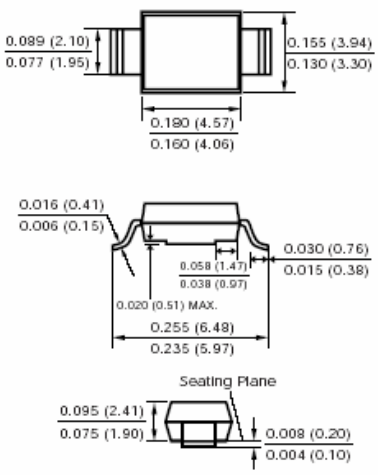
TRANSIENT VOLTAGE SUPPRESSOR

SMBJ5.0 THRU SMBJ170

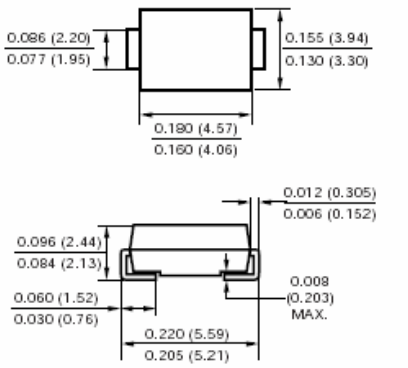
VOLTAGE RANGE **5.0 to 170 Volts**
POWER **600 Watts**

FEATURES

- Glass passivated chip junction
- 600W surge capacity @ 10/1000 µSec wave form
- Fast response, typically less then 1 pSec
- Low Zener impedence
- Excellent clamping capability
- Available in either “J” lead (SMBJ) of
- “G” lead (SMBG)
- High temperature soldering guaranteed: 250^{O}C/ seconds at terminals



DO-215AA
(SMB-G)



DO-214AA
(SMB)

MECHANICAL DATA

- Case: transfer molded plastic
- Epoxy: UL94V – 0 rate flame retardant
- Polarity: Color band denotes cathode end, except on bipolar parts which have no band
- Terminals: solderable per MIL-STD-202E method 208C
- Weight: 0.003 ounce, 0.093 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- Ratings at 25^{O}C ambient temperature unless otherwise specified

	SYMBOLS		UNIT
Peak Power Dissipation 10/1000µS waveform (Note 1,2)	P_{PPM}	600	Watts
Peak Forward Surge Current 8.3mS single half sine wave superimposed on rated load (JEDEC method) (Note 2)	I_{FSM}	100	Amps
Operating Junction Temperature Range	T_J	(-55 to +150)	^{O}C
Storage Temperature Range	T_{STG}	(-55 to +150)	^{O}C

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated to T_A = 25 ^{O}C per Fig. 2.
2. Mounted on copper pad area 0.2” x 0.2” x 0.0.0011” (5mm x 5mm x .03mm) at each terminal
3. 8.3ns single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minute, maximum.
4. For bipolar devices add a C to the part number, i.e. SMBJ5.0C or SMBJ5.0CA
5. Electrical characteristics apply in both directions for bipolar devices

