



**DC COMPONENTS CO., LTD.**

RECTIFIER SPECIALISTS

**SMBJ5.0  
THRU  
SMBJ170CA**

**TECHNICAL SPECIFICATIONS OF SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR**

VOLTAGE RANGE - 5.0 to 170 Volts

PEAK PULSE POWER - 600 Watts

**FEATURES**

- \* Ideal for surface mounted applications
- \* Glass passivated junction
- \* 400 Watts Peak Pulse Power capability on 10/1000  $\mu$ s waveform
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time

**MECHANICAL DATA**

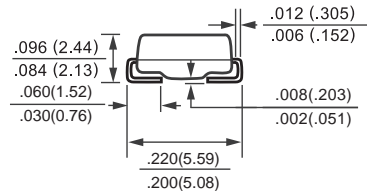
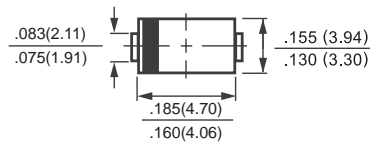
- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- \* Polarity: Indicated by cathode band except Bidirectional types.
- \* Mounting position: Any
- \* Weight: 0.093 gram

**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%.



SMB (DO-214AA)



Dimensions in inches and (millimeters)

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA suffix (e.g. SMBJ5.0C, SMBJ170CA)

Electrical characteristics apply in both directions

	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (Note1)	PPM	Minimum 600	Watts
Steady State Power Dissipation (Note 2)	PM(AV)	5.0	Watts
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (Note 3)	IFSM	100	Amps
Operating and Storage Temperature Range	TJ, TSTG	-55 to + 150	°C

- NOTES :
1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig.2.
  2. Mounted on 0.2 X 0.2" ( 5.0 X 5.0mm ) copper pad to each terminal.
  3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

