



INTERNATIONAL SEMICONDUCTOR, INC.

TRANSIENT VOLTAGE SUPPRESSORS

SMBJ5.0 thru SMBJ170A

SURFACE MOUNT

5.0 to 170 VOLTS

600 WATT PEAK POWER 1.0 WATT STEADY STATE

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 °C ambient unless otherwise specified

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_p=1\text{ms}$ (Note 1)	P_{PK}	600	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", (9.5 mm) (Note 2)	P_D	1.0	Watts
Clamping Time 0 Volts to V_{BR}	$t_{clamping}$	$< 1 \times 10^{-12}$	Sec
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	°C

For Bi-Directional indicate a C or CA suffix after the part number

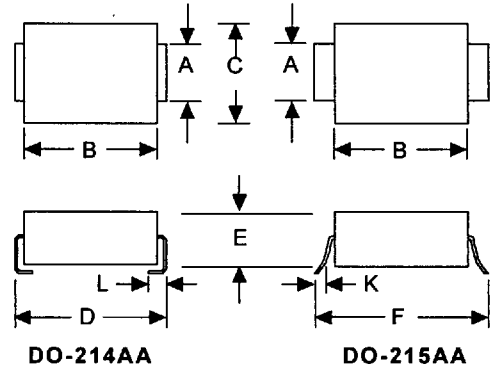
FEATURES

- 600 Watts Peak Power
- Available in ranges from 5.0 to 170 volts
- Protects sensitive semiconductor circuits
- Available in Uni-Directional and Bi-Directional
- Low Inductance

NOTES TO CHARACTERISTICS AND SPECIFICATIONS:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 2
2. Mounted on copper leaf area of 0.79 sq in (20 sq mm)
3. 8.3 ms half sine-wave, duty cycle = 4 pulses per minute maximum
4. V_{BR} measured after I_T applied for 300 us. I_T = Square Wave Pulse or equivalent.
5. Surge current waveform per Fig.3 and derated per Fig. 4.

PACKAGE DIMENSIONS



	A	B	C	D	E	F	K	L
Dimensions in Inches								
Min	0.077	0.160	0.130	0.205	0.075	0.235	0.015	0.030
Max	0.083	0.180	0.155	0.220	0.095	0.255	0.030	0.060

	A	B	C	D	E	F	K	L
Dimensions in Millimeters								
Min	1.96	4.06	3.30	5.21	1.90	5.97	0.381	0.760
Max	2.10	4.57	3.94	5.59	2.41	6.48	0.762	1.520

To Specify G Wing (Gull Wing) in place of J Wing, (J-Bend) change designation J to G

MECHANICAL CHARACTERISTICS

CASE: Molded Surface Mount

TERMINALS: Gull Wing or Modified J-Bend, tin lead plated

POLARITY: Cathode indicated by band. No marking on Bi-Directional Devices.

PACKAGING: Standard 12 mm tape

(See EIA Std. RS-481.)

THERMAL RESISTANCE: 25°C/W (typical)
junction to lead (tab) at mounting plane.

Figure 2: CAPACITANCE at STAND-OFF VOLTAGE

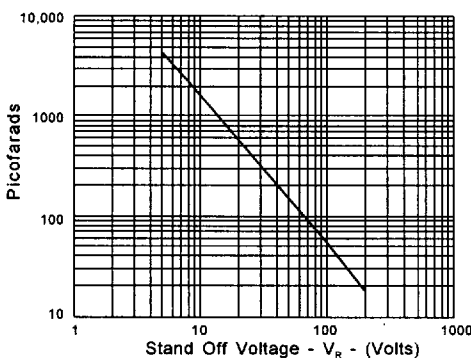


FIGURE 3 - PULSE WAVEFORM

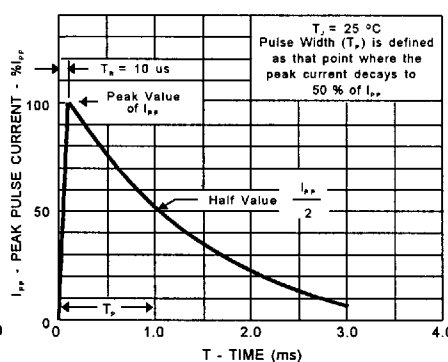
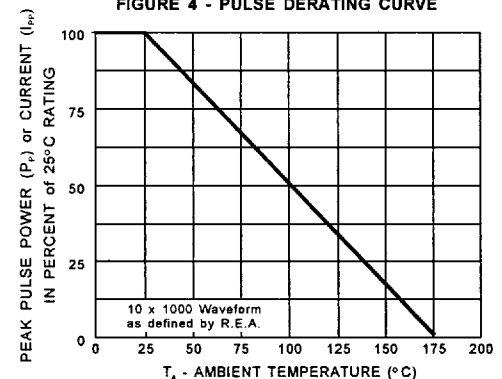


FIGURE 4 - PULSE DERATING CURVE



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SMBG and SMBJ Series ELECTRICAL CHARACTERISTICS at 25°C

ISI PART NUMBER	REVERSE STAND-OFF VOLTAGE (Note 4) V_R Volts	BREAKDOWN VOLTAGE			MAXIMUM CLAMPING VOLTAGE @ IPP (1 msec) VC Volts	MAXIMUM PEAK PULSE CURRENT (Fig. 2) I_{PP} Amps	MAXIMUM REVERSE LEAKAGE @ V_R I_{R} uA	MAXIMUM VOLTAGE TEMPERATURE VARIATION OF V_{BR} mV/°C
		Min V_{BR} Volts	Max V_{BR} Volts	@ IR mA				
SMBJ5.0	5.0	6.40	7.30	10	9.6	62.5	800	5.0
SMBJ5.0A	5.0	6.40	7.00	10	9.2	65.2	800	5.0
SMBJ6.0	6.0	6.67	8.15	10	11.4	52.6	800	5.0
SMBJ6.0A	6.0	6.67	7.37	10	10.3	58.3	800	5.0
SMBJ6.5	6.5	7.22	8.82	10	12.3	48.7	500	5.0
SMBJ6.5A	6.5	7.22	7.98	10	11.2	53.6	500	5.0
SMBJ7.0	7.0	7.78	9.51	10	13.3	45.1	200	5.0
SMBJ7.0A	7.0	7.78	8.60	10	12.0	50.0	200	5.0
SMBJ7.5	7.5	8.33	10.20	1	14.3	42.0	100	7.0
SMBJ7.5A	7.5	8.33	9.21	1	12.9	46.5	100	7.0
SMBJ8.0	8.0	8.89	10.90	1	15.0	40.0	50	7.0
SMBJ8.0A	8.0	8.89	9.83	1	13.6	44.1	50	7.0
SMBJ8.5	8.5	9.44	11.5	1	15.9	37.7	10	8.0
SMBJ8.5A	8.5	9.44	10.4	1	14.4	41.7	10	8.0
SMBJ9.0	9.0	10.0	12.2	1	16.9	35.5	5	9.0
SMBJ9.0A	9.0	10.0	11.1	1	15.4	39.0	5	9.0
SMBJ10	10	11.1	13.6	1	18.8	31.9	5	10
SMBJ10A	10	11.1	12.3	1	17.0	35.3	5	10
SMBJ11	11	12.2	14.9	1	20.1	29.9	5	11
SMBJ11A	11	12.2	13.5	1	18.2	33.0	5	11
SMBJ12	12	13.3	16.3	1	22.0	27.3	5	12
SMBJ12A	12	13.3	14.7	1	19.9	30.2	5	12
SMBJ13	13	14.4	17.6	1	23.8	25.2	5	13
SMBJ13A	13	14.4	15.9	1	21.5	27.9	5	13
SMBJ14	14	15.6	19.1	1	25.8	23.3	5	14
SMBJ14A	14	15.6	17.2	1	23.2	25.8	5	14
SMBJ15	15	16.7	20.4	1	26.9	22.3	5	16
SMBJ15A	15	16.7	18.5	1	24.4	24.0	5	16
SMBJ16	16	17.8	21.8	1	28.8	20.8	5	19
SMBJ16A	16	17.8	19.7	1	26.0	23.1	5	17
SMBJ17	17	18.9	23.1	1	30.5	19.7	5	20
SMBJ17A	17	18.9	20.9	1	27.6	21.7	5	19
SMBJ18	18	20.0	24.4	1	32.2	18.6	5	21
SMBJ18A	18	20.0	22.1	1	29.2	20.5	5	20
SMBJ20	20	22.2	27.1	1	35.8	16.7	5	25
SMBJ20A	20	22.2	24.5	1	32.4	18.5	5	23
SMBJ22	22	24.4	29.8	1	39.4	15.2	5	28
SMBJ22A	22	24.4	26.9	1	35.5	16.9	5	25
SMBJ24	24	26.7	32.6	1	43.0	14.0	5	31
