



# SMBJ5.0 - SMBJ170CA

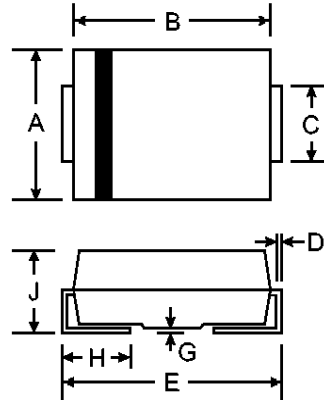
## 600W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

### Features

- 600W Peak Pulse Power Dissipation
- 5.0V - 170V Standoff Voltages
- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Material - UL Flammability Classification Rating 94V-0

### Mechanical Data

- Case: SMB, Transfer Molding Epoxy
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Marking: Date Code and Marking Code
- Weight: 0.1 grams (approx.)



SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.70
C	1.91	2.21
D	0.15	0.31
E	5.00	5.59
G	0.10	0.20
H	0.76	1.52
J	2.00	2.62
All Dimensions in mm		

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non repetitive current pulse derated above $T_A = 25^\circ\text{C}$ ) (Note 1)	$P_{PK}$	600	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Notes 1, 2, & 3)	$I_{FSM}$	100	A
Instantaneous Forward Voltage @ $I_{PP} = 35\text{A}$ (Notes 1, 2, & 3)	$V_F$	3.5	V
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
1. Valid provided that the terminals are maintained at a distance of 10mm from case at  $25^\circ\text{C}$ .
  2. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
  3. Unidirectional units only.

Part Number Add C For Bi-Directional (Note 4)	Reverse Standoff Voltage $V_{RWM}$ (V)	Breakdown Voltage $V_{BR}$ @ $I_T$ (Note 5)		Test Current $I_T$ (mA)	Max. Reverse Leakage @ $V_{RWM}$ (Note 6) $I_R$ ( $\mu$ A)	Max. Clamping Voltage @ $I_{pp}$ $V_C$ (V)	Max. Peak Pulse Current $I_{pp}$ (A)	Marking Code	
		Min (V)	Max (V)					BI-	UNI-
SMBJ5.0(C)	5.0	6.40	7.55	10	800	9.6	62.5	AD	KD
SMBJ5.0(C)A	5.0	6.40	7.23	10	800	9.2	65.2	AE	KE
SMBJ6.0(C)	6.0	6.67	8.45	10	800	11.4	52.6	AF	KF
SMBJ6.0(C)A	6.0	6.67	7.67	10	800	10.3	58.3	AG	KG
SMBJ6.5(C)	6.5	7.22	9.14	10	500	12.3	48.7	AH	KH
SMBJ6.5(C)A	6.5	7.22	8.30	10	500	11.2	53.6	AK	KK
SMBJ7.0(C)	7.0	7.78	9.86	10	200	13.3	45.1	AL	KL
SMBJ7.0(C)A	7.0	7.78	8.95	10	200	12.0	50.0	AM	KM