# RATING AND CHARACTERISTIC CURVES ( SMBJ5.0 THRU SMBJ170CA )

FIG. 1 - PEAK PULSE POWER RATING CURVE

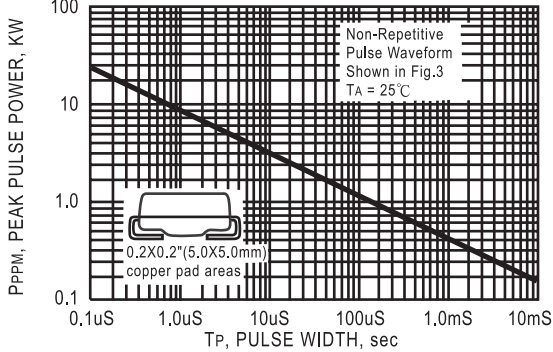


FIG. 2 - PULSE DERATING CURVE

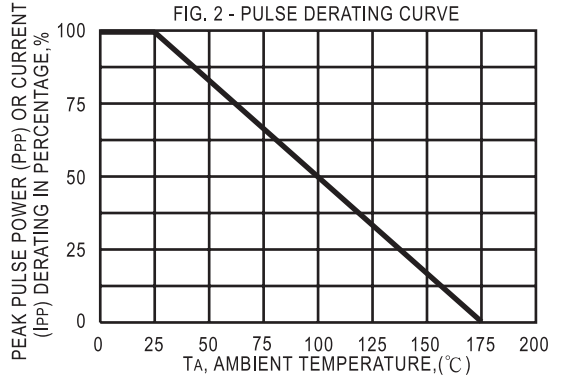


FIG. 3 - PULSE WAVEFORM

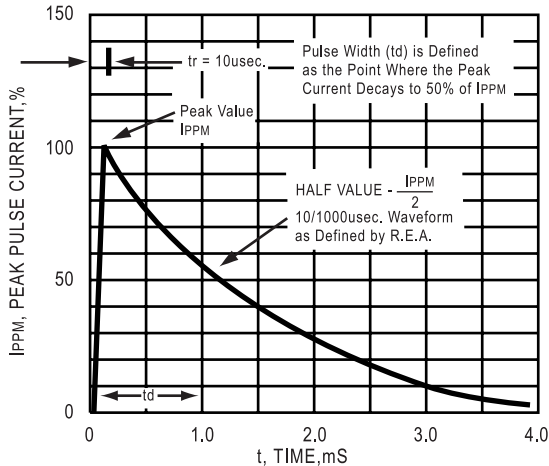


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

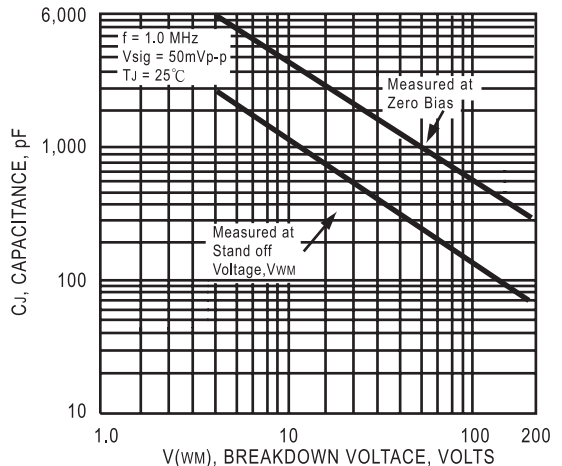


FIG. 5 - TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL

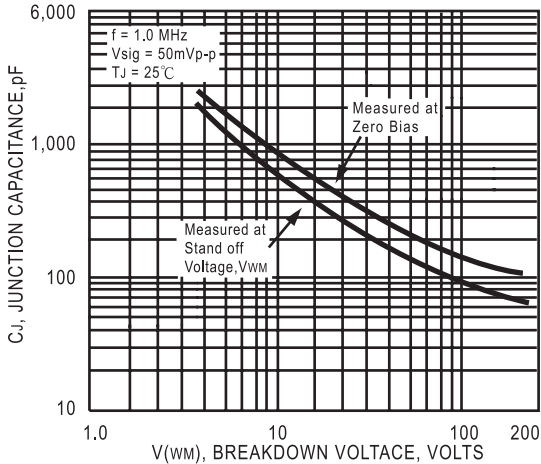
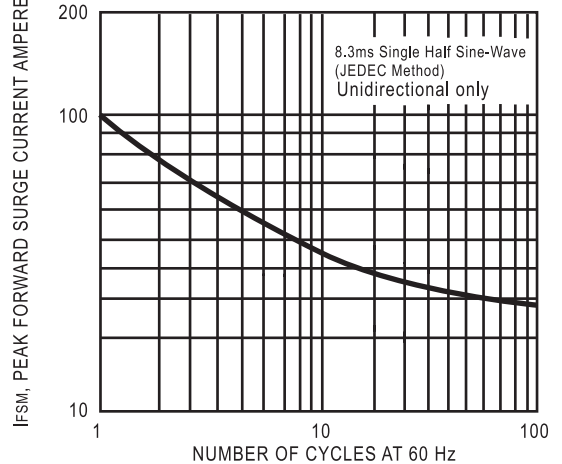


