



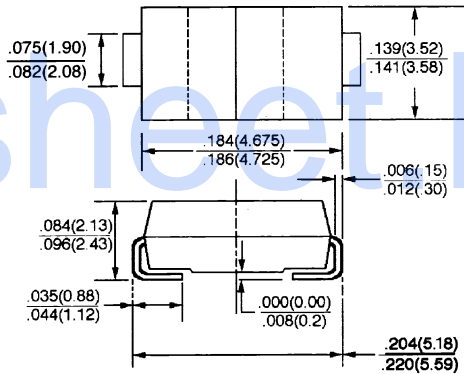
# SMBJ SERIES

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



**VOLTAGE RANGE**  
50 to 170 Volts  
**CURRENT**  
600Watts Peak Power

### SMB/DO-214AA



Dimensions in inches and (millimeters)

### FEATURES

- \* For surface mounted application
- \* Low profile package
- \* Built-in strain relief
- \* Glass passivated junction
- \* Excellent clamping capability
- \* Fast response time: typically less than 1.0ps from 0 volts to BV min.
- \* Typical  $I_R$  less than  $1\mu A$  above 10V
- \* High temperature soldering: 250°C/10seconds at terminals
- \* Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0

### MECHANICAL DATA

- \* Case: Molded plastic
- \* Terminals: Solder plated
- \* Polarity: Indicated by cathode band
- \* Standard Packaging: 12mm tape (EIA STD RS-481)
- \* Weight: 0.093 grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

TYPE NUMBER	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A = 25^\circ C$ , $T_P = 1ms$ (Note 1)	$P_{PPM}$	Minimum 600	Watts
Peak Forward Surge Current, 8.3 ms single half Sine-Wave Superimposed on Rated Load (JEDEC method) (Note 2,3) Unidirectional only.	$I_{FSM}$	100	Amps
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	°C

- NOTES:**
1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_a = 25^\circ C$  per Fig. 2.
  2. Mounted on  $0.2 \times 0.2$ " ( $5.0 \times 5.0mm$ ) copper pads to each terminal.
  3. 8.3ms single half sine-wave duty cycle-4 pulses per Minutes maximum.

### DEVICE FOR BIPOLAR APPLICATIONS OR EQUIVALENT SQUARE WAVE

1. For Bidirectional use C or CA Suffix for types SMBJ5.0 through types SMBJ170.
2. Electrical characteristics apply in both directions.

## RATINGS AND CHARACTERISTIC CURVES (SMBJ SERIES)

FIG. 1 – PULSE RATING CURVE

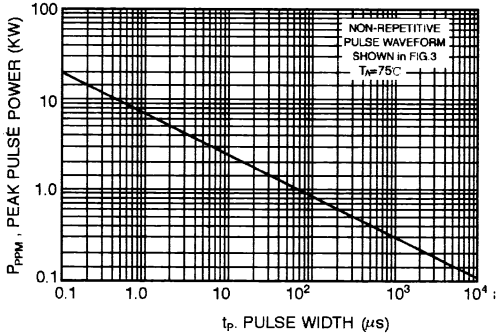


FIG. 2 – PULSE DERATING CURVE

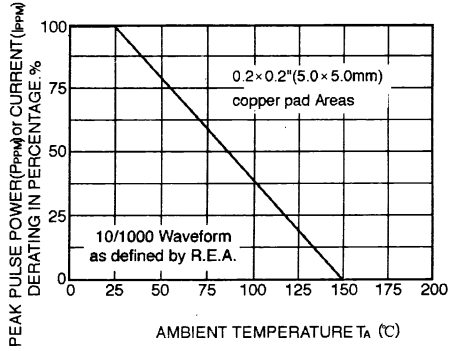


FIG. 3 – PULSE WAVEFORM

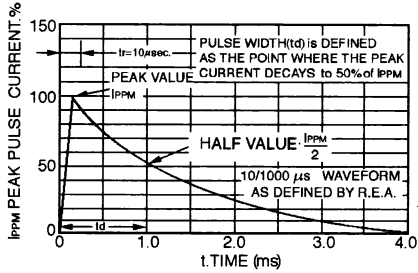


FIG. 4 – TYPICAL JUNCTION CAPACITANCE

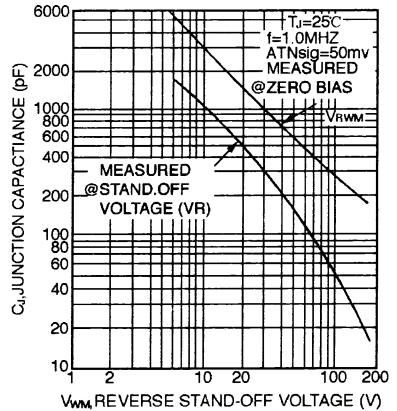
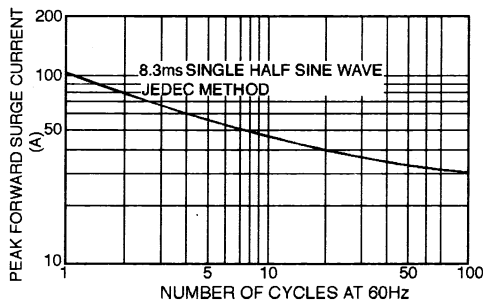