RATINGS AND CHARACTERISTIC CURVES SMBJ5.0 THRU SMBJ170

For Bipolar devices add a "C" to the part number, i. e. SMBJ5.0C or SMBJ5.0CA

Device		Device Marking Code		Standoff Voltage	Breakdown Voltage (V_{BR})		Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse leakage @ V_{RWM}
				V_{RWM}	Min	Max	I_T	V_C	I_{PP}	I_R
		Uni	Bi	Volts	Volts		mA	Volts	Amps	µAmps
SMBJ5.0	SMBG5.0	KD	AD	5.0	6.4	7.3	10	9.6	65.3	800
SMBJ5.0A	SMBG5.0A	KE	AE	5.0	6.4	7.0	10	9.2	65.3	800
SMBJ6.0	SMBG6.0	KF	AF	6.0	6.67	8.15	10	11.4	58.3	800
SMBJ6.0A	SMBG6.0A	KG	AG	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5	SMBG6.5	KH	AH	6.5	7.22	8.82	10	12.3	53.6	500
SMBJ6.5A	SMBG6.5A	KK	AK	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0	SMBG7.0	KL	AL	7.0	7.78	9.51	10	13.3	50	200
SMBJ7.0A	SMBG7.0A	KM	AM	7.0	7.78	8.6	10	12	50	200
SMBJ7.5	SMBG7.5	KN	AN	7.5	8.33	10.2	1	14.3	46.6	100
SMBJ7.5A	SMBG7.5A	KP	AP	7.5	8.33	9.21	1	12.9	46.6	100
SMBJ8.0	SMBG8.0	KQ	AQ	8.0	8.89	10.9	1	15	44.2	50
SMBJ8.0A	SMBG8.0A	KR	AR	8.0	8.89	9.83	1	13.6	44.2	50
SMBJ8.5	SMBG8.5	KS	AS	8.5	9.44	11.5	1	15.9	41.7	20
SMBJ8.5A	SMBG8.5A	KT	AT	8.5	9.44	10.4	1	14.4	41.7	20
SMBJ9.0	SMBG9.0	KU	AU	9.0	10	12.2	1	16.9	39	10
SMBJ9.0A	SMBG9.0A	KV	AV	9.0	10	11.1	1	15.4	39	10
SMBJ10	SMBG10	KW	AW	10	11.1	13.6	1	18.8	35.3	5
SMBJ10A	SMBG10A	KX	AX	10	11.1	12.3	1	17	35.3	5
SMBJ11	SMBG11	KY	AY	11	12.2	14.9	1	20.1	33	5
SMBJ11A	SMBG11A	KZ	AZ	11	12.2	13.5	1	18.2	33	5
SMBJ12	SMBG12	LD	BD	12	13.3	16.3	1	22	30.2	5
SMBJ12A	SMBG12A	LE	BE	12	13.3	14.7	1	19.9	30.2	5
SMBJ13	SMBG13	LF	BF	13	14.4	17.6	1	23.8	28	5
SMBJ13A	SMBG13A	LG	BG	13	14.4	15.9	1	21.5	28	5
SMBJ14	SMBG14	LH	BH	14	15.6	19.1	1	25.8	25.9	5
SMBJ14A	SMBG14A	LK	BK	14	15.6	17.2	1	23.2	25.9	5
SMBJ15	SMBG15	LL	BL	15	19.7	20.4	1	26.9	24.6	5
SMBJ15A	SMBG15A	LM	BM	15	16.7	18.5	1	24.4	24.6	5
SMBJ16	SMBG16	LN	BN	16	17.8	21.8	1	28.8	23.1	5
SMBJ16A	SMBG16A	LP	BP	16	17.8	19.7	1	26	23.1	5
SMBJ17	SMBG17	LQ	BQ	17	18.9	23.1	1	30.5	21.8	5
SMBJ17A	SMBG17A	LR	BR	17	18.9	20.9	1	27.6	21.8	5
SMBJ18	SMBG18	LS	BS	18	20	24.4	1	32.2	20.6	5
SMBJ18A	SMBG18A	LT	BT	18	20	22.1	1	29.2	20.6	5
SMBJ20	SMBG20	LU	BU	20	22.2	27.1	1	35.8	18.6	5
SMBJ20A	SMBG20A	LV	BV	20	22.2	24.5	1	32.4	18.6	5
SMBJ22	SMBG22	LW	BW	22	24.4	29.8	1	39.4	16.9	5
SMBJ22A	SMBG22A	LX	BX	22	24.4	26.9	1	35.5	16.9	5
SMBJ24	SMBG24	LY	BY	24	26.7	32.6	1	43	15.5	5
SMBJ24A	SMBG24A	LZ	BZ	24	26.7	29.5	1	38.9	15.5	5
SMBJ26	SMBG26	MD	CD	26	28.9	35.3	1	46.6	14.3	5
SMBJ26A	SMBG26A	ME	CE	26	28.9	31.9	1	42.1	14.3	5
SMBJ28	SMBG28	MF	CF	28	31.1	38	1	50.1	13.3	5
SMBJ28A	SMBG28A	MG	CG	28	31.1	34.4	1	45.4	13.3	5
SMBJ30	SMBG30	MH	CH	30	33.3	40.7	1	53.5	12.4	5
SMBJ30A	SMBG30A	MK	CK	30	33.3	36.8	1	48.4	12.4	5
SMBJ33	SMBG33	ML	CL	33	36.7	44.9	1	59	11.3	5
SMBJ33A	SMBG33A	MM	CM	33	36.7	40.6	1	53.3	11.3	5
SMBJ36	SMBG36	MN	CN	36	40	48.9	1	64.3	10.4	5
SMBJ36A	SMBG36A	MP	CP	36	40	44.2	1	58.1	10.4	5
SMBJ40	SMBG40	MQ	CQ	40	44.4	54.3	1	71.4	9.3	5
SMBJ40A	SMBG40A	MR	CR	40	44.4	49.1	1	64.5	9.3	5
SMBJ43	SMBG43	MS	CS	43	47.8	58.4	1	76.7	8.7	5
SMBJ43A	SMBG43A	MT	CT	43	47.8	52.8	1	69.4	8.7	5
SMBJ45	SMBG45	MU	CU	45	50	61.1	1	80.3	8.3	5
SMBJ45A	SMBG45A	MV	CV	45	50	55.3	1	72.7	8.3	5
SMBJ48	SMBG48	MW	CW	48	53.3	65.2	1	85.5	7.8	5
SMBJ48A	SMBG48A	MX	CX	48	53.3	58.9	1	77.4	7.8	5

