECTIONAL

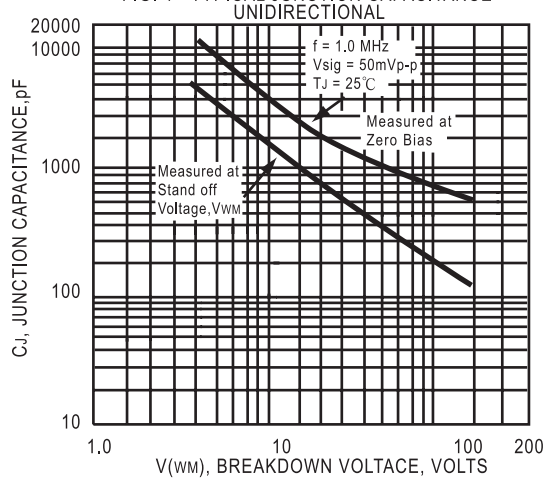


FIG. 5 - TYPICAL JUNCTION CAPACITANCE
BIDIRECTIONAL

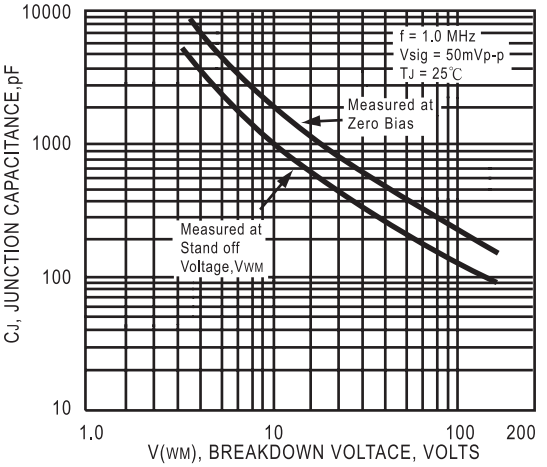
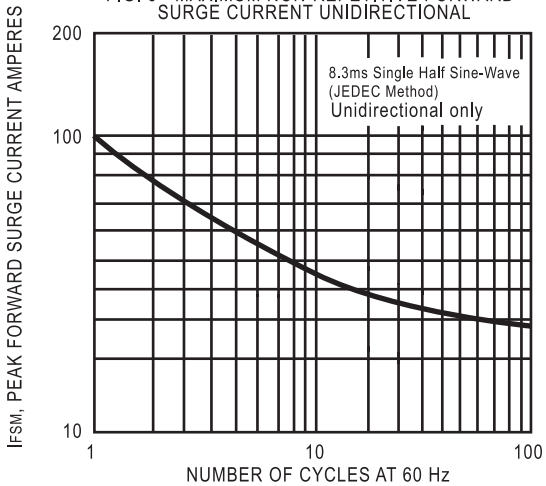


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD
SURGE CURRENT UNIDIRECTIONAL



TYPE	Breakdown Voltage			Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D(uA)	Maximum Peak Pulse Current I_{PPM} (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)
	V_{BR} (Volts)		@I_T				
	MIN.	MAX.	(mA)				
SMCJ5.0	6.40	7.30	10	5.0	1000	164.0	9.6
SMCJ5.0A	6.40	7.00	10	5.0	1000	171.0	9.2
SMCJ6.0	6.67	8.15	10	6.0	1000	138.0	11.4
SMCJ6.0A	6.67	7.37	10	6.0	1000	152.0	10.3
SMCJ6.5	7.22	8.82	10	6.5	500.0	128.0	12.3
SMCJ6.5A	7.22	7.98	10	6.5	500.0	140.0	11.2
SMCJ7.0	7.78	9.51	10	7.0	200.0	118.0	13.3
SMCJ7.0A	7.78	8.86	10	7.0	200.0	131.0	12.0
SMCJ7.5	8.33	10.2	1.0	7.5	100.0	110.0	14.3
SMCJ7.5A	8.33	9.21	1.0	7.5	100.0	122.0	12.9
SMCJ8.0	8.89	10.9	1.0	8.0	50.0	105.0	15.0
SMCJ8.0A	8.89	9.83	1.0	8.0	50.0	115.0	13.6
SMCJ8.5	9.44	11.5	1.0	8.5	25	99.0	15.9
SMCJ8.5A	9.44	10.4	1.0	8.5	25	109.0	14.4
SMCJ9.0	10.0	12.2	1.0	9.0	10	93.0	16.9
SMCJ9.0A	10.0	15.0	1.0	9.0	10	102.0	15.4
SMCJ10	11.1	13.6	1.0	10.0	5.0	83.0	18.8
SMCJ10A	11.1	12.3	1.0	10.0	5.0	92.0	17.0
SMCJ11	12.2	14.9	1.0	11.0	5.0	78.0	20.1
SMCJ11A	12.2	13.5	1.0	11.0	5.0	86.0	18.2
SMCJ12	13.3	16.3	1.0	12.0	5.0	71.0	22.0
SMCJ12A	13.3	14.7	1.0	12.0	5.0	79.0	19.9
SMCJ13	14.4	17.6	1.0	13.0	5.0	66.0	23.8
SMCJ13A	14.4	15.9	1.0	13.0	5.0	73.0	21.5
SMCJ14	15.6	19.1	1.0	14.0	5.0	61.0	25.8
SMCJ14A	15.6	17.2	1.0	14.0	5.0	67.0	23.2
SMCJ15	16.7	20.4	1.0	15.0	5.0	58.0	26.9
SMCJ15A	16.7	18.5	1.0	15.0	5.0	64.0	24.4
SMCJ16	17.8	21.8	1.0	16.0	5.0	54.0	28.8
SMCJ16A	17.8	19.7	1.0	16.0	5.0	60.0	26.0
SMCJ17	18.9	23.1	1.0	17.0	5.0	51.0	30.5
SMCJ17A	18.9	20.9	1.0	17.0	5.0	57.0	27.6
SMCJ18	20.0	24.2	1.0	18.0	5.0	48.0	32.2
SMCJ18A	20.0	22.1	1.0	18.0	5.0	53.0	29.2
SMCJ20	22.2	27.1	1.0	20.0	5.0	43.0	35.8
SMCJ20A	22.2	24.5	1.0	20.0	5.0	48.0	32.4
SMCJ22	24.4	29.8	1.0	22.0	5.0	39.0	39.4
SMCJ22A	24.4	26.9	1.0	22.0	5.0	44.0	35.5
SMCJ24	26.7	32.6	1.0	24.0	5.0	36.0	43.0
SMCJ24A	26.7	29.5	1.0	24.0	5.0	40.0	38.9
SMCJ26	28.9	35.3	1.0	26.0	5.0	33.0	46.6
SMCJ26A	28.9	31.9	1.0	26.0	5.0	37.0	42.1
SMCJ28	31.1	38.0	1.0	28.0	5.0	31.0	50.1
SMCJ28A	31.1	34.4	1.0	28.0	5.0	34.0	45.4
SMCJ30	33.3	40.7	1.0	30.0	5.0	29.0	53.5
SMCJ30A	33.3	36.8	1.0	30.0	5.0	32.0	48.4
SMCJ33	36.7	44.9	1.0	33.0	5.0	26.0	59.0
SMCJ33A	36.7	40.6	1.0	33.0	5.0	29.0	53.3
SMCJ36	40.0	48.9	1.0	36.0	5.0	24.0	64.3
SMCJ36A	40.0	44.2	1.0	36.0	5.0	27.0	58.1