SMBJ7.5(C)	7.5	8.33	10.80	1.0	100	14.3	42.0	AN	KN
SMBJ7.5(C)A	7.5	8.33	9.58	1.0	100	12.9	46.5	AP	KP
SMBJ8.0(C)	8.0	8.89	11.30	1.0	50	15.0	40.0	AQ	KQ
SMBJ8.0(C)A	8.0	8.89	10.23	1.0	50	13.6	44.1	AR	KR
SMBJ8.5(C)	8.5	9.44	11.92	1.0	10	15.9	37.7	AS	KS
SMBJ8.5(C)A	8.5	9.44	10.82	1.0	10	14.4	41.7	AT	KT
SMBJ9.0(C)	9.0	10.00	12.80	1.0	5.0	16.9	35.5	AU	KU
SMBJ9.0(C)A	9.0	10.00	11.50	1.0	5.0	15.4	39.0	AV	KV
SMBJ10(C)	10.0	11.10	14.10	1.0	5.0	18.8	31.9	AW	KW
SMBJ10(C)A	10.0	11.10	12.80	1.0	5.0	17.0	35.3	AX	KX
SMBJ11(C)	11.0	12.20	15.40	1.0	5.0	20.1	29.9	AY	KY
SMBJ11(C)A	11.0	12.20	14.40	1.0	5.0	18.2	33.0	AZ	KZ
SMBJ12(C)	12.0	13.30	16.90	1.0	5.0	22.0	27.3	BD	LD
SMBJ12(C)A	12.0	13.30	15.30	1.0	5.0	19.9	30.2	BE	LE
SMBJ13(C)	13.0	14.40	18.20	1.0	5.0	23.8	25.2	BF	LF
SMBJ13(C)A	13.0	14.40	16.50	1.0	5.0	21.5	27.9	BG	LG
SMBJ14(C)	14.0	15.60	19.80	1.0	5.0	25.8	23.3	BH	LH
SMBJ14(C)A	14.0	15.60	17.90	1.0	5.0	23.2	25.8	BK	LK
SMBJ15(C)	15.0	16.70	21.10	1.0	5.0	26.9	22.3	BL	LL
SMBJ15(C)A	15.0	16.70	19.20	1.0	5.0	24.4	24.0	BM	LM
SMBJ16(C)	16.0	17.80	22.60	1.0	5.0	28.8	20.8	BN	LN
SMBJ16(C)A	16.0	17.80	20.50	1.0	5.0	26.0	23.1	BP	LP
SMBJ17(C)	17.0	18.90	23.90	1.0	5.0	30.5	19.7	BQ	LQ
SMBJ17(C)A	17.0	18.90	21.70	1.0	5.0	27.6	21.7	BR	LR
SMBJ18(C)	18.0	20.00	25.30	1.0	5.0	32.2	18.6	BS	LS
SMBJ18(C)A	18.0	20.00	23.30	1.0	5.0	29.2	20.5	BT	LT
SMBJ20(C)	20.0	22.20	28.10	1.0	5.0	35.8	16.7	BU	LU
SMBJ20(C)A	20.0	22.20	25.50	1.0	5.0	32.4	18.5	BV	LV
SMBJ22(C)	22.0	24.40	30.90	1.0	5.0	39.4	15.2	BW	LW
SMBJ22(C)A	22.0	24.40	28.00	1.0	5.0	35.5	16.9	BX	LX
SMBJ24(C)	24.0	26.70	33.80	1.0	5.0	43.0	14.0	BY	LY
SMBJ24A(C)	24.0	26.70	30.70	1.0	5.0	38.9	15.4	BZ	LZ
SMBJ26(C)	26.0	28.90	36.80	1.0	5.0	46.6	12.4	CD	MD
SMBJ26(C)A	26.0	28.90	33.20	1.0	.05	42.1	14.2	CE	ME
SMBJ28(C)	28.0	31.10	39.40	1.0	5.0	50.0	12.0	CF	MF
SMBJ28(C)A	28.0	31.10	35.80	1.0	5.0	45.4	13.2	CG	MG
SMB30(C)	30.0	33.30	42.20	1.0	5.0	53.5	11.2	CH	MH
SMBJ30(C)A	30.0	33.30	38.30	1.0	5.0	48.4	12.4	CK	MK

