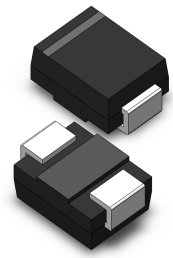
SMBJ5.0 - SMBJ170CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPESSOR DIODE

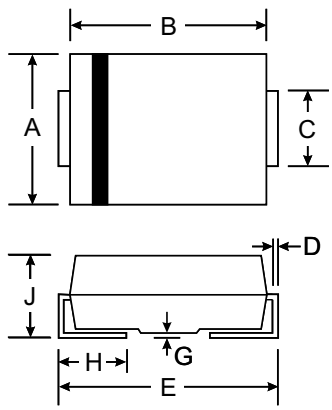


Features

- 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/DO-214AA, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.093 grams (approx.)



SMB(DO-214AA)		
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°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non repetitive current pulse derated above T_A = 25°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} = 35A (Notes 1, 2, & 3) V_{BR}<100V V_{BR} ≥100V	V_F	3.5 5.0	V V
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Notes: 1. Valid provided that terminals are kept at ambient temperature.
2. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
3. Unidirectional units only.

TYPE		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
(Uni)	(Bi)	(Uni)	(Bi)	V_{RWM}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
SMBJ5.0	SMBJ5.0C	KD	KD	5.0	6.40	7.55	10	9.6	62.5	800.0
SMBJ5.0A	SMBJ5.0CA	KE	KE	5.0	6.40	7.25	10	9.2	65.2	800.0
SMBJ6.0	SMBJ6.0C	KF	KF	6.0	6.67	8.45	10	11.4	52.6	800.0
SMBJ6.0A	SMBJ6.0CA	KG	KG	6.0	6.67	7.67	10	10.3	58.3	800.0
SMBJ6.5	SMBJ6.5C	KH	AH	6.5	7.22	9.14	10	12.3	48.8	500.0
SMBJ6.5A	SMBJ6.5CA	KK	AK	6.5	7.22	8.30	10	11.2	53.6	500.0
SMBJ7.0	SMBJ7.0C	KL	KL	7.0	7.78	9.86	10	13.3	45.1	200.0
SMBJ7.0A	SMBJ7.0CA	KM	KM	7.0	7.78	8.95	10	12.0	50.0	200.0
SMBJ7.5	SMBJ7.5C	KN	AN	7.5	8.33	10.67	1.0	14.3	42.0	100.0
SMBJ7.5A	SMBJ7.5CA	KP	AP	7.5	8.33	9.58	1.0	12.9	46.5	100.0
SMBJ8.0	SMBJ8.0C	KQ	AQ	8.0	8.89	11.3	1.0	15.0	40.0	50.0
SMBJ8.0A	SMBJ8.0CA	KR	AR	8.0	8.89	10.23	1.0	13.6	44.1	50.0
SMBJ8.5	SMBJ8.5C	KS	AS	8.5	9.44	11.92	1.0	15.9	37.7	20.0
SMBJ8.5A	SMBJ8.5CA	KT	AT	8.5	9.44	10.82	1.0	14.4	41.7	20.0
SMBJ9.0	SMBJ9.0C	KU	AU	9.0	10.0	12.6	1.0	16.9	35.5	10.0
SMBJ9.0A	SMBJ9.0CA	KV	AV	9.0	10.0	11.5	1.0	15.4	39.0	10.0
SMBJ10	SMBJ10C	KW	AW	10	11.1	14.1	1.0	18.8	31.9	5.0
SMBJ10A	SMBJ10CA	KX	AX	10	11.1	12.8	1.0	17.0	35.3	5.0
SMBJ11	SMBJ11C	KY	KY	11	12.2	15.4	1.0	20.1	29.9	5.0
SMBJ11A	SMBJ11CA	KZ	KZ	11	12.2	14.0	1.0	18.2	33.0	5.0
SMBJ12	SMBJ12C	LD	BD	12	13.3	16.9	1.0	22.0	27.3	5.0
SMBJ12A	SMBJ12CA	LE	BE	12	13.3	15.3	1.0	19.9	30.2	5.0
SMBJ13	SMBJ13C	LF	LF	13	14.4	18.2	1.0	23.8	25.2	5.0
SMBJ13A	SMBJ13CA	LG	LG	13	14.4	16.5	1.0	21.5	27.9	5.0
SMBJ14	SMBJ14C	LH	BH	14	15.6	19.8	1.0	25.8	23.3	5.0
SMBJ14A	SMBJ14CA	LK	BK	14	15.6	17.9	1.0	23.2	25.9	5.0
SMBJ15	SMBJ15C	LL	BL	15	16.7	21.1	1.0	26.9	22.3	5.0
SMBJ15A	SMBJ15CA	LM	BM	15	16.7	19.2	1.0	24.4	24.6	5.0
SMBJ16	SMBJ16C	LN	LN	16	17.8	22.6	1.0	28.8	20.8	5.0
SMBJ16A	SMBJ16CA	LP	LM	16	17.8	20.5	1.0	26.0	23.1	5.0
SMBJ17	SMBJ17C	LQ	LQ	17	18.9	23.9	1.0	30.5	19.7	5.0
SMBJ17A	SMBJ17CA	LR	LR	17	18.9	21.7	1.0	27.6	21.7	5.0
SMBJ18	SMBJ18C	LS	BS	18	20.0	25.3	1.0	32.2	18.6	5.0
SMBJ18A	SMBJ18CA	LT	BT	18	20.0	23.3	1.0	29.2	20.5	5.0
SMBJ20	SMBJ20C	LU	LU	20	22.2	28.1	1.0	35.8	16.8	5.0
SMBJ20A	SMBJ20CA	LV	LV	20	22.2	25.5	1.0	32.4	18.5	5.0
SMBJ22	SMBJ22C	LW	BW	22	24.4	30.9	1.0	39.4	15.2	5.0
SMBJ22A	SMBJ22CA	LX	BX	22	24.4	28.0	1.0	35.5	16.9	5.0