TYPE	Breakdown Voltage			Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D(uA)	Maximum Peak Pulse Current I_{PPM} (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)
	V_{BR} (Volts)		@I_T (mA)				
	MIN.	MAX.					
SMCJ40	44.4	54.3	1.0	40	5.0	22.0	71.4
SMCJ40A	44.4	49.1	1.0	40	5.0	24.0	64.5
SMCJ43	47.8	58.4	1.0	43	5.0	20.0	76.7
SMCJ43A	47.8	52.8	1.0	43	5.0	22.0	69.4
SMCJ45	50.0	61.1	1.0	45	5.0	19.0	80.3
SMCJ45A	50.0	55.3	1.0	45	5.0	21.0	72.7
SMCJ48	53.3	65.1	1.0	48	5.0	18.0	85.5
SMCJ48A	53.3	58.9	1.0	48	5.0	20.0	77.4
SMCJ51	56.7	69.3	1.0	51	5.0	17.0	91.1
SMCJ51A	56.7	62.7	1.0	51	5.0	19.0	82.4
SMCJ54	60.0	73.3	1.0	54	5.0	16.0	96.3
SMCJ54A	60.0	66.3	1.0	54	5.0	18.0	87.1
SMCJ58	64.4	78.7	1.0	58	5.0	15.0	103
SMCJ58A	64.4	71.2	1.0	58	5.0	16.0	93.6
SMCJ60	66.7	81.5	1.0	60	5.0	14.0	107
SMCJ60A	66.7	73.7	1.0	60	5.0	16.0	96.8
SMCJ64	71.1	86.9	1.0	64	5.0	13.8	114
SMCJ64A	71.1	78.6	1.0	64	5.0	15.0	103
SMCJ70	77.8	95.1	1.0	70	5.0	12.6	125
SMCJ70A	77.8	86.0	1.0	70	5.0	13.9	113
SMCJ75	83.3	102	1.0	75	5.0	11.7	134
SMCJ75A	83.3	92.1	1.0	75	5.0	13.0	121
SMCJ78	86.7	106	1.0	78	5.0	11.3	139
SMCJ78A	86.7	95.8	1.0	78	5.0	12.5	126
SMCJ85	94.4	115	1.0	85	5.0	10.4	151
SMCJ85A	94.4	104	1.0	85	5.0	11.5	137
SMCJ90	100	122	1.0	90	5.0	9.8	160
SMCJ90A	100	111	1.0	90	5.0	10.7	146
SMCJ100	110	136	1.0	100	5.0	8.8	179
SMCJ100A	110	123	1.0	100	5.0	9.7	162
SMCJ110	122	149	1.0	110	5.0	8.0	196
SMCJ110A	122	135	1.0	110	5.0	8.9	177
SMCJ120	133	163	1.0	120	5.0	7.3	214
SMCJ120A	133	147	1.0	120	5.0	8.1	193
SMCJ130	144	176	1.0	130	5.0	6.8	231
SMCJ130A	144	159	1.0	130	5.0	7.5	209
SMCJ150	167	204	1.0	150	5.0	5.8	268
SMCJ150A	167	185	1.0	150	5.0	6.4	243
SMCJ160	178	218	1.0	160	5.0	5.4	287
SMCJ160A	178	197	1.0	160	5.0	6.0	259
SMCJ170	189	231	1.0	170	5.0	5.1	304
SMCJ170A	189	209	1.0	170	5.0	5.7	275

NOTES : 1.V_{BR} measured after I_T applied for 300µs. I_T = Square Wave Pulse or equivalent.
2.For bidirectonal use C or CA suffixs for all types (ex. SMCJ5.0C, SMCJ170CA).
electrical characteristics apply in both directions.
3.For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled.