



SMBJ SERIES

Surface Mount Transient Voltage Suppressor

Features

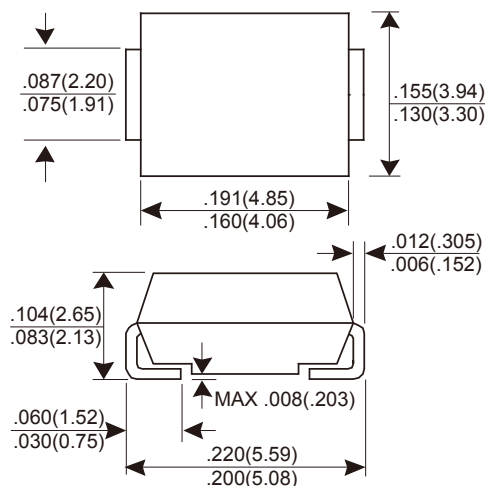
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ 600W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ RoHS compliant
- ★ IEC-61000-4-2 ESD 30kV(Air), 30kV(Contact)
- ★ ESD protection of data lines in accordance with IEC 61000-4-2
- ★ EFT protection of data lines in accordance with IEC 61000-4-4

Mechanical Data

- ★ Case: Molded plastic, SMB/DO-214AA
- ★ Epoxy: UL 94V-0 rate flame retardant
- ★ Terminals: Solderable per MIL-STD-750, method 2026
- ★ Polarity: Color band denotes cathode end
- ★ Part no. with suffix "-A" means AEC-Q101 qualified

Working Voltage 5.0 to 440 V
Peak Pulse Power 600W

SMB/DO-214AA



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform (Note 1,2)	P_{PPM}	600	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I_{FSM}	100	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	5.0	W
Maximum instantaneous forward voltage at 50A for unidirectional only (Note 4)	V_F	3.5 / 5.0	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	$^\circ\text{C/W}$
Operating junction temperature range ($V_R \leq 78\text{V}$)	T_J	-65 to +175	$^\circ\text{C}$
Operating junction temperature range ($V_R > 78\text{V}$)	T_J	-65 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-65 to +175	$^\circ\text{C}$

