

# SMBJ5.0 - SMBJ170CA series

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

Protect sensitive electronics against voltage transients induced by electro-static discharge (ESD), inductive load switching, and lightning. Ideal for the protection of I/O interfaces, Vcc bus and other integrated circuits.

### FEATURES

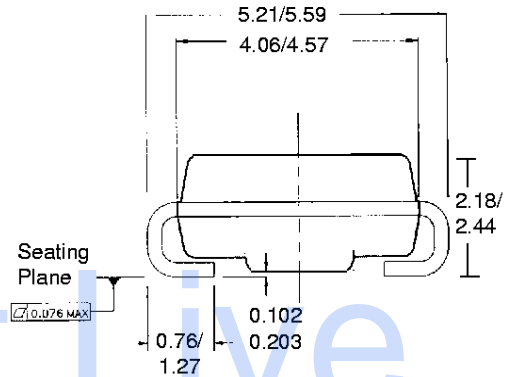
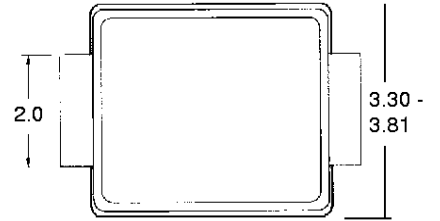
- Stand-off Voltage Range 5.0 to 170 Volts
- Uni-directional and Bi-directional
- Glass Passivated Junction
- Jedec package designed to meet SM assembly needs
- Low lead inductance
- Each device 100% surge tested

### MAXIMUM RATINGS

- Peak Pulse Power (Ppk) 600 Watts (10 X 1000µs)  
(see diagram on page 6 for wave form)
- 1.5 Watt Steady State
- Response time: 1 X 10<sup>-12</sup> secs (theoretical)
- Forward surge rating: 100A, 8.3 ms single half sine-wave  
(Uni-directional only)
- Operating & storage Temp.: -55°C to + 150°C

### MECHANICAL DATA

- CASE: D0214AA moulded plastic over glass passivated junction UL94V(O) (Thermoset) Epoxy.
- Terminals: Solder plated solderable per MIL-STD-750 Method 2026
- Solderable leads: 230°C for 10 seconds.
- Marking: cathode band(positive terminal, uni-directional devices only), device code, logo
- Weight: 0.093 gram (approx.)



### ORDERING INFORMATION

**SMBJ**     **C** **A**

Voltage .....

Bi Directional.....

5% Voltage Tolerance .....

Packing Option .....

T1 = Taped (500 pcs)

T3 = Taped (3000 pcs)

Figure 1 - Capacitance

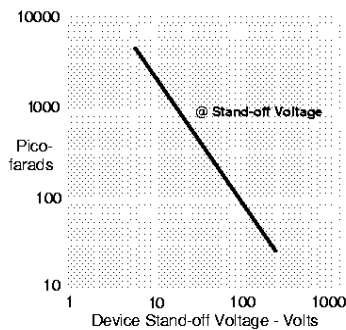
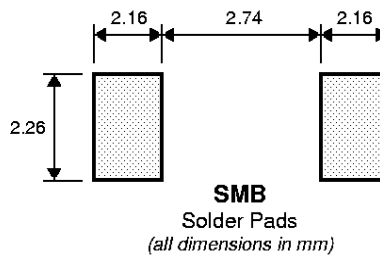