RATINGS AND CHARACTERISTIC CURVES SMBJ5.0 THRU SMBJ170

For Bipolar devices add a "C" to the part number, i. e. SMBJ5.0C or SMBJ5.0CA

Device		Device Marking Code		Standoff Voltage	Breakdown Voltage (V_{BR})		Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse leakage @ V_{RWM}
				V_{RWM}	Min	Max	I_T	V_C	I_{PP}	I_R
		Uni	Bi	Volts	Volts		mA	Volts	Amps	µAmps
SMBJ51	SMBG51	MY	BY	51	56.7	69.3	1	91.1	7.3	5
SMBJ51A	SMBG51A	MZ	BZ	51	56.7	62.7	1	82.4	7.3	5
SMBJ54	SMBG54	ND	DD	54	60	73.3	1	96.3	6.9	5
SMBJ54A	SMBG54A	NE	DE	54	60	66.3	1	87.1	69	5
SMBJ58	SMBG58	NF	DF	58	64.4	78.7	1	103	6.5	5
SMBJ58A	SMBG58A	NG	DG	58	64.4	71.2	1	93.6	6.5	5
SMBJ60	SMBG60	NH	DH	60	66.7	81.5	1	107	6.2	5
SMBJ60A	SMBG60A	NK	DK	60	66.7	73.7	1	96.8	6.2	5
SMBJ64	SMBG64	NL	DL	64	71.1	86.9	1	114	5.9	5
SMBJ64A	SMBG64A	NM	DM	64	71.1	78.6	1	103	5.9	5
SMBJ70	SMBG70	NN	DN	70	77.8	95.1	1	125	5.3	5
SMBJ70A	SMBG70A	NP	DP	70	77.8	86	1	113	5.3	5
SMBJ75	SMBG75	NQ	DQ	75	83.3	102	1	134	5	5
SMBJ75A	SMBG75A	NR	DR	75	83.3	92.1	1	121	5	5
SMBJ78	SMBG78	NS	DS	78	86.7	103	1	139	4.8	5
SMBJ78A	SMBG78A	NT	DT	78	86.7	95.8	1	126	4.8	5
SMBJ85	SMBG85	NU	DU	85	94.4	115	1	151	4.4	5
SMBJ85A	SMBG85A	NV	DV	85	94.4	104	1	137	4.4	5
SMBJ90	SMBG90	NW	DW	90	100	122	1	160	4.1	5
SMBJ90A	SMBG90A	NX	DX	90	100	111	1	146	4.1	5
SMBJ100	SMBG100	NY	DY	100	111	136	1	179	3.7	5
SMBJ100A	SMBG100A	NZ	DZ	100	111	123	1	162	3.7	5
SMBJ110	SMBG110	PD	ED	110	122	149	1	196	3.4	5
SMBJ110A	SMBG110A	PE	EE	110	122	135	1	177	3.4	5
SMBJ120	SMBG120	PF	EF	120	133	163	1	214	3.1	5
SMBJ120A	SMBG120A	PG	EG	120	133	147	1	193	3.1	5
SMBJ130	SMBG130	PH	EH	130	144	176	1	230	2.9	5
SMBJ130A	SMBG130A	PK	EK	130	144	159	1	209	2.9	5
SMBJ150	SMBG150	PL	EL	150	167	204	1	268	2.5	5
SMBJ150A	SMBG150A	PM	EM	150	167	185	1	243	2.5	5
SMBJ160	SMBG160	PN	EN	160	178	218	1	277	2.3	5
SMBJ160A	SMBG160A	PP	EP	160	178	197	1	259	2.3	5
SMBJ170	SMBG170	PQ	EQ	170	189	231	1	304	2.2	5
SMBJ170A	SMBG170A	PR	ER	170	189	209	1	275	2.2	5

Notes

1. **For bidirectional parts with V_{RWM} of 10V or less, the I_R limit is doubled.**