Note:

(1) V_{BR} measured after I_T applied for 300 µs., I_T = square wave pulse or equivalent.

(2) Surge Current Waveform per Figure 5 and Derate per Figure 1

(3) A Transient suppressor is normally selected according to the reverse " Stand-off Voltage " (V_{WM}) which should be equal to or greater then the D.C. or continuous peak operating voltage level.

TYPE		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
(Uni)	(Bi)	(Uni)	(Bi)	V_{RWM}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
SMBJ24	SMBJ24C	LY	BY	24	26.7	33.8	1.0	43.0	14.0	5.0
SMBJ24A	SMBJ24CA	LZ	BZ	24	26.7	30.7	1.0	38.9	15.4	5.0
SMBJ26	SMBJ26C	MD	CD	26	28.9	36.6	1.0	46.6	12.9	5.0
SMBJ26A	SMBJ26CA	ME	CE	26	28.9	33.2	1.0	42.1	14.3	5.0
SMBJ28	SMBJ28C	MF	MF	28	31.1	39.4	1.0	50.0	12.0	5.0
SMBJ28A	SMBJ28CA	MG	MG	28	31.1	35.8	1.0	45.4	13.2	5.0
SMBJ30	SMBJ30C	MH	CH	30	33.3	42.2	1.0	53.5	11.2	5.0
SMBJ30A	SMBJ30CA	MK	CK	30	33.3	38.3	1.0	48.4	12.4	5.0
SMBJ33	SMBJ33C	ML	CL	33	36.7	46.5	1.0	59.0	10.2	5.0
SMBJ33A	SMBJ33CA	MM	CM	33	36.7	42.2	1.0	53.3	11.3	5.0
SMBJ36	SMBJ36C	MN	CN	36	40.0	50.7	1.0	64.3	9.3	5.0
SMBJ36A	SMBJ36CA	MP	CP	36	40.0	46.0	1.0	58.1	10.3	5.0
SMBJ40	SMBJ40C	MQ	CQ	40	44.4	56.3	1.0	71.4	8.4	5.0
SMBJ40A	SMBJ40CA	MR	CR	40	44.4	51.1	1.0	64.5	9.3	5.0
SMBJ43	SMBJ43C	MS	CS	43	47.8	60.5	1.0	76.7	7.8	5.0
SMBJ43A	SMBJ43CA	MT	CT	43	47.8	54.9	1.0	69.4	8.6	5.0
SMBJ45	SMBJ45C	MU	MU	45	50.0	63.3	1.0	80.3	7.5	5.0
SMBJ45A	SMBJ45CA	MV	MV	45	50.0	57.5	1.0	72.7	8.3	5.0
SMBJ48	SMBJ48C	MW	MW	48	53.3	67.5	1.0	85.5	7.0	5.0
SMBJ48A	SMBJ48CA	MX	MX	48	53.3	61.3	1.0	77.4	7.8	5.0
SMBJ51	SMBJ51C	MY	MY	51	56.7	71.8	1.0	91.1	6.6	5.0
SMBJ51A	SMBJ51CA	MZ	MZ	51	56.7	65.2	1.0	82.4	7.3	5.0
SMBJ54	SMBJ54C	ND	ND	54	60.0	76.0	1.0	96.3	6.2	5.0
SMBJ54A	SMBJ54CA	NE	NE	54	60.0	69.0	1.0	87.1	6.9	5.0
SMBJ58	SMBJ58C	NF	NF	58	64.4	81.6	1.0	103	5.8	5.0
SMBJ58A	SMBJ58CA	NG	NG	58	64.4	74.1	1.0	93.6	6.4	5.0
SMBJ60	SMBJ60C	NH	NH	60	66.7	84.5	1.0	107	5.6	5.0