Figure 2 - Pad Size



PART NUMBER UNI-POLAR	DEVICE CODE UNI-POLAR	PART NUMBER BI-POLAR	DEVICE CODE BI-POLAR C' or 'CA' VERSION	REVERSE STANDOFF VOLTAGE V <sub>R</sub> (Volts)	BREAKDOWN VOLTAGE V <sub>BR</sub> (Volts) @ I <sub>T</sub>			MAXIMUM REVERSE LEAKAGE I <sub>R</sub> @ V <sub>R</sub> (µA)	MAXIMUM CLAMPING VOLTAGE V <sub>c</sub> @ I <sub>PP</sub> (Volts)	MAXIMUM PEAK PULSE CURRENT I <sub>PP</sub> (A)
					MIN	MAX	(mA)			
SMBJ5.0	KD	SMBJ5.0C	AD	5.0	6.40	7.55	10	800.0	9.6	62.5
SMBJ5.0A	KE	SMBJ5.0CA	AE	5.0	6.40	7.25	10	800.0	9.2	65.2
SMBJ6.0	KF	SMBJ6.0C	AF	6.0	6.67	8.45	10	800.0	11.4	52.6
SMBJ6.0A	KG	SMBJ6.0CA	AG	6.0	6.67	7.67	10	800.0	10.3	58.3
SMBJ6.5	KH	SMBJ6.5C	AH	6.5	7.22	9.14	10	500.0	12.3	48.7
SMBJ6.5A	KK	SMBJ6.5CA	AK	6.5	7.22	8.30	10	500.0	11.2	53.6
SMBJ7.0	KL	SMBJ7.0C	AL	7.0	7.78	9.86	10	200.0	13.3	45.1
SMBJ7.0A	KM	SMBJ7.0CA	AM	7.0	7.78	8.95	10	200.0	12.0	50.0
SMBJ7.5	KN	SMBJ7.5C	AN	7.5	8.33	10.67	1	100.0	14.3	42.0
SMBJ7.5A	KP	SMBJ7.5CA	AP	7.5	8.33	9.58	1	100.0	12.9	46.5
SMBJ8.0	KQ	SMBJ8.0C	AQ	8.0	8.89	1.30	1	50.0	15.0	40.0
SMBJ8.0A	KR	SMBJ8.0CA	AR	8.0	8.89	10.23	1	50.0	13.6	44.1
SMBJ8.5	KS	SMBJ8.5C	AS	8.5	9.44	11.92	1	20.0	15.9	37.7
SMBJ8.5A	KT	SMBJ8.5CA	AT	8.5	9.44	10.82	1	20.0	14.4	41.7
SMBJ9.0	KU	SMBJ9.0C	AU	9.0	10.00	12.60	1	10.0	16.9	35.5
SMBJ9.0A	KV	SMBJ9.0CA	AV	9.0	10.00	11.50	1	10.0	15.4	39.0
SMBJ10	KW	SMBJ10C	AW	10.0	11.10	14.10	1	5.0	18.8	31.9
SMBJ10A	KX	SMBJ10CA	AX	10.0	11.10	12.80	1	5.0	17.0	35.3
SMBJ11	KY	SMBJ11C	AY	11.0	12.20	15.40	1	5.0	20.1	29.9
SMBJ11A	KZ	SMBJ11CA	AZ	11.0	12.20	14.00	1	5.0	18.2	33.0
SMBJ12	LD	SMBJ12C	BD	12.0	13.30	16.90	1	5.0	22.0	27.3
SMBJ12A	LE	SMBJ12CA	BE	12.0	13.30	15.30	1	5.0	19.9	30.2
SMBJ13	LF	SMBJ13C	BF	13.0	14.40	8.20	1	5.0	23.8	25.2
SMBJ13A	LG	SMBJ13CA	BG	13.0	14.40	16.50	1	5.0	21.5	27.9
SMBJ14	LH	SMBJ14C	BH	14.0	15.60	19.80	1	5.0	25.8	23.3
SMBJ14A	LK	SMBJ14CA	BK	14.0	15.60	17.90	1	5.0	23.2	25.8
SMBJ15	LL	SMBJ15C	BL	15.0	16.70	21.10	1	5.0	26.9	22.3
SMBJ15A	LM	SMBJ15CA	BM	15.0	16.70	19.20	1	5.0	24.4	24.0
SMBJ16	LN	SMBJ16C	BN	16.0	17.80	22.60	1	5.0	28.8	20.8
SMBJ16A	LP	SMBJ16CA	BP	16.0	17.80	20.50	1	5.0	26.0	23.1
SMBJ17	LQ	SMBJ17C	BQ	17.0	18.90	23.90	1	5.0	30.5	19.7
SMBJ17A	LR	SMBJ17CA	BR	17.0	18.90	21.70	1	5.0	27.6	21
SMBJ18	LS	SMBJ18C	BS	18.0	20.00	25.30	1	5.0	32.2	18.6
SMBJ18A	LT	SMBJ18CA	BT	18.0	20.00	23.30	1	5.0	29.2	20.5
SMBJ20	LU	SMBJ20C	BU	20.0	22.20	28.10	1	5.0	35.8	16.7
SMBJ20A	LV	SMBJ20CA	BV	20.0	22.20	25.50	1	5.0	32.4	18.5
SMBJ22	LW	SMBJ22C	BW	22.0	24.40	30.90	1	5.0	39.4	15.2
SMBJ22A	LX	SMBJ22CA	BX	22.0	24.40	28.00	1	5.0	35.5	16.9
SMBJ24	LY	SMBJ24C	BY	24.0	26.70	33.80	1	5.0	43.0	14.0
SMBJ24A	LZ	SMBJ24CA	BZ	24.0	26.70	30.70	1	5.0	38.9	15.4
SMBJ26	MD	SMBJ26C	CD	26.0	28.90	36.60	1	5.0	46.6	12.4
SMBJ26A	ME	SMBJ26CA	CE	26.0	28.90	33.20	1	5.0	42.1	14.2
SMBJ28	MF	SMBJ28C	CF	28.0	31.10	39.40	1	5.0	50.0	12.0
SMBJ28A	MG	SMBJ28CA	CG	28.0	31.10	35.80	1	5.0	45.4	13.2
SMBJ30	MH	SMBJ30C	CH	30.0	33.30	42.20	1	5.0	53.5	11.2
SMBJ30A	MK	SMBJ30CA	CK	30.0	33.30	38.30	1	5.0	46.6	12.4
SMBJ33	ML	SMBJ33C	CL	33.0	36.70	46.50	1	5.0	59.0	10.2

