



*DC COMPONENTS CO., LTD.*

RECTIFIER SPECIALISTS

SMCJ5.0  
THRU  
SMCJ220CA

**TECHNICAL SPECIFICATIONS OF TRANSIENT VOLTAGE SUPPRESSOR**

**VOLTAGE RANGE - 5.0 to 220Volts    PEAK PULAE POWER - 1500 Watts**

**FEATURES**

- \* Glass passivated junction
- \* 1500 Watts Peak Pulse Power capability on 10/1000  $\mu$ s waveform
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time

**MECHANICAL DATA**

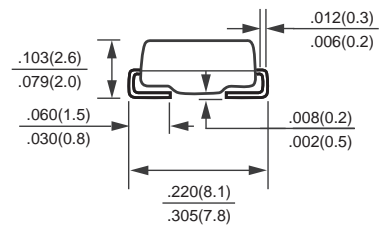
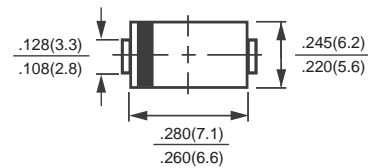
- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: MIL-STD-202E, Method 208 guaranteed
- \* Polarity: Color band denotes positive end (cathode) except bidirectional types
- \* Mounting position: Any
- \* Weight: 0.21 gram

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

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



SMC(DO-214AB)



Dimensions in inches and (millimeters)

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA suffix (e.g. SMCJ5.0C, SMCJ220CA).

Electrical characteristics apply in both directions

	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (Note1, FIG.1)	PPPM	Minimum 1500	Watts
Steady State Power Dissipation at T = 75°C Lead Lengths .375"(9.5mm) (Note 2)	P <sub>M(AV)</sub>	5.0	Watts
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load(JEDEC Method) (Note 3)	I <sub>FSM</sub>	100	Amps
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to + 175	°C

- NOTES :
1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig. 2.
  2. Mounted on Copper Leaf area of 0.31 X 0.31" ( 8.0 X 8.0mm ) per Fig. 5
  3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