RATINGS AND CHARACTERISTIC CURVES SMBJ5.0 THRU SMBJ170

Fig. 1 - Peak Pulse Power Rating

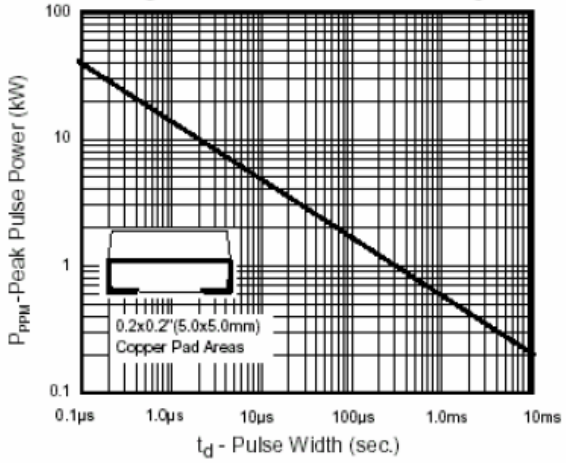


Fig.2 - Pulse Derating Curve

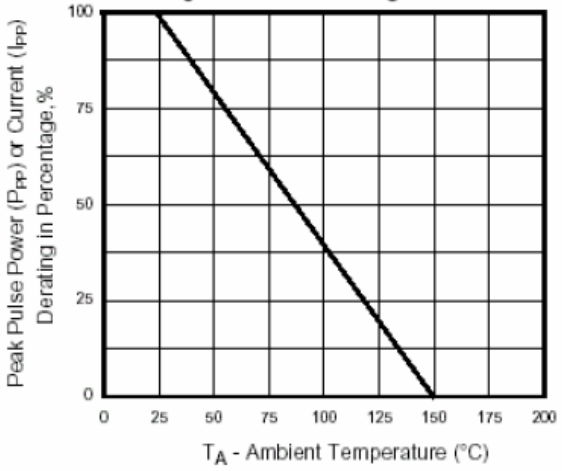


Fig.3 - Pulse Waveform

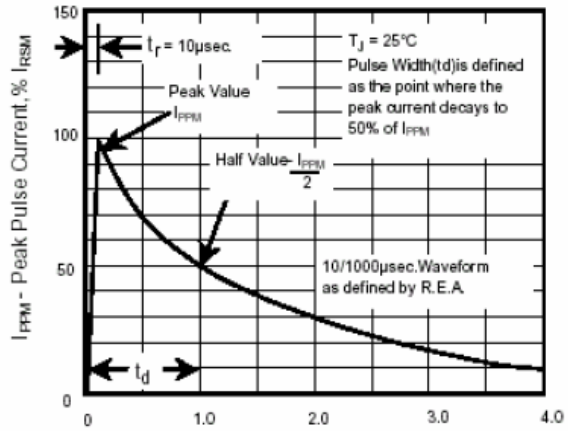


Fig.4 - Typical Junction Capacitance

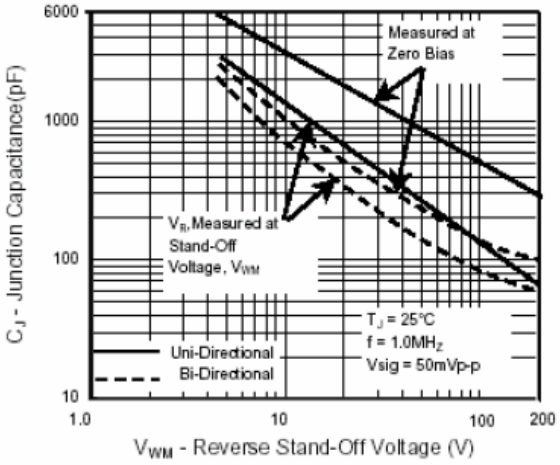


Fig. 5 - Typ.Transient Thermal Impedance

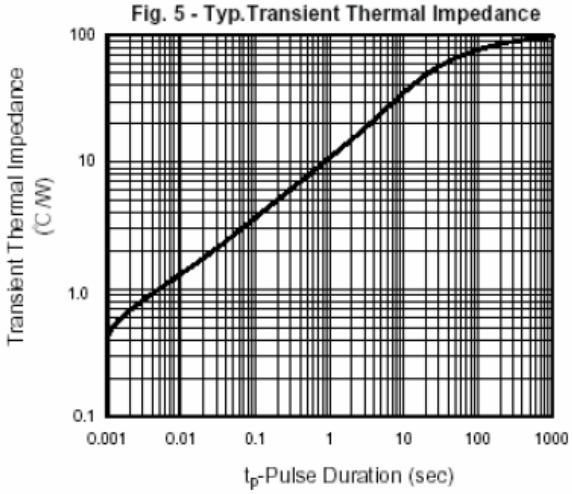


Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current