- Notes: 4. Suffix C denotes Bi-directional device. Suffix A denotes standard product with tighter tolerance.  
5.  $V_{BR}$  measured with  $I_T$  current pulse = 300 $\mu$ s  
6. For Bi-Directional devices having  $V_{RWM}$  of 10V and under, the  $I_R$  is doubled.

Part Number Add C For Bi-Directional (Note 4)	Reverse Standoff Voltage $V_{RWM}$ (V)	Breakdown Voltage $V_{BR}$ @ $I_T$ (Note 5)		Test Current $I_T$ (mA)	Max. Reverse Leakage @ $V_{RWM}$ (Note 6) $I_R$ ( $\mu$ A)	Max. Clamping Voltage @ $I_{pp}$ $V_C$ (V)	Max. Peak Pulse Current $I_{pp}$ (A)	Marking Code	
		Min (V)	Max (V)					BI-	UNI-
SMBJ33(C)	33.0	36.70	46.90	1.0	5.0	59.0	10.2	CL	ML
SMBJ33(C)A	33.0	36.70	42.20	1.0	5.0	53.3	11.3	CM	MM
SMBJ36(C)	36.0	40.00	50.70	1.0	5.0	64.3	9.3	CN	MN
SMBJ36(C)A	36.0	40.00	46.00	1.0	5.0	58.1	10.3	CP	MP
SMBJ40(C)	40.0	44.40	56.30	1.0	5.0	71.4	8.4	CQ	MQ
SMBJ40(C)A	40.0	44.40	51.10	1.0	5.0	64.5	9.3	CR	MR
SMBJ43(C)	43.0	47.80	60.50	1.0	5.0	76.7	7.8	CS	MS
SMBJ43(C)A	43.0	47.80	54.90	1.0	5.0	69.4	8.6	CT	MT
SMBJ45(C)	45.0	50.00	63.30	1.0	5.0	80.3	7.5	CU	MU
SMBJ45(C)A	45.0	50.00	57.50	1.0	5.0	72.7	8.3	CV	MV
SMBJ48(C)	48.0	53.30	67.50	1.0	5.0	85.5	7.0	CW	MW
SMBJ48(C)A	48.0	53.30	61.30	1.0	5.0	77.4	7.7	CX	MX
SMBJ51(C)	51.0	56.70	71.80	1.0	5.0	91.1	6.6	CY	MY
SMBJ51(C)A	51.0	56.70	65.20	1.0	5.0	82.4	7.3	CZ	MZ
SMBJ54(C)	54.0	60.00	76.00	1.0	5.0	96.3	6.2	DD	ND
SMBJ54(C)A	54.0	60.00	69.00	1.0	5.0	87.1	6.9	DE	NE
SMBJ58(C)	58.0	64.40	81.60	1.0	5.0	103.0	5.8	DF	NF
SMBJ58(C)A	58.0	64.40	74.60	1.0	5.0	93.6	6.4	DG	NG
SMBJ60(C)	60.0	66.70	84.50	1.0	5.0	107.0	5.6	DH	NH
SMBJ60(C)A	60.0	66.70	76.70	1.0	5.0	96.8	6.2	DK	NK
SMBJ64(C)	64.0	71.10	90.10	1.0	5.0	114.0	5.3	DL	NL
SMBJ64(C)A	64.0	71.10	81.80	1.0	5.0	103.0	5.8	DM	NM
SMBJ70(C)	70.0	77.80	98.60	1.0	5.0	125.0	4.8	DN	NN
SMBJ70(C)A	70.0	77.80	89.50	1.0	5.0	113.0	5.3	DP	NP
SMBJ75(C)	75.0	83.30	106.00	1.0	5.0	134.0	4.5	DQ	NQ
SMBJ75(C)A	75.0	83.30	95.80	1.0	5.0	121.0	4.9	DR	NR
SMBJ78(C)	78.0	86.70	110.00	1.0	5.0	139.0	4.3	DS	NS
SMBJ78(C)A	78.0	86.70	99.70	1.0	5.0	126.0	4.7	DT	NT
SMBJ85(C)	85.0	94.40	119.20	1.0	5.0	151.0	3.9	DU	NU
SMBJ85(C)A	85.0	94.40	108.20	1.0	5.0	137.0	4.4	DV	NV
SMBJ90(C)	90.0	100.0	126.50	1.0	5.0	160.0	3.8	DW	NW
SMBJ90(C)A	90.0	100.0	115.50	1.0	5.0	146.0	4.1	DX	NX
SMBJ100(C)	100.0	111.0	141.00	1.0	5.0	179.0	3.4	DY	NY
SMBJ100(C)A	100.0	111.0	128.00	1.0	5.0	162.0	3.7	DZ	NZ
SMBJ110(C)	110.0	122.0	154.50	1.0	5.0	196.0	3.0	ED	PD
SMBJ110(C)A	110.0	122.0	140.00	1.0	5.0	177.0	3.4	EE	PE
SMBJ120(C)	120.0	133.0	169.00	10	5.0	214.0	2.8	EF	PF
SMBJ120(C)A	120.0	133.0	153.00	1.0	5.0	193.0	3.1	EG	PG
SMBJ130(C)	130.0	144.0	182.50	1.0	5.0	231.0	2.6	EH	PH
SMBJ130(C)A	130.0	144.0	165.50	1.0	5.0	209.0	2.9	EK	PK
SMBJ150(C)	150.0	167.0	211.50	1.0	5.0	268.0	2.2	EL	PL
SMBJ150(C)A	150.0	167.0	192.50	1.0	5.0	243.0	2.5	EM	PM
SMBJ160(C)	160.0	178.0	226.00	1.0	5.0	287.0	2.1	EN	PN
SMBJ160(C)A	160.0	178.0	205.00	1.0	5.0	259.0	2.3	EP	PP
SMBJ170(C)	170.0	189.0	239.50	1.0	5.0	304.0	2.0	EQ	PQ
SMBJ170(C)A	170.0	189.0	217.50	1.0	5.0	275.0	2.2	ER	PR

Notes: 4. Suffix C denotes Bi-directional device. Suffix A denotes standard product with tighter tolerance.