NOTES : (1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2

(2) Mounted on copper pad area of 0.2" x 0.2" (5.0 x 5.0mm) to each terminal

(3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

(4) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

SMBJ SERIES

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R@V_{RWM}$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage $V_C@I_{PP}$ (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
SMBJ5.0A	SMBJ5.0CA	KE	AE	6.40	7.00	10	800	5.0	65.22	9.2
SMBJ6.0A	SMBJ6.0CA	KG	AG	6.67	7.37	10	800	6.0	58.25	10.3
SMBJ6.5A	SMBJ6.5CA	KK	AK	7.22	7.98	10	500	6.5	53.57	11.2
SMBJ7.0A	SMBJ7.0CA	KM	AM	7.78	8.60	10	200	7.0	50.00	12.0
SMBJ7.5A	SMBJ7.5CA	KP	AP	8.33	9.21	1	100	7.5	46.51	12.9
SMBJ8.0A	SMBJ8.0CA	KR	AR	8.89	9.83	1	50	8.0	44.12	13.6
SMBJ8.5A	SMBJ8.5CA	KT	AT	9.44	10.4	1	10	8.5	41.67	14.4
SMBJ9.0A	SMBJ9.0CA	KV	AV	10.0	11.1	1	5	9.0	38.96	15.4
SMBJ10A	SMBJ10CA	KX	AX	11.1	12.3	1	5	10	35.29	17.0
SMBJ11A	SMBJ11CA	KZ	AZ	12.2	13.5	1	1	11	32.97	18.2
SMBJ12A	SMBJ12CA	LE	BE	13.3	14.7	1	1	12	30.15	19.9
SMBJ13A	SMBJ13CA	LG	BG	14.4	15.9	1	1	13	27.91	21.5
SMBJ14A	SMBJ14CA	LK	BK	15.6	17.2	1	1	14	25.86	23.2
SMBJ15A	SMBJ15CA	LM	BM	16.7	18.5	1	1	15	24.59	24.4
SMBJ16A	SMBJ16CA	LP	BP	17.8	19.7	1	1	16	23.08	26.0
SMBJ17A	SMBJ17CA	LR	BR	18.9	20.9	1	1	17	21.74	27.6
SMBJ18A	SMBJ18CA	LT	BT	20.0	22.1	1	1	18	20.55	29.2
SMBJ20A	SMBJ20CA	LV	BV	22.2	24.5	1	1	20	18.52	32.4
SMBJ22A	SMBJ22CA	LX	BX	24.4	26.9	1	1	22	16.90	35.5
SMBJ24A	SMBJ24CA	LZ	BZ	26.7	29.5	1	1	24	15.42	38.9
SMBJ26A	SMBJ26CA	ME	CE	28.9	31.9	1	1	26	14.25	42.1
SMBJ28A	SMBJ28CA	MG	CG	31.1	34.4	1	1	28	13.22	45.4
SMBJ30A	SMBJ30CA	MK	CK	33.3	36.8	1	1	30	12.40	48.4
SMBJ33A	SMBJ33CA	MM	CM	36.7	40.6	1	1	33	11.26	53.3
SMBJ36A	SMBJ36CA	MP	CP	40.0	44.2	1	1	36	10.33	58.1
SMBJ40A	SMBJ40CA	MR	CR	44.4	49.1	1	1	40	9.30	64.5
SMBJ43A	SMBJ43CA	MT	CT	47.8	52.8	1	1	43	8.65	69.4
SMBJ45A	SMBJ45CA	MV	CV	50.0	55.3	1	1	45	8.25	72.7
SMBJ48A	SMBJ48CA	MX	CX	53.3	58.9	1	1	48	7.75	77.4
SMBJ51A	SMBJ51CA	MZ	CZ	56.7	62.7	1	1	51	7.28	82.4
SMBJ54A	SMBJ54CA	NE	DE	60.0	66.3	1	1	54	6.89	87.1
SMBJ58A	SMBJ58CA	NG	DG	64.4	71.2	1	1	58	6.41	93.6
SMBJ60A	SMBJ60CA	NK	DK	66.7	73.7	1	1	60	6.20	96.8
SMBJ64A	SMBJ64CA	NM	DM	71.1	78.6	1	1	64	5.83	103.0
SMBJ70A	SMBJ70CA	NP	DP	77.8	86.0	1	1	70	5.31	113.0
SMBJ75A	SMBJ75CA	NR	DR	83.3	92.1	1	1	75	4.96	121.0
SMBJ78A	SMBJ78CA	NT	DT	86.7	95.8	1	1	78	4.76	126.0
SMBJ85A	SMBJ85CA	NV	DV	94.4	104	1	1	85	4.38	137.0
SMBJ90A	SMBJ90CA	NX	DX	100	111	1	1	90	4.11	146.0
SMBJ100A	SMBJ100CA	NZ	DZ	111	123	1	1	100	3.70	162.0
SMBJ110A	SMBJ110CA	PE	EE	122	135	1	1	110	3.39	177.0
SMBJ120A	SMBJ120CA	PG	EG	133	147	1	1	120	3.11	193.0
SMBJ130A	SMBJ130CA	PK	EK	144	159	1	1	130	2.87	209.0
SMBJ150A	SMBJ150CA	PM	EM	167	185	1	1	150	2.47	243.0
SMBJ160A	SMBJ160CA	PP	EP	178	197	1	1	160	2.32	259.0
SMBJ170A	SMBJ170CA	PR	ER	189	209	1	1	170	2.18	275.0
SMBJ180A	SMBJ180CA	PT	ET	200	220	1	1	180	2.06	291.6
SMBJ188A	SMBJ188CA	PB	EB	209	231	1	1	188	1.97	304.0
SMBJ200A	SMBJ200CA	PV	EV	224	247	1	1	200	1.85	324.0
SMBJ220A	SMBJ220CA	PX	EX	246	272	1	1	220	1.69	356.0
SMBJ250A	SMBJ250CA	PZ	EZ	279	309	1	1	250	1.48	405.0
SMBJ300A	SMBJ300CA	QE	FE	335	371	1	1	300	1.23	486.0
SMBJ350A	SMBJ350CA	QG	FG	391	432	1	1	350	1.06	567.0
SMBJ400A	SMBJ400CA	QK	FK	447	494	1	1	400	0.93	648.0
SMBJ440A	SMBJ440CA	QM	FM	492	543	1	1	440	0.84	713.0

Suffix "A" denotes 5% tolerance device.

Add suffix "CA" after part number to specify Bi-directional devices.