SMBJ60A	SMBJ60CA	NK	NK	60	66.7	76.7	1.0	96.8	6.2	5.0
SMBJ64	SMBJ64C	NL	NL	64	71.1	90.1	1.0	114	5.3	5.0
SMBJ64A	SMBJ64CA	NM	NM	64	71.1	81.8	1.0	103	5.8	5.0
SMBJ70	SMBJ70C	NN	NN	70	77.8	98.6	1.0	125	4.8	5.0
SMBJ70A	SMBJ70CA	NP	NP	70	77.8	89.5	1.0	113	5.3	5.0
SMBJ75	SMBJ75C	NQ	NQ	75	83.0	105.7	1.0	134	4.5	5.0
SMBJ75A	SMBJ75CA	NR	NR	75	83.0	95.8	1.0	121	5.0	5.0
SMBJ78	SMBJ78C	NS	NS	78	86.0	109.8	1.0	139	4.3	5.0
SMBJ78A	SMBJ78CA	NT	NT	78	86.0	99.7	1.0	126	4.8	5.0
SMBJ85	SMBJ85C	NU	NU	85	94.0	119.2	1.0	151	4.0	5.0
SMBJ85A	SMBJ85CA	NV	NV	85	94.0	108.2	1.0	137	4.4	5.0

Note:

(1) V_{BR} measured after I_T applied for 300 µs., I =square wave pulse or equivalent.

(2) Surge Current Waveform per Figure 5 and Derate per Figure 1

(3) A Transient suppressor is normally selected according to the reverse " Stand-off Voltage " (V_{WM}) which should be equal to or greater then the D.C. or continuous peak operating voltage level.

TYPE		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
(Uni)	(Bi)	(Uni)	(Bi)	V_{RWM}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
SMBJ90	SMBJ90C	NW	NW	90	100	126.5	1.0	160	3.8	5.0
SMBJ90A	SMBJ90CA	NX	NX	90	100	115.5	1.0	146	4.1	5.0
SMBJ100	SMBJ100C	NY	NY	100	111	141.0	1.0	179	3.4	5.0
SMBJ100A	SMBJ100CA	NZ	NZ	100	111	128.0	1.0	162	3.7	5.0
SMBJ110	SMBJ110C	PD	PD	110	122	154.5	1.0	196	3.1	5.0
SMBJ110A	SMBJ110CA	PE	PE	110	122	140.5	1.0	177	3.4	5.0
SMBJ120	SMBJ120C	PF	PF	120	133	169.0	1.0	214	2.8	5.0
SMBJ120A	SMBJ120CA	PG	PG	120	133	153.0	1.0	193	3.1	5.0
SMBJ130	SMBJ130C	PH	PH	130	144	182.5	1.0	231	2.6	5.0
SMBJ130A	SMBJ130CA	PK	PK	130	144	165.5	1.0	209	2.9	5.0
SMBJ150	SMBJ150C	PL	PL	150	167	211.5	1.0	268	2.2	5.0
SMBJ150A	SMBJ150CA	PM	PM	150	167	192.5	1.0	243	2.5	5.0
SMBJ160	SMBJ160C	PN	PN	160	178	226.0	1.0	287	2.1	5.0
SMBJ160A	SMBJ160CA	PP	PP	160	178	205.0	1.0	259	2.3	5.0
SMBJ170	SMBJ170C	PQ	PQ	170	189	239.5	1.0	304	2.0	5.0
SMBJ170A	SMBJ170CA	PR	PR	170	189	217.5	1.0	275	2.2	5.0

