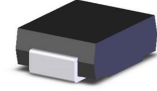


Description

The SMBJ Series are designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

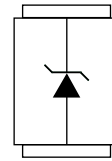


SMB/DO-214AA

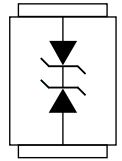
Feature

- For surface mounted application to optimize board space
- Low profile package
- Built-in strain relief
- Typical maximum temperature coefficient $\Delta V_{BR}=0.1\% \times V_{BR}@25^{\circ}\text{C} \times \Delta T$
- Glass passivated junction
- 600W peak pulse power capability at 10*1000us waveform, repetition rate (duty cycle): 0.01%
- Fast response time: typical less than 1.2ps from 0V to V_{BR} min
- Low incremental surge resistance
- Excellent clamping capability
- High temperature soldering guaranteed: 260°C/40 seconds at terminals

Unidirectional



Bidirectional



Applications

TVS device are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in telecom, computer industrial and consumer electronic application

Maximum Ratings and Thermal Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=10/1000\mu\text{s}$)	P_{pp}	600	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	100	A
Instantaneous Forward Voltage @ $I_{PP}=35\text{A}$ $V_{BR}<100\text{V}$ $V_{BR}\geq 100\text{V}$	V_F	3.5 5.0	V
Operating and Storage Temperature	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

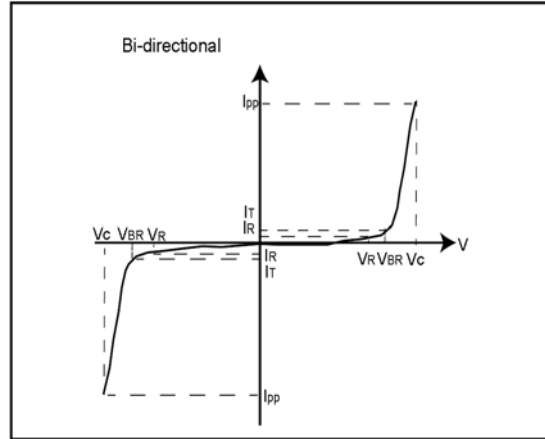
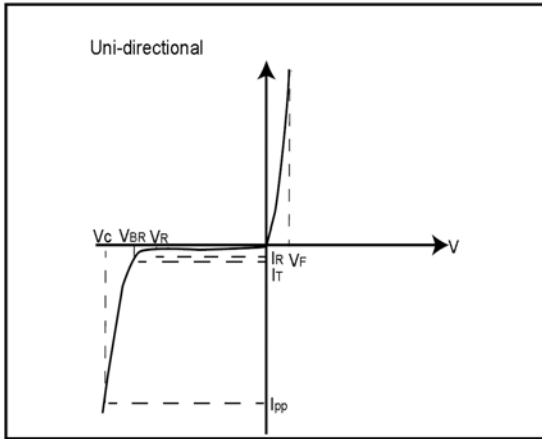
Electrical characteristics per line @25°C (unless otherwise specified)

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V_R (V)	Breakdown Voltage $V_{BR}@ I_T$ (V)		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage $I_R @ V_R$ (μA)
			MIN	MAX				
SMBJ5.0A	SMBJ5.0CA	5.0	6.40	7.00	10	9.2	65.3	800
SMBJ6.0A	SMBJ6.0CA	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.21	1	12.9	46.6	100
SMBJ8.0A	SMBJ8.0CA	8.0	8.89	9.83	1	13.6	44.2	50
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.40	1	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	9.0	10.00	11.10	1	15.4	39.0	10
SMBJ10A	SMBJ10CA	10.0	11.10	12.30	1	17.0	35.3	5
SMBJ11A	SMBJ11CA	11.0	12.20	13.50	1	18.2	33.0	1
SMBJ12A	SMBJ12CA	12.0	13.30	14.70	1	19.9	30.2	1
SMBJ13A	SMBJ13CA	13.0	14.40	15.90	1	21.5	28.0	1
SMBJ14A	SMBJ14CA	14.0	15.60	17.20	1	23.2	25.9	1
SMBJ15A	SMBJ15CA	15.0	16.70	18.50	1	24.4	24.6	1
SMBJ16A	SMBJ16CA	16.0	17.80	19.70	1	26.0	23.1	1
SMBJ17A	SMBJ17CA	17.0	18.90	20.90	1	27.6	21.8	1
SMBJ18A	SMBJ18CA	18.0	20.00	22.10	1	29.2	20.6	1
SMBJ20A	SMBJ20CA	20.0	22.20	24.50	1	32.4	18.6	1
SMBJ22A	SMBJ22CA	22.0	24.40	26.90	1	35.5	16.9	1
SMBJ24A	SMBJ24CA	24.0	26.70	29.50	1	38.9	15.5	1
SMBJ26A	SMBJ26CA	26.0	28.90	31.90	1	42.1	14.3	1
SMBJ28A	SMBJ28CA	28.0	31.10	34.40	1	45.4	13.3	1
SMBJ30A	SMBJ30CA	30.0	33.30	36.80	1	48.4	12.4	1
SMBJ33A	SMBJ33CA	33.0	36.70	40.60	1	53.3	11.3	1
SMBJ36A	SMBJ36CA	36.0	40.00	44.20	1	48.1	10.4	1
SMBJ40A	SMBJ40CA	40.0	44.40	49.10	1	64.5	9.3	1
SMBJ43A	SMBJ43CA	43.0	47.80	52.80	1	69.40	8.7	1
SMBJ45A	SMBJ45CA	45.0	50.00	55.30	1	72.7	8.3	1