FIG. 5 – MAXIMUM NON-REPETITIVE SURGE CURRENT



**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)**

Device	Breakdown Voltage		test current I <sub>T</sub> (mA)	Maximum Working peak Reverse Voltage V <sub>WM(V)</sub>	Maximum Revers Leakage at V <sub>WM</sub> I <sub>D</sub> (μA) <sup>(3)</sup>	Maximum Revers Surge Current I <sub>PPM</sub> <sup>(2)</sup> (Amps)	Maximum Revers VOLTAGE at I <sub>PPM</sub> (Clamping Voltage) V <sub>C(V)</sub>
	V <sub>(BR)</sub> at I <sub>T</sub> <sup>(1)</sup> (V)						
	Min	Max					
SMBJ5.0	6.40	7.30	10.0	5.0	800.0	62.5	9.6
SMBJ5.0A	6.40	7.00	10.0	5.0	800.0	65.2	9.2
SMBJ6.0	6.67	8.15	10.0	6.0	800.0	52.6	11.4
SMBJ6.0A	6.67	7.37	10.0	6.0	800.0	58.3	10.3
SMBJ6.5	7.22	8.82	10.0	6.5	500.0	48.7	12.3
SMBJ6.5A	7.22	7.98	10.0	6.5	500.0	53.6	11.2
SMBJ7.0	7.78	9.51	10.0	7.0	200.0	45.1	13.3
SMBJ7.0A	7.78	8.60	10.0	7.0	200.0	50.0	12.0
SMBJ7.5	8.33	10.3	1.0	7.5	100.0	42.0	14.3
SMBJ7.5A	8.33	9.21	1.0	7.5	100.0	46.5	12.9
SMBJ8.0	8.89	10.9	1.0	8.0	50.0	40.0	15.0
SMBJ8.0A	8.89	9.83	1.0	8.0	50.0	44.1	13.6
SMBJ8.5	9.44	11.5	1.0	8.5	20.0	37.7	15.9
SMBJ8.5A	9.44	10.4	1.0	8.5	20.0	41.7	14.4
SMBJ9.0	10.0	12.2	1.0	9.0	10.0	35.5	16.9
SMBJ9.0A	10.0	11.1	1.0	9.0	10.0	39.0	15.4
SMBJ10	11.1	13.6	1.0	10	5.0	31.9	18.8
SMBJ10A	11.1	12.3	1.0	10	5.0	35.3	17.0
SMBJ11	12.2	14.9	1.0	11	5.0	29.9	20.1
SMBJ11A	12.2	13.5	1.0	11	5.0	33.0	18.2
SMBJ12	13.3	16.3	1.0	12	5.0	27.3	22.0
SMBJ12A	13.3	14.7	1.0	12	5.0	30.2	19.9
SMBJ13	14.4	17.6	1.0	13	5.0	25.2	23.8
SMBJ13A	14.4	15.9	1.0	13	5.0	27.9	21.5
SMBJ14	15.6	19.1	1.0	14	5.0	23.3	25.8
SMBJ14A	15.6	17.2	1.0	14	5.0	25.8	23.2
SMBJ15	16.7	20.4	1.0	15	5.0	22.3	26.9
SMBJ15A	16.7	18.5	1.0	15	5.0	24.0	24.4
SMBJ16	17.8	21.8	1.0	16	5.0	20.8	28.8
SMBJ16A	17.8	19.7	1.0	16	5.0	23.1	26.0
SMBJ17	18.9	23.1	1.0	17	5.0	19.7	30.5
SMBJ17A	18.9	20.9	1.0	17	5.0	21.7	27.6
SMBJ18	20.0	24.4	1.0	18	5.0	18.6	32.4
SMBJ18A	20.0	22.1	1.0	18	5.0	20.5	29.2
SMBJ20	22.2	27.1	1.0	20	5.0	16.7	35.8
SMBJ20A	22.2	24.5	1.0	20	5.0	18.5	32.4
SMBJ22	24.4	29.8	1.0	22	5.0	15.2	39.4
SMBJ22A	24.4	26.9	1.0	22	5.0	16.9	35.5
SMBJ24	26.7	32.6	1.0	24	5.0	14.0	43.0
SMBJ24A	26.7	29.5	1.0	24	5.0	15.4	38.5
SMBJ26	28.9	35.3	1.0	26	5.0	12.4	46.6
SMBJ26A	28.9	31.9	1.0	26	5.0	14.2	42.1
SMBJ28	31.1	38.0	1.0	28	5.0	12.0	50.0
SMBJ28A	31.1	34.4	1.0	28	5.0	13.2	45.4
SMBJ30	33.3	40.7	1.0	30	5.0	11.2	53.5
SMBJ30A	33.3	36.8	1.0	30	5.0	12.4	46.6
SMBJ33	36.7	44.9	1.0	33	5.0	10.2	59.0
SMBJ33A	36.7	40.6	1.0	33	5.0	11.3	53.3