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



**SMBJ (600W) SERIES TRANSIENT VOLTAGE SUPPRESSORS**

TYPE	Breakdown Voltage			Reverse Stand off Voltage V <sub>WM</sub> (Volts)	Maximum Reverse Leakage at V <sub>WM</sub> I <sub>D</sub> (uA)	Maximum Peak Pulse Current I <sub>PPM</sub> (Amps)	Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>c</sub> (Volts)
	V <sub>BR</sub> (Volts)		@I <sub>T</sub> (mA)				
	MIN.	MAX.					
SMBJ5.0	6.40	7.30	10	5.0	800.0	65.0	9.6
SMBJ5.0A	6.40	7.00	10	5.0	800.0	68.0	9.2
SMBJ6.0	6.67	8.15	10	6.0	800.0	55.0	11.4
SMBJ6.0A	6.67	7.37	10	6.0	800.0	61.0	10.3
SMBJ6.5	7.22	8.82	10	6.5	500.0	51.0	12.3
SMBJ6.5A	7.22	7.98	10	6.5	500.0	56.0	11.2
SMBJ7.0	7.78	9.51	10	7.0	200.0	47.0	13.3
SMBJ7.0A	7.78	8.86	10	7.0	200.0	52.0	12.0
SMBJ7.5	8.33	10.2	1.0	7.5	100.0	44.0	14.3
SMBJ7.5A	8.33	9.21	1.0	7.5	100.0	48.0	12.9
SMBJ8.0	8.89	10.9	1.0	8.0	50.0	42.0	15.0
SMBJ8.0A	8.89	9.83	1.0	8.0	50.0	46.0	13.6
SMBJ8.5	9.44	11.5	1.0	8.5	20.0	39.0	15.9
SMBJ8.5A	9.44	10.4	1.0	8.5	20.0	43.0	14.4
SMBJ9.0	10.0	12.2	1.0	9.0	10.0	37.0	16.9
SMBJ9.0A	10.0	15.0	1.0	9.0	10.0	40.0	15.4
SMBJ10	11.1	13.6	1.0	10.0	5.0	33.0	18.8
SMBJ10A	11.1	12.3	1.0	10.0	5.0	37.0	17.0
SMBJ11	12.2	14.9	1.0	11.0	5.0	31.0	20.1
SMBJ11A	12.2	13.5	1.0	11.0	5.0	34.0	18.2
SMBJ12	13.3	16.3	1.0	12.0	5.0	28.0	22.0
SMBJ12A	13.3	14.7	1.0	12.0	5.0	31.0	19.9
SMBJ13	14.4	17.6	1.0	13.0	5.0	26.0	23.8
SMBJ13A	14.4	15.9	1.0	13.0	5.0	29.0	21.5
SMBJ14	15.6	19.1	1.0	14.0	5.0	24.4	25.8
SMBJ14A	15.6	17.2	1.0	14.0	5.0	27.0	23.2
SMBJ15	16.7	20.4	1.0	15.0	5.0	23.1	26.9
SMBJ15A	16.7	18.5	1.0	15.0	5.0	25.0	24.4
SMBJ16	17.8	21.8	1.0	16.0	5.0	21.8	28.8
SMBJ16A	17.8	19.7	1.0	16.0	5.0	24.2	26.0
SMBJ17	18.9	23.1	1.0	17.0	5.0	20.0	30.5
SMBJ17A	18.9	20.9	1.0	17.0	5.0	22.8	27.6
SMBJ18	20.0	24.2	1.0	18.0	5.0	19.5	32.2
SMBJ18A	20.0	22.1	1.0	18.0	5.0	21.5	29.2
SMBJ20	22.2	27.1	1.0	20.0	5.0	17.6	35.8
SMBJ20A	22.2	24.5	1.0	20.0	5.0	19.4	32.4
SMBJ22	24.4	29.8	1.0	22.0	5.0	15.0	39.4
SMBJ22A	24.4	26.9	1.0	22.0	5.0	17.7	35.5
SMBJ24	26.7	32.6	1.0	24.0	5.0	14.6	43.0
SMBJ24A	26.7	29.5	1.0	24.0	5.0	16.0	38.9
SMBJ26	28.9	35.3	1.0	26.0	5.0	13.5	46.6
SMBJ26A	28.9	31.9	1.0	26.0	5.0	14.9	42.1
SMBJ28	31.1	38.0	1.0	28.0	5.0	12.6	50.1
SMBJ28A	31.1	34.4	1.0	28.0	5.0	13.8	45.4
SMBJ30	33.3	40.7	1.0	30.0	5.0	11.7	53.5
SMBJ30A	33.3	36.8	1.0	30.0	5.0	13.0	48.4
SMBJ33	36.7	44.9	1.0	33.0	5.0	10.6	59.0
SMBJ33A	36.7	40.6	1.0	33.0	5.0	11.8	53.3
SMBJ36	40.0	48.9	1.0	36.0	5.0	9.8	64.3
SMBJ36A	40.0	44.2	1.0	36.0	5.0	10.8	58.1