SMBJ24A	24	26.7	29.5	1	38.9	15.4	5	28
SMBJ26	26	28.9	35.3	1	46.6	12.4	5	31
SMBJ26A	26	28.9	31.9	1	42.1	14.2	5	30
SMBJ28	28	31.1	38.0	1	50.1	12.0	5	35
SMBJ28A	28	31.1	34.4	1	45.4	13.2	5	31
SMBJ30	30	33.3	40.7	1	53.5	11.2	5	39
SMBJ30A	30	33.3	36.8	1	48.4	12.4	5	36
SMBJ33	33	36.7	44.9	1	59.0	10.2	5	42
SMBJ33A	33	36.7	40.6	1	53.3	11.3	5	39
SMBJ36	36	40.0	48.9	1	64.3	9.3	5	46
SMBJ36A	36	40.0	44.2	1	58.1	10.3	5	41
SMBJ40	40	44.4	54.3	1	71.4	8.4	5	51
SMBJ40A	40	44.4	49.1	1	64.5	9.3	5	46
SMBJ43	43	47.8	58.4	1	76.7	7.8	5	55
SMBJ43A	43	47.8	52.8	1	69.4	8.6	5	50
SMBJ45	45	50.0	61.1	1	80.3	7.5	5	58
SMBJ45A	45	50.0	55.3	1	72.7	8.3	5	52
SMBJ48	48	53.3	65.1	1	85.5	7.0	5	63
SMBJ48A	48	53.3	58.9	1	77.4	7.7	5	56
SMBJ51	51	56.7	69.3	1	91.1	6.6	5	66
SMBJ51A	51	56.7	62.7	1	82.4	7.3	5	61
SMBJ54	54	60.0	73.3	1	96.3	6.2	5	71
SMBJ54A	54	60.0	66.3	1	87.1	6.9	5	65
SMBJ58	58	64.4	78.7	1	103.0	5.8	5	78
SMBJ58A	58	64.4	71.2	1	93.6	6.4	5	70
SMBJ60	60	66.7	81.5	1	107.0	5.6	5	80
SMBJ60A	60	66.7	73.7	1	96.8	6.2	5	71
SMBJ64	64	71.1	86.9	1	114.0	5.3	5	86
SMBJ64A	64	71.1	78.6	1	103.0	5.8	5	76
SMBJ70	70	77.8	95.1	1	125	4.8	5	94
SMBJ70A	70	77.8	86.0	1	113	5.3	5	85
SMBJ75	75	83.3	102.0	1	134	4.5	5	101
SMBJ75A	75	83.3	92.1	1	124	4.9	5	91
SMBJ78	78	86.7	106.0	1	139	4.3	5	105
SMBJ78A	78	86.7	95.8	1	126	4.7	5	95
SMBJ85	85	94.4	115.0	1	151	3.9	5	114
SMBJ85A	85	94.4	104.0	1	137	4.4	5	103
SMBJ90	90	100	122	1	160	3.8	5	121
SMBJ90A	90	100	111	1	146	4.1	5	110
SMBJ100	100	111	136	1	179	3.4	5	135
SMBJ100A	100	111	123	1	162	3.7	5	123
SMBJ110	110	122	149	1	196	3.0	5	148
SMBJ110A	110	122	135	1	177	3.4	5	133
SMBJ120	120	133	163	1	214	2.8	5	162
SMBJ120A	120	133	147	1	193	3.1	5	146
SMBJ130	130	144	176	1	231	2.6	5	175
SMBJ130A	130	144	159	1	209	1.9	5	158
SMBJ150	150	167	204	1	268	2.9	5	203
SMBJ150A	150	167	185	1	243	2.5	5	184
SMBJ160	160	178	218	1	287	2.1	5	217
SMBJ160A	160	178	197	1	259	2.3	5	196
SMBJ170	170	189	231	1	304	2.0	5	230
SMBJ170A	170	189	209	1	275	2.2	5	208

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