Device	Breakdown Voltage		test current $I_T$ (mA)	Maximum Working peak Reverse Voltage $V_{WM(V)}$	Maximum Revers Leakage at $V_{WM}$ $I_P$ ( $\mu A$ ) <sup>(3)</sup>	Maximum Revers Surge Current $I_{PPM}^{(2)}$ (Amps)	Maximum Revers VOLTAGE at $I_{PPM}$ (Clamping Voltage) $V_C(V)$
	$V_{(BR)}$ at $I_T^{(1)}$ (V)						
	Min	Max					
SMBJ36	40.0	48.9	1.0	36	5.0	9.3	64.3
SMBJ36A	40.0	44.2	1.0	36	5.0	10.3	58.1
SMBJ40	44.4	54.3	1.0	40	5.0	8.4	71.4
SMBJ40A	44.4	49.1	1.0	40	5.0	9.3	64.5
SMBJ43	47.8	58.4	1.0	43	5.0	7.8	76.7
SMBJ43A	47.8	52.8	1.0	43	5.0	8.6	69.4
SMBJ45	50.0	61.1	1.0	45	5.0	7.5	80.3
SMBJ45A	50.0	55.3	1.0	45	5.0	8.3	72.7
SMBJ48	53.3	65.1	1.0	48	5.0	7.0	85.5
SMBJ48A	53.3	58.9	1.0	48	5.0	7.7	77.4
SMBJ51	56.7	69.3	1.0	51	5.0	6.6	91.1
SMBJ51A	56.7	62.7	1.0	51	5.0	7.3	82.4
SMBJ54	60.0	73.3	1.0	54	5.0	6.2	96.3
SMBJ54A	60.0	66.3	1.0	54	5.0	6.9	87.1
SMBJ58	64.4	78.7	1.0	58	5.0	5.8	103.0
SMBJ58A	64.4	71.2	1.0	58	5.0	6.4	93.6
SMBJ60	66.7	81.5	1.0	60	5.0	5.6	107.0
SMBJ60A	66.7	73.7	1.0	60	5.0	6.2	96.8
SMBJ64	71.1	86.9	1.0	64	5.0	5.3	114.0
SMBJ64A	71.1	78.6	1.0	64	5.0	5.8	103.0
SMBJ70	77.6	95.1	1.0	70	5.0	4.8	125
SMBJ70A	77.8	86.0	1.0	70	5.0	5.3	113
SMBJ75	83.3	102	1.0	75	5.0	4.5	134
SMBJ75A	83.3	92.1	1.0	75	5.0	4.9	121
SMBJ78	86.7	106	1.0	78	5.0	4.3	139
SMBJ78A	86.7	65.8	1.0	48	5.0	4.7	126
SMBJ85	94.4	115	1.0	85	5.0	3.9	151
SMBJ85A	94.4	104	1.0	85	5.0	4.4	137
SMBJ90	100	122	1.0	90	5.0	3.5	160
SMBJ90A	100	111	1.0	90	5.0	4.1	146
SMBJ100	111	136	1.0	100	5.0	3.4	179
SMBJ100A	111	123	1.0	100	5.0	3.7	162
SMBJ110	122	149	1.0	110	5.0	3.0	177
SMBJ110A	122	135	1.0	110	5.0	3.4	196
SMBJ120	133	163	1.0	120	5.0	2.8	177
SMBJ120A	133	147	1.0	120	5.0	3.1	214
SMBJ130	144	176	1.0	130	5.0	2.6	193
SMBJ130A	144	159	1.0	130	5.0	2.9	231
SMBJ150	167	204	1.0	150	5.0	2.2	268
SMBJ150A	167	185	1.0	150	5.0	2.5	243
SMBJ160	178	218	1.0	160	5.0	2.1	287
SMBJ160A	178	197	1.0	160	5.0	2.3	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. Pulse test:  $t_p \leq 50ms$
2. Surge Current Waveform per Figure 3 and Derate per Figure 2.
3. For bipolar types having  $V_{WM}$  of 10 volts(SMBJ8.0C)and under the  $I_D$  limit is doubled.
4. For Bidirectional use C or CA Suffix for types SMBJ5.0 thorough types SMBJ 170.