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	V <sub>BR</sub> (Volts)		@I <sub>T</sub> (mA)				
	MIN.	MAX.					
SMBJ40	44.4	54.3	1.0	40	5.0	8.8	71.4
SMBJ40A	44.4	49.1	1.0	40	5.0	9.7	64.5
SMBJ43	47.8	58.4	1.0	43	5.0	8.2	76.7
SMBJ43A	47.8	52.8	1.0	43	5.0	9.0	69.4
SMBJ45	50.0	61.1	1.0	45	5.0	7.8	80.3
SMBJ45A	50.0	55.3	1.0	45	5.0	8.6	72.7
SMBJ48	53.3	65.1	1.0	48	5.0	7.3	85.5
SMBJ48A	53.3	58.9	1.0	48	5.0	8.1	77.4
SMBJ51	56.7	69.3	1.0	51	5.0	6.9	91.1
SMBJ51A	56.7	62.7	1.0	51	5.0	7.6	82.4
SMBJ54	60.0	73.3	1.0	54	5.0	6.5	96.3
SMBJ54A	60.0	66.3	1.0	54	5.0	7.2	87.1
SMBJ58	64.4	78.7	1.0	58	5.0	6.1	103
SMBJ58A	64.4	71.2	1.0	58	5.0	6.7	93.6
SMBJ60	66.7	81.5	1.0	60	5.0	5.8	107
SMBJ60A	66.7	73.7	1.0	60	5.0	6.5	96.8
SMBJ64	71.1	86.9	1.0	64	5.0	5.5	114
SMBJ64A	71.1	78.6	1.0	64	5.0	6.1	103
SMBJ70	77.8	95.1	1.0	70	5.0	5.0	125
SMBJ70A	77.8	86.0	1.0	70	5.0	5.5	113
SMBJ75	83.3	102	1.0	75	5.0	4.7	134
SMBJ75A	83.3	92.1	1.0	75	5.0	5.2	121
SMBJ78	86.7	106	1.0	78	5.0	4.5	139
SMBJ78A	86.7	95.8	1.0	78	5.0	5.0	126
SMBJ85	94.4	115	1.0	85	5.0	4.1	151
SMBJ85A	94.4	104	1.0	85	5.0	4.6	137
SMBJ90	100	122	1.0	90	5.0	3.9	160
SMBJ90A	100	111	1.0	90	5.0	4.3	146
SMBJ100	110	136	1.0	100	5.0	3.5	179
SMBJ100A	110	123	1.0	100	5.0	3.8	162
SMBJ110	122	149	1.0	110	5.0	3.2	196
SMBJ110A	122	135	1.0	110	5.0	3.5	177
SMBJ120	133	163	1.0	120	5.0	2.9	214
SMBJ120A	133	147	1.0	120	5.0	3.2	193
SMBJ130	144	176	1.0	130	5.0	2.7	231
SMBJ130A	144	159	1.0	130	5.0	3.0	209
SMBJ150	167	204	1.0	150	5.0	2.3	268
SMBJ150A	167	185	1.0	150	5.0	2.5	243
SMBJ160	178	218	1.0	160	5.0	2.2	287
SMBJ160A	178	197	1.0	160	5.0	2.4	259
SMBJ170	189	231	1.0	170	5.0	2.0	304
SMBJ170A	189	209	1.0	170	5.0	2.2	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 use C or CA suffixs for all types (ex. SMBJ5.0C, SMBJ170CA). electrical characteristics apply in both directions.  
 3.For bidirectional types having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled.