# RATING AND CHARACTERISTIC CURVES (SMCJ5.0 THRU SMCJ220CA)

FIG. 1 - PEAK PULSE POWER RATING CURVE

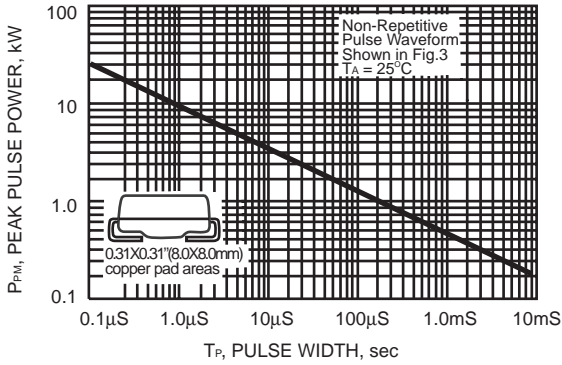


FIG. 2 - PULSE DERATING CURVE

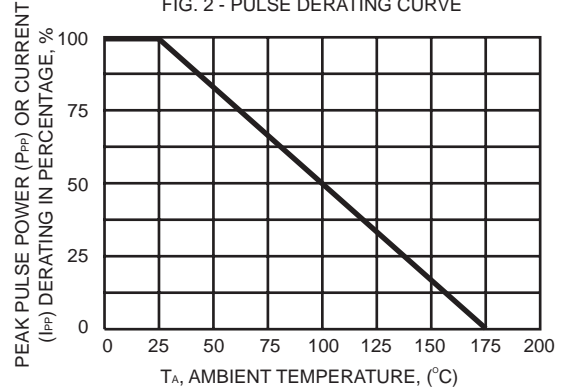


FIG. 3 - PULSE WAVEFORM

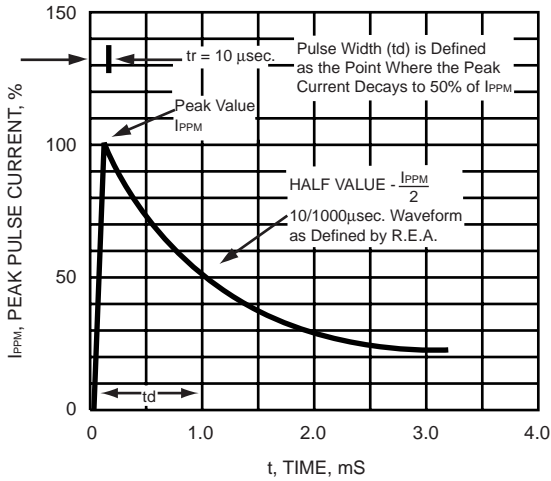


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

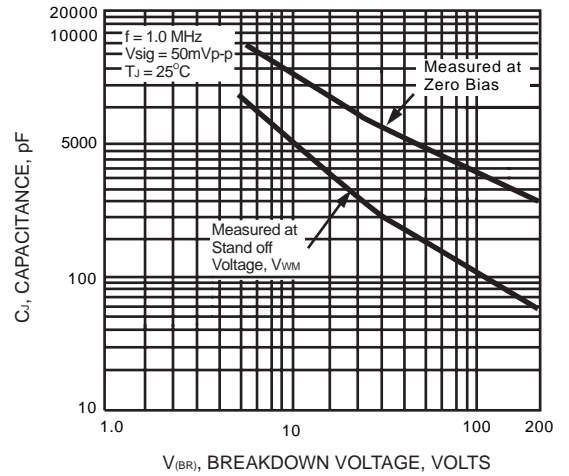
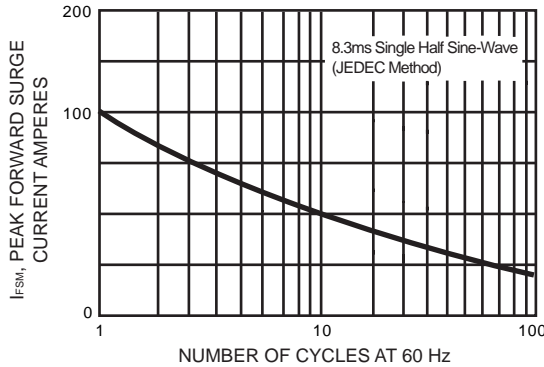


FIG. 5 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



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## SMCJ (1500W) SERIES TRANSIENT VOLTAGE SUPPRESSORS

TYPE	Reverse Stand-off Voltage	Breakdown Voltage @ I <sub>T</sub>		Test Current	Maximum Reverse Leakage @ V <sub>RWM</sub>		Maximum Clamping Voltage @ I <sub>PP</sub>	Maximum Peak Pulse Current
		V <sub>BR</sub>			I <sub>T</sub>	I <sub>R</sub>		
	V <sub>RWM</sub>	Min. V	Max. V	I <sub>T</sub>		UNI- μA	BI- μA	V <sub>C</sub>
	V	V	V	mA			V	A
SMCJ5.0	5.0	6.40	7.55	10	1000	2000	9.6	156.2
SMCJ5.0A	5.0	6.40	7.25	10	1000	2000	9.2	163
SMCJ6.0	6.0	6.67	8.45	10	1000	2000	11.4	131.6
SMCJ6.0A	6.0	6.67	7.67	10	1000	2000	10.3	145.6
SMCJ6.5	6.5	7.22	9.14	10	500	1000	12.3	122
SMCJ6.5A	6.5	7.22	8.30	10	500	1000	11.2	133.9
SMCJ7.0	7.0	7.78	9.86	10	200	400	13.3	112.8
SMCJ7.0A	7.0	7.78	8.95	10	200	400	12.0	125
SMCJ7.5	7.5	8.33	10.67	1	100	200	14.3	104.9
SMCJ7.5A	7.5	8.33	9.58	1	100	200	12.9	116.3
SMCJ8.0	8.0	8.89	11.30	1	50	100	15.0	100
SMCJ8.0A	8.0	8.89	10.23	1	50	100	13.6	110.3
SMCJ8.5	8.5	9.44	11.92	1	25	50	15.9	94.3
SMCJ8.5A	8.5	9.44	10.82	1	25	50	14.4	104.2
SMCJ9.0	9.0	10.0	12.6	1	10	20	16.9	88.7
SMCJ9.0A	9.0	10.0	11.5	1	10	20	15.4	97.4
SMCJ10	10	11.1	14.1	1	5		18.8	79.8
SMCJ10A	10	11.1	12.8	1	5		17.0	88.2
SMCJ11	11	12.2	15.4	1	5		20.1	74.6
SMCJ11A	11	12.2	14.0	1	5		18.2	82.4
SMCJ12	12	13.3	16.9	1	5		22.0	68.2
SMCJ12A	12	13.3	15.3	1	5		19.9	75.3
SMCJ13	13	14.4	18.2	1	5		23.8	63
SMCJ13A	13	14.4	16.5	1	5		21.5	69.7
SMCJ14	14	15.6	19.8	1	5		25.8	58.1
SMCJ14A	14	15.6	17.9	1	5		23.2	64.7
SMCJ15	15	16.7	21.1	1	5		26.9	55.8
SMCJ15A	15	16.7	19.2	1	5		24.4	61.5
SMCJ16	16	17.8	22.6	1	5		28.8	52.1
SMCJ16A	16	17.8	20.5	1	5		26.0	57.7
SMCJ17	17	18.9	23.9	1	5		30.5	49.2
SMCJ17A	17	18.9	21.7	1	5		27.6	53.3
SMCJ18	18	20.0	25.3	1	5		32.2	46.6
SMCJ18A	18	20.0	23.3	1	5		29.2	51.4
SMCJ20	20	22.2	28.1	1	5		35.8	41.9
SMCJ20A	20	22.2	25.5	1	5		32.4	46.3
SMCJ22	22	24.4	30.9	1	5		39.4	38.1
SMCJ22A	22	24.4	28.0	1	5		35.5	42.2
SMCJ24	24	26.7	33.8	1	5		43.0	34.9
SMCJ24A	24	26.7	30.7	1	5		38.9	38.6
SMCJ26	26	28.9	36.6	1	5		46.6	32.2
SMCJ26A	26	28.9	33.2	1	5		42.1	35.6
SMCJ28	28	31.1	39.4	1	5		50.0	30
SMCJ28A	28	31.1	35.8	1	5		45.4	33
SMCJ30	30	33.3	42.2	1	5		53.5	28
SMCJ30A	30	33.3	38.3	1	5		48.4	31
SMCJ33	33	36.7	46.5	1	5		59.0	25.2
SMCJ33A	33	36.7	42.2	1	5		53.3	28.1
SMCJ36	36	40.0	50.7	1	5		64.3	23.3
SMCJ36A	36	40.0	46.0	1	5		58.1	25.8
SMCJ40	40	44.4	56.3	1	5		71.4	21
SMCJ40A	40	44.4	51.1	1	5		64.5	23.2