5.  $V_{BR}$  measured with  $I_T$  current pulse = 300 $\mu$ s

6. For Bi-Directional devices having  $V_{RWM}$  of 10V and under, the  $I_R$  is doubled.

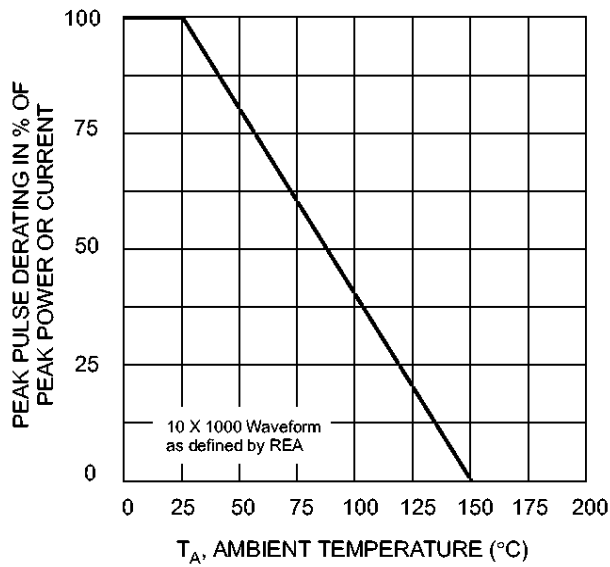


Fig. 1 Pulse Derating Curve

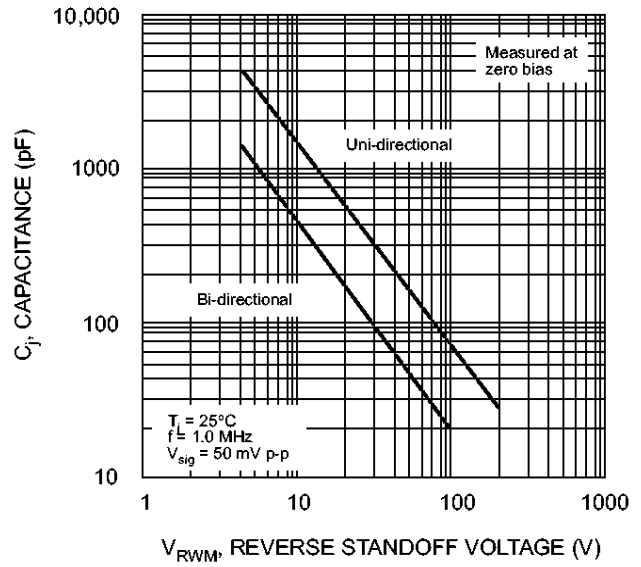


Fig. 2 Typical Junction Capacitance

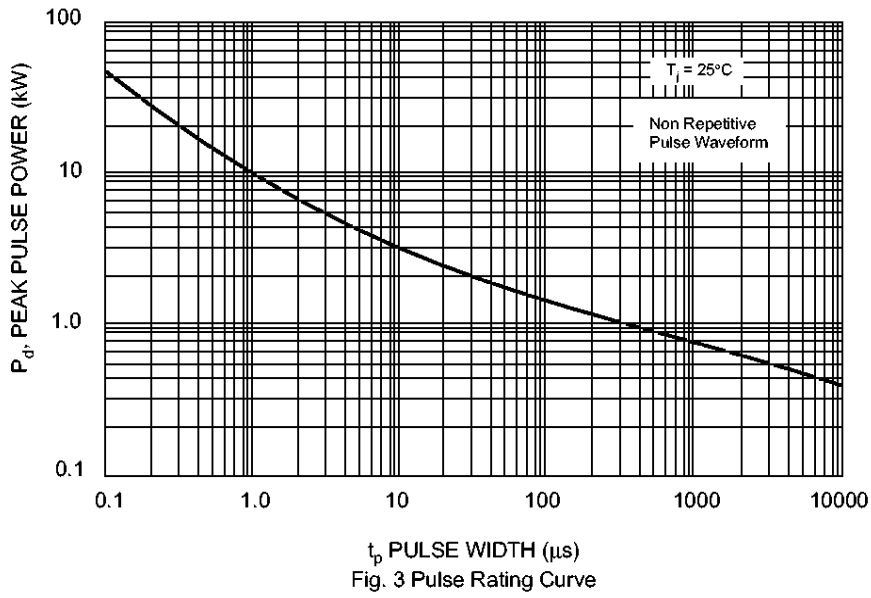


Fig. 3 Pulse Rating Curve

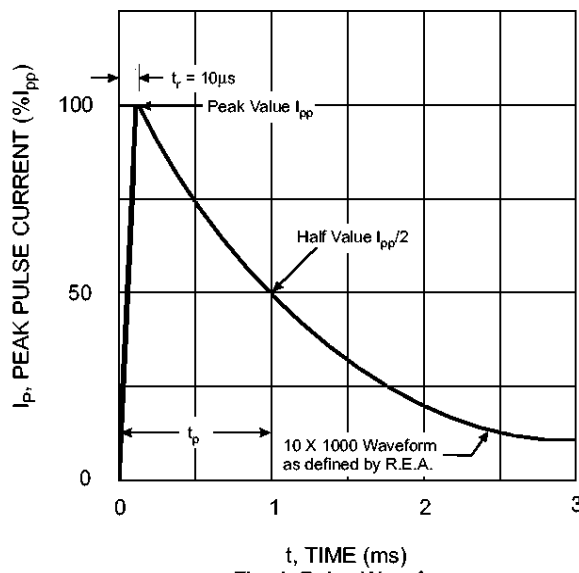


Fig. 4 Pulse Waveform