"Note: Non ""A"" devices have higher clamping voltage. Add suffix ""C"" to denote bi-polar devices.

1. For Bi-directional devices having V<sub>R</sub> of 10 volts and under the I<sub>R</sub> limit is doubled.
2. For Uni-direction devices V<sub>F</sub> = 3.5 Volts max at I<sub>F</sub> 50A, 300 µS square wave pulse.



PART NUMBER UNI-POLAR	DEVICE CODE UNI-POLAR	PART NUMBER BI-POLAR	DEVICE CODE BI-POLAR C' or 'CA' VERSION	REVERSE STANDOFF VOLTAGE V <sub>R</sub> (Volts)	BREAKDOWN VOLTAGE V <sub>BR</sub> (Volts) @ I <sub>T</sub>			MAXIMUM REVERSE LEAKAGE I <sub>R</sub> @ V <sub>R</sub> (µA)	MAXIMUM CLAMPING VOLTAGE V <sub>C</sub> @ I <sub>PP</sub> (Volts)	MAXIMUM PEAK PULSE CURRENT I <sub>PP</sub> (A)
					MIN	MAX	(mA)			
SMBJ33A	MM	SMBJ33CA	CM	33.0	36.70	42.20	1.0	5.0	53.3	11.3
SMBJ36	MN	SMBJ36C	CN	36.0	40.00	50.70	1.0	5.0	64.3	9.3
SMBJ36A	MP	SMBJ36CA	CP	36.0	40.00	46.00	1.0	5.0	58.1	10.3
SMBJ40	MQ	SMBJ40C	CQ	40.0	44.40	56.30	1.0	5.0	71.4	8.4
SMBJ40A	MR	SMBJ40CA	CR	40.0	44.40	51.10	1.0	5.0	64.5	9.3
SMBJ43	MS	SMBJ43C	CS	43.0	47.80	60.50	1.0	5.0	76.7	7.8
SMBJ43A	MT	SMBJ43CA	CT	43.0	47.80	54.90	1.0	5.0	69.4	8.6
SMBJ45	MU	SMBJ45C	CU	45.0	50.00	63.30	1.0	5.0	80.3	7.5
SMBJ45A	MV	SMBJ45CA	CV	45.0	50.00	57.50	1.0	5.0	72.7	8.3
SMBJ48	MW	SMBJ48C	CW	48.0	53.30	67.50	1.0	5.0	85.5	7.0
SMBJ48A	MX	SMBJ48CA	CX	48.0	53.30	61.30	1.0	5.0	77.4	7.7
SMBJ51	MY	SMBJ51C	CY	51.0	56.70	71.80	1.0	5.0	91.1	6.6
SMBJ51A	MZ	SMBJ51CA	CZ	51.0	56.70	65.20	1.0	5.0	82.4	7.3
SMBJ54	ND	SMBJ54C	DD	54.0	60.00	76.00	1.0	5.0	96.3	6.2
SMBJ54A	NE	SMBJ54CA	DE	54.0	60.00	69.00	1.0	5.0	87.1	6.9
SMBJ58	NF	SMBJ58C	DF	58.0	64.40	81.60	1.0	5.0	103.0	5.8
SMBJ58A	NG	SMBJ58CA	DG	58.0	64.40	74.10	1.0	5.0	93.6	6.4