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		V <sub>BR</sub>			I <sub>T</sub>	I <sub>R</sub>		
	V <sub>RWM</sub>	Min.	Max.	UNI-		BI-		
	V	V	V	μA	μA	V <sub>C</sub>	I <sub>PP</sub>	
SMCJ43	43	47.8	60.5	1	5	76.7	19.6	
SMCJ43A	43	47.8	54.9	1	5	69.4	21.6	
SMCJ45	45	50.0	63.3	1	5	80.3	18.7	
SMCJ45A	45	50.0	57.5	1	5	72.7	20.6	
SMCJ48	48	53.3	67.5	1	5	85.5	17.5	
SMCJ48A	48	53.3	61.3	1	5	77.4	19.4	
SMCJ51	51	56.7	71.8	1	5	91.1	18.5	
SMCJ51A	51	56.7	65.2	1	5	82.4	18.2	
SMCJ54	54	60.0	76.0	1	5	96.3	15.6	
SMCJ54A	54	60.0	69.0	1	5	87.1	17.2	
SMCJ58	58	64.4	81.6	1	5	103.0	14.6	
SMCJ58A	58	64.4	74.1	1	5	93.6	16	
SMCJ60	60	66.7	84.5	1	5	107.0	14	
SMCJ60A	60	66.7	76.7	1	5	96.8	15.5	
SMCJ64	64	71.1	90.1	1	5	114	13.2	
SMCJ64A	64	71.1	81.8	1	5	103	14.6	
SMCJ70	70	77.8	98.6	1	5	125	12	
SMCJ70A	70	77.8	89.5	1	5	113	13.3	
SMCJ75	75	83.3	105.7	1	5	134	11.2	
SMCJ75A	75	83.3	95.8	1	5	121	12.4	
SMCJ78	78	86.7	109.8	1	5	139	10.8	
SMCJ78A	78	86.7	99.7	1	5	126	11.4	
SMCJ85	85	94.4	119.2	1	5	151	9.9	
SMCJ85A	85	94.4	108.2	1	5	137	10.4	
SMCJ90	90	100	126.5	1	5	160	9.4	
SMCJ90A	90	100	115.5	1	5	146	10.3	
SMCJ100	100	111	141.0	1	5	179	8.4	
SMCJ100A	100	111	128.0	1	5	162	9.3	
SMCJ110	110	122	154.5	1	5	196	7.7	
SMCJ110A	110	122	140.5	1	5	177	8.4	
SMCJ120	120	133	169.0	1	5	214	7	
SMCJ120A	120	133	153.0	1	5	193	7.9	
SMCJ130	130	144	182.5	1	5	231	6.5	
SMCJ130A	130	144	165.5	1	5	209	7.2	
SMCJ150	150	167	211.5	1	5	268	5.6	
SMCJ150A	150	167	192.5	1	5	243	6.2	
SMCJ160	160	178	226.0	1	5	287	5.2	
SMCJ160A	160	178	205.0	1	5	259	5.8	
SMCJ170	170	189	239.5	1	5	304	4.9	
SMCJ170A	170	189	217.5	1	5	275	5.5	
SMCJ180	180	198	253.8	1	5	322	4.7	
SMCJ180A	180	198	230.4	1	5	292	5.1	
SMCJ190	190	209	267.9	1	5	340	4.4	
SMCJ190A	190	209	243.2	1	5	308	4.8	
SMCJ200	200	220	282.0	1	5	358	4.1	
SMCJ200A	200	220	256.0	1	5	324	4.6	
SMCJ210	210	231	296.1	1	5	376	4	
SMCJ210A	210	231	268.8	1	5	340	4.4	
SMCJ220	220	242	310.2	1	5	394	3.8	
SMCJ220A	220	242	281.6	1	5	356	4.2	

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 use "C" or "CA" Suffix for all types (e.g.: SMCJ5.0C, SMCJ.0CA, SMCJ220C, SMCJ220CA).  
Electrical characteristics apply in both directions.

3. For bidirectional types having V<sub>RWM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled.



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