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V_R (V)	Breakdown Voltage $V_{BR}@ I_T$ (V)		Test Current I_T (mA)	Maximum Clamping Voltage $V_C @ I_{PP}$ (V)	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage $I_R @ V_R$ (μA)
			MIN	MAX				
SMBJ48A	SMBJ48CA	48.0	53.30	58.90	1	77.4	7.8	1
SMBJ51A	SMBJ51CA	51.0	56.70	62.70	1	82.4	7.3	1
SMBJ54A	SMBJ54CA	54.0	60.00	66.30	1	87.1	6.9	1
SMBJ58A	SMBJ58CA	58.0	64.40	71.20	1	93.6	6.5	1
SMBJ60A	SMBJ60CA	60.0	66.70	73.70	1	96.8	6.2	1
SMBJ64A	SMBJ64CA	64.0	71.10	78.60	1	103.0	5.9	1
SMBJ70A	SMBJ70CA	70.0	77.80	86.00	1	113.0	5.3	1
SMBJ75A	SMBJ75CA	75.0	83.30	92.10	1	121.0	5.0	1
SMBJ78A	SMBJ78CA	78.0	86.70	95.80	1	126.0	4.8	1
SMBJ85A	SMBJ85CA	85.0	94.40	104.00	1	137.0	4.4	1
SMBJ90A	SMBJ90CA	90.0	100.00	111.00	1	146.0	4.1	1
SMBJ100A	SMBJ100CA	100.0	111.00	123.00	1	162.0	3.7	1
SMBJ110A	SMBJ110CA	110.0	122.00	135.00	1	177.0	3.4	1
SMBJ120A	SMBJ120CA	120.0	133.00	147.00	1	193.0	3.1	1
SMBJ130A	SMBJ130CA	130.0	144.00	159.00	1	209.0	2.9	1
SMBJ150A	SMBJ150CA	150.0	167.00	185.00	1	243.0	2.5	1
SMBJ160A	SMBJ160CA	160.0	178.00	197.00	1	259.0	2.3	1
SMBJ170A	SMBJ170CA	170.0	189.00	209.00	1	275.0	2.2	1
SMBJ180A	SMBJ180CA	180.0	201.00	222.00	1	292.0	2.1	1
SMBJ200A	SMBJ200CA	200.0	224.00	247.00	1	324.0	1.9	1
SMBJ220A	SMBJ220A	220.0	246.00	272.00	1	356.0	1.7	1
SMBJ250A	SMBJ250CA	250.0	279.00	309.00	1	405.0	1.5	1
SMBJ300A	SMBJ300CA	300.0	335.00	371.00	1	486.0	1.3	1
SMBJ350A	SMBJ350CA	350.0	391.00	432.00	1	567.0	1.1	1
SMBJ400A	SMBJ400CA	400.0	447.00	494.00	1	648.0	0.9	1
SMBJ440A	SMBJ440CA	440.0	492.00	543.00	1	713.0	0.9	1

For bidirectional type having V_{RWM} of 10 volts and less, the I_R limit is double.

For parts without A, the V_{BR} is $\pm 10\%$ and V_C is 5% higher than with A parts.