Ratings and Characteristic Curves T_A =25°C unless otherwise noted

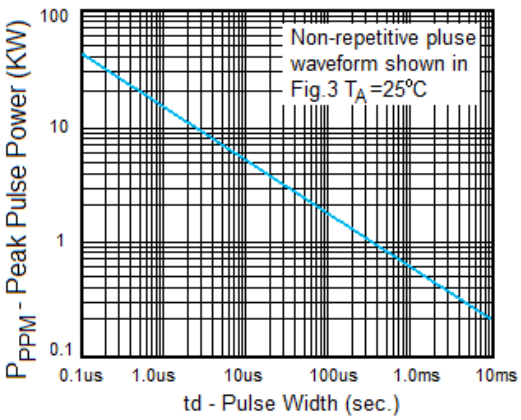


Fig. 1 Peak Pulse Power Rating

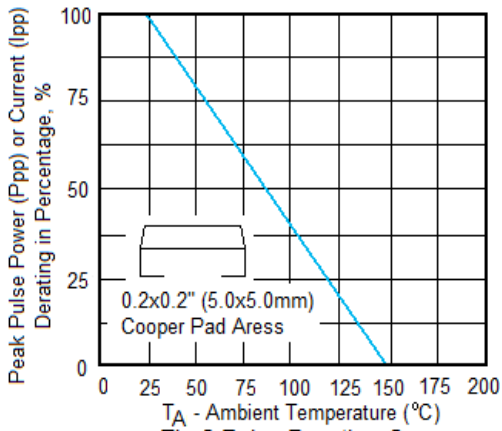


Fig.2 Pulse Derating Cure

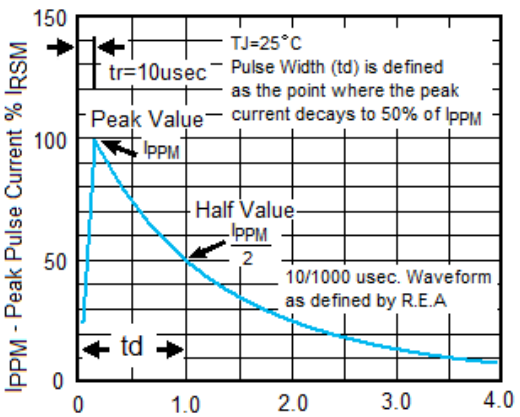


Fig.3 Pulse Waveform

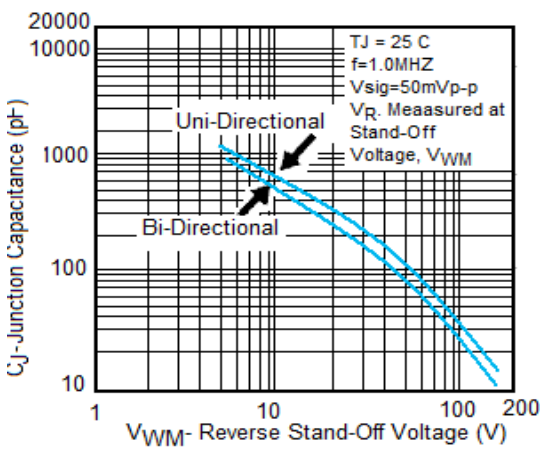


Fig. 4- Typical Junction Capacitance