For Bi-directional type having V_R of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTICS CURVES SMBJ SERIES

Fig.1 - Peak Pulse Power Rating Curve

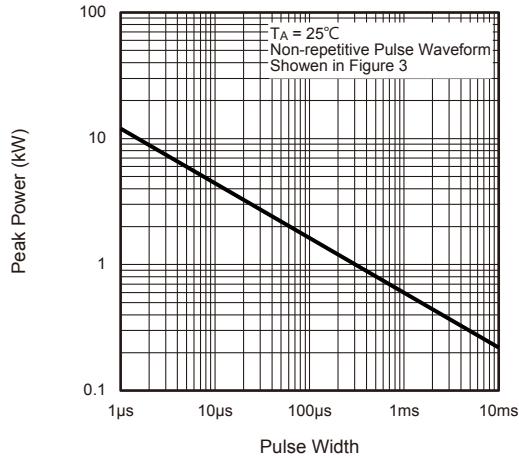


Fig.2 - Pulse Derating Curve

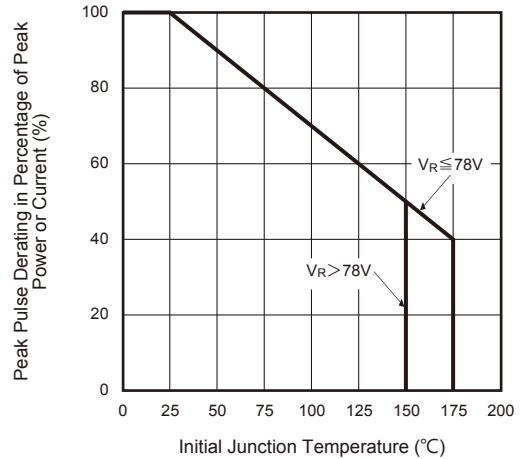


Fig.3 - Pulse Waveform

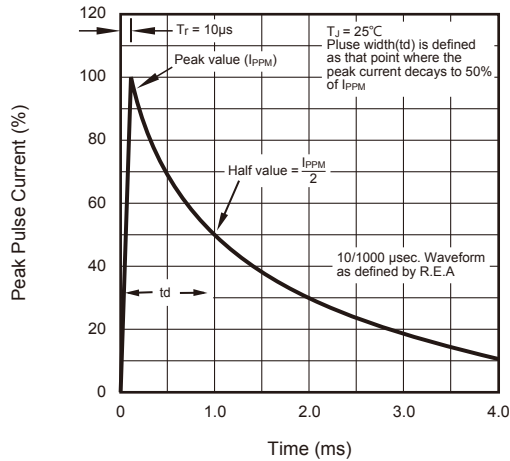


Fig.4 - Typical Junction Capacitance

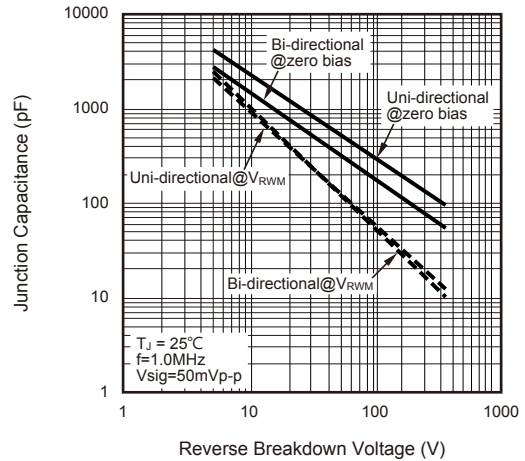


Fig.5 - Steady State Power Derating Curve

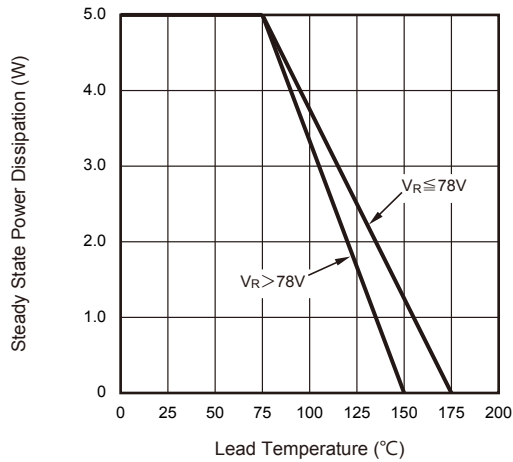


Fig.6 - Maximum Non-Repetitive Surge Current