I-V Curve Characteristics


P_{PP} Peak Pulse Power -- Max power dissipation

V_R Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage -- Maximum current that flows through the TVS at a specified test current (I_T)

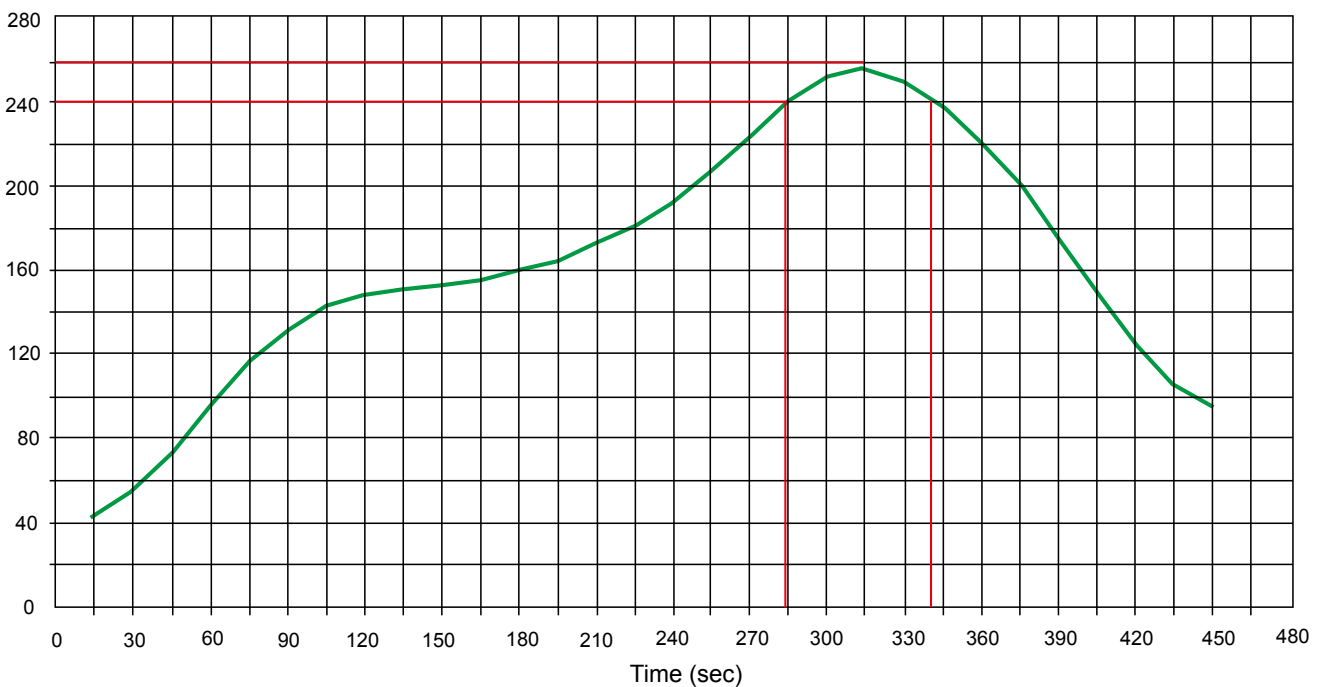
V_C Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{ppm} (peak impulse current)

I_R Reverse Leakage Current -- Current measured at V_R

V_F Forward Voltage Drop for Uni-directional

Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Ratings and Characteristic Curves $T_A=25^\circ\text{C}$ unless otherwise noted