SMBJ60	NH	SMBJ60C	DH	60.0	66.70	84.50	1.0	5.0	107.0	5.6
SMBJ60A	NK	SMBJ60CA	DK	60.0	66.70	76.70	1.0	5.0	96.8	6.2
SMBJ64	NL	SMBJ64C	DL	64.0	71.10	90.10	1.0	5.0	114.0	5.3
SMBJ64A	NM	SMBJ64CA	DM	64.0	71.10	81.80	1.0	5.0	103.0	5.8
SMBJ70	NN	SMBJ70C	DN	70.0	77.80	98.60	1.0	5.0	125.0	4.8
SMBJ70A	NP	SMBJ70CA	DP	70.0	77.80	89.50	1.0	5.0	113.0	5.3
SMBJ75	NQ	SMBJ75C	DQ	75.0	83.30	105.70	1.0	5.0	134.0	4.5
SMBJ75A	NR	SMBJ75CA	DR	75.0	83.30	95.80	1.0	5.0	121.0	4.9
SMBJ78	NS	SMBJ78C	DS	78.0	86.70	109.80	1.0	5.0	139.0	4.3
SMBJ78A	NT	SMBJ78CA	DT	78.0	86.70	99.70	1.0	5.0	126.0	4.7
SMBJ85	NU	SMBJ85C	DU	85.0	94.40	119.20	1.0	5.0	151.0	3.9
SMBJ85A	NV	SMBJ85CA	DV	85.0	94.40	108.20	1.0	5.0	137.0	4.4
SMBJ90	NW	SMBJ90C	DW	90.0	100.00	126.50	1.0	5.0	160.0	3.8
SMBJ90A	NX	SMBJ90CA	DX	90.0	100.00	115.50	1.0	5.0	146.0	4.1
SMBJ100	NY	SMBJ100C	DY	100.0	111.00	141.00	1.0	5.0	179.0	3.4
SMBJ100A	NZ	SMBJ100CA	DZ	100.0	111.00	128.00	1.0	5.0	162.0	3.7
SMBJ110	PD	SMBJ110C	ED	110.0	122.00	154.50	1.0	5.0	196.0	3.0
SMBJ110A	PE	SMBJ110CA	EE	110.0	122.00	140.50	1.0	5.0	177.0	3.4
SMBJ120	PF	SMBJ120C	EF	120.0	133.00	169.00	1.0	5.0	214.0	2.8
SMBJ120A	PG	SMBJ120CA	EG	120.0	133.00	153.00	1.0	5.0	193.0	3.1
SMBJ130	PH	SMBJ130C	EH	130.0	144.00	182.50	1.0	5.0	231.0	2.6
SMBJ130A	PK	SMBJ130CA	EK	130.0	144.00	165.50	1.0	5.0	209.0	2.9
SMBJ150	PL	SMBJ150C	EL	150.0	167.00	211.50	1.0	5.0	268.0	2.2
SMBJ150A	PM	SMBJ150CA	EM	150.0	167.00	192.50	1.0	5.0	243.0	2.5
SMBJ160	PN	SMBJ160C	EN	160.0	178.00	226.00	1.0	5.0	287.0	2.1
SMBJ160A	PP	SMBJ160CA	EP	160.0	178.00	205.00	1.0	5.0	259.0	2.3
SMBJ170	PQ	SMBJ170C	EQ	170.0	189.00	239.50	1.0	5.0	304.0	2.0
SMBJ170A	PR	SMBJ170CA	ER	170.0	189.00	217.50	1.0	5.0	275.0	2.2

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