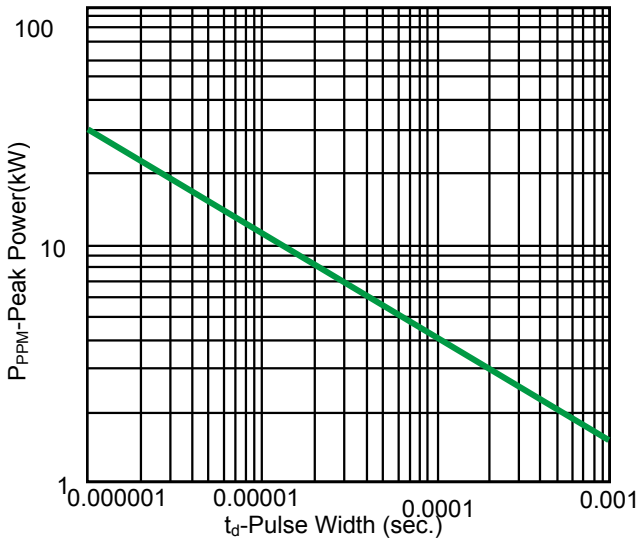


Figure 1-Peak Pulse Power Rating

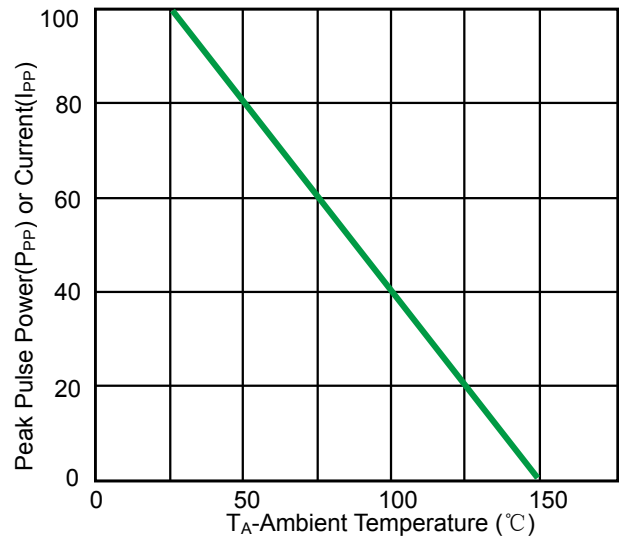


Figure 2-Pulse Derating Curve

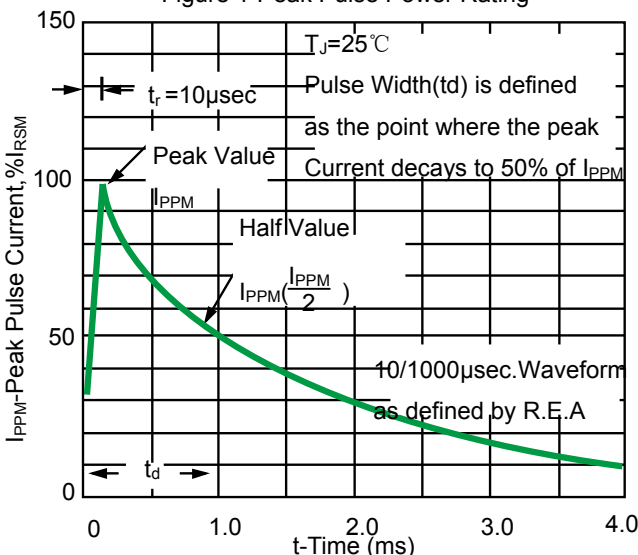


Figure 3-Pulse Waveform

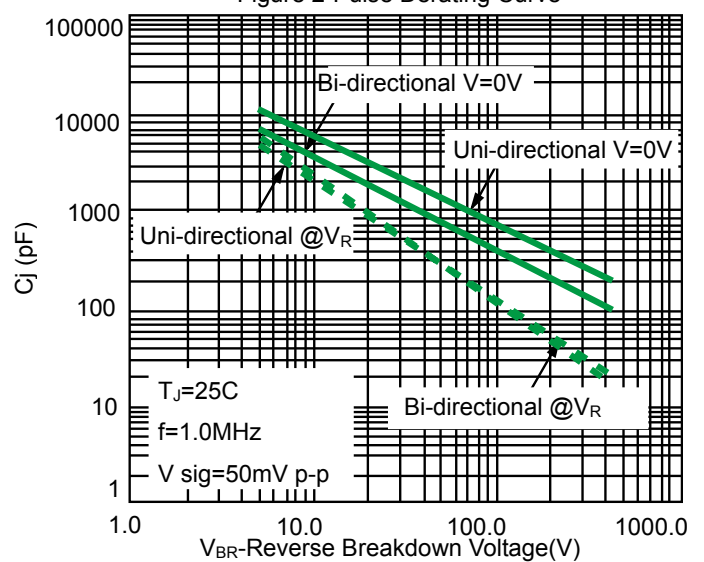


Figure 4-Typical Junction Capacitance

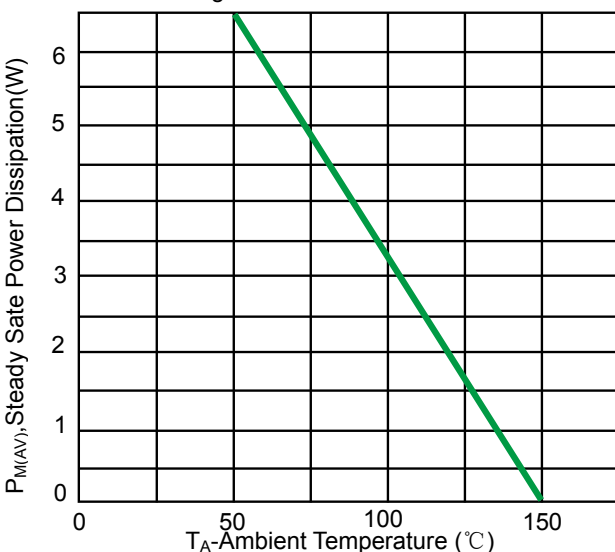


Figure 5-Steady State Power Dissipation Derating Curve

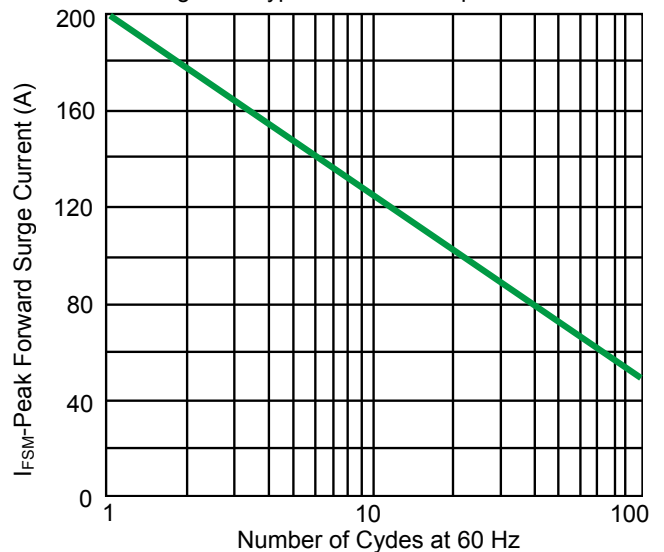
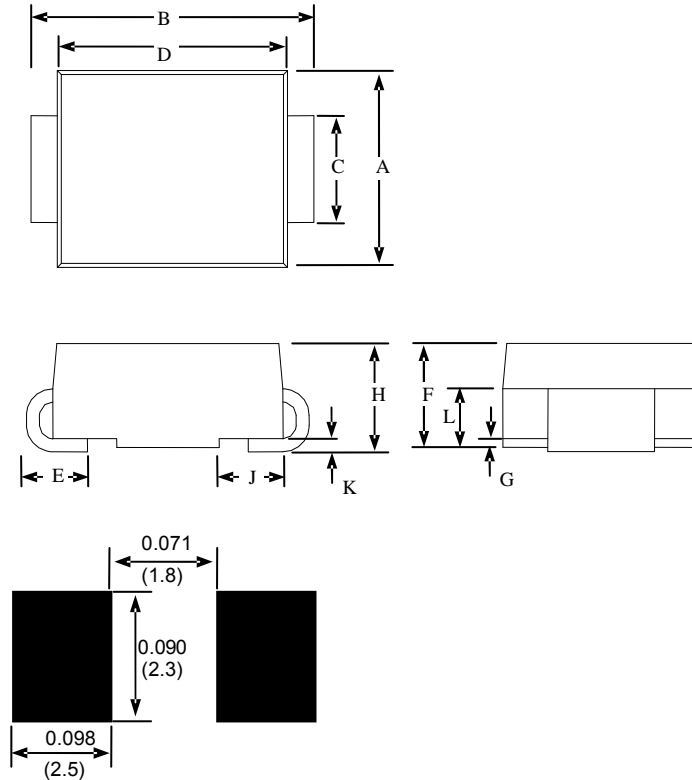


Figure 6-Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Product dimension(SMB)



DIMENSIONS ARE : $\frac{\text{INCHES}}{\text{(Millimeters)}}$

Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.134	0.155	3.40	3.94
B	0.205	0.220	5.21	5.59
C	0.075	0.083	1.90	2.11
D	0.166	0.185	4.22	4.70
E	0.036	0.056	0.91	1.42
F	0.073	0.087	1.85	2.10
G	0.002	0.008	0.05	0.20
H	0.077	0.094	1.95	2.40
J	0.043	0.053	1.09	1.35
K	0.008	0.014	0.20	0.35
L	0.039	0.049	0.99	1.24

Ordering information

Device	Package	Shipping
SMBJ Series	SMB (Pb-Free)	500 / Tape & Reel


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