

●General description

The SMB10J Series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

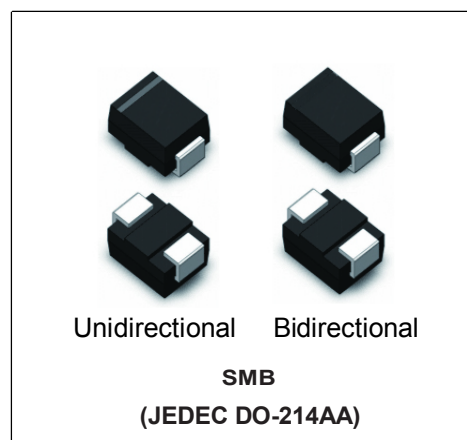
1000W peak pulse capability at 10/1000 μ s waveform.

Glass passivated or planar chip junction in SMB Package.

Fast response time, excellent clamping capability.

Low incremental surge resistance.

Typical failure mode is short for over-specified voltage or current.



●Applications

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

●Maximum ratings and thermal characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Value	Unit
P_{PP}	Peak pulse power dissipation	10/1000 μ s Test waveform, $T_A = 25^{\circ}\text{C}$	1000	W
P_D	Power dissipation on infinite heatsink	$T_L=50^{\circ}\text{C}$	5.0	W
I_{FSM}	Peak forward surge current	8.3ms single half sine wave	100	A
V_F	Maximum instantaneous forward voltage	50A for uni-directional only	3.5	V
$R_{th(j-l)}$	Junction to lead		20	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	Junction to ambient on printed circuit on recommended pad layout		100	$^{\circ}\text{C/W}$
T_{stg}	Storage temperature range		-55 to 150	$^{\circ}\text{C}$
T_j	Operating junction temperature range		-55 to 150	$^{\circ}\text{C}$

•Electrical characteristics

Part number		Marking		V _{RWM}	V _{BR} @I _T (V)		I _T	I _R @V _{RWM}	V _C @ I _{PP}	I _{PP}
Uni	Bi	Uni	Bi	(V)	Min	Max	(mA)	(μA)	(V)	(A)
SMB10J5.0V	SMB10J5.0B	1KE	1AE	5.0	6.40	7.00	10	800	9.2	108.7
SMB10J6.0V	SMB10J6.0B	1KG	1AG	6.0	6.67	7.37	10	800	10.3	97.1
SMB10J6.5V	SMB10J6.5B	1KK	1AK	6.5	7.22	7.98	10	500	11.2	89.3
SMB10J7.0V	SMB10J7.0B	1KM	1AM	7.0	7.78	8.60	10	200	12.0	83.4
SMB10J7.5V	SMB10J7.5B	1KP	1AP	7.5	8.33	9.21	1	100	12.9	77.6
SMB10J8.0V	SMB10J8.0B	1KR	1AR	8.0	8.89	9.83	1	50	13.6	73.6
SMB10J8.5V	SMB10J8.5B	1KT	1AT	8.5	9.44	10.40	1	20	14.4	69.5
SMB10J9.0V	SMB10J9.0B	1KV	1AV	9.0	10.00	11.10	1	10	15.4	65.0
SMB10J10V	SMB10J10B	1KX	1AX	10.0	11.10	12.30	1	5	17.0	58.9
SMB10J11V	SMB10J11B	1KZ	1AZ	11.0	12.20	13.50	1	1	18.2	55.0
SMB10J12V	SMB10J12B	1LE	1BE	12.0	13.30	14.70	1	1	19.9	50.3
SMB10J13V	SMB10J13B	1LG	1BG	13.0	14.40	15.90	1	1	21.5	46.6
SMB10J14V	SMB10J14B	1LK	1BK	14.0	15.60	17.20	1	1	23.2	43.1
SMB10J15V	SMB10J15B	1LM	1BM	15.0	16.70	18.50	1	1	24.4	41.0
SMB10J16V	SMB10J16B	1LP	1BP	16.0	17.80	19.70	1	1	26.0	38.5
SMB10J17V	SMB10J17B	1LR	1BR	17.0	18.90	20.90	1	1	27.6	36.3
SMB10J18V	SMB10J18B	1LT	1BT	18.0	20.00	22.10	1	1	29.2	34.3
SMB10J20V	SMB10J20B	1LV	1BV	20.0	22.20	24.50	1	1	32.4	30.9
SMB10J22V	SMB10J22B	1LX	1BX	22.0	24.40	26.90	1	1	35.5	28.2
SMB10J24V	SMB10J24B	1LZ	1BZ	24.0	26.70	29.50	1	1	38.9	25.7
SMB10J26V	SMB10J26B	1ME	1CE	26.0	28.90	31.90	1	1	42.1	23.8
SMB10J28V	SMB10J28B	1MG	1CG	28.0	31.10	34.40	1	1	45.4	22.1
SMB10J30V	SMB10J30B	1MK	1CK	30.0	33.30	36.80	1	1	48.4	20.7
SMB10J33V	SMB10J33B	1MM	1CM	33.0	36.70	40.60	1	1	53.3	18.8
SMB10J36V	SMB10J36B	1MP	1CP	36.0	40.00	44.20	1	1	58.1	17.3
SMB10J40V	SMB10J40B	1MR	1CR	40.0	44.40	49.10	1	1	64.5	15.5
SMB10J43V	SMB10J43B	1MT	1CT	43.0	47.80	52.80	1	1	69.4	14.4
SMB10J45V	SMB10J45B	1MV	1CV	45.0	50.00	55.30	1	1	72.7	13.8
SMB10J48V	SMB10J48B	1MX	1CX	48.0	53.30	58.90	1	1	77.4	13.0
SMB10J51V	SMB10J51B	1MZ	1CZ	51.0	56.70	62.70	1	1	82.4	12.2
SMB10J54V	SMB10J54B	1NE	1DE	54.0	60.00	66.30	1	1	87.1	11.5
SMB10J58V	SMB10J58B	1NG	1DG	58.0	64.40	71.20	1	1	93.6	10.7
SMB10J60V	SMB10J60B	1NK	1DK	60.0	66.70	73.70	1	1	96.8	10.4
SMB10J64V	SMB10J64B	1NM	1DM	64.0	71.10	78.60	1	1	103.0	9.7
SMB10J70V	SMB10J70B	1NP	1DP	70.0	77.80	86.00	1	1	113.0	8.9
SMB10J75V	SMB10J75B	1NR	1DR	75.0	83.20	92.10	1	1	121.0	8.3
SMB10J78V	SMB10J78B	1NT	1DT	78.0	86.70	95.80	1	1	126.0	8.0
SMB10J85V	SMB10J85B	1NV	1DV	85.0	94.40	104.00	1	1	137.0	7.3
SMB10J90V	SMB10J90B	1NX	1DX	90.0	100.00	111.00	1	1	146.0	6.9
SMB10J100V	SMB10J100B	1NZ	1DZ	100.0	111.00	123.00	1	1	162.0	6.2
SMB10J110V	SMB10J110B	1PE	1EE	110.0	122.00	135.00	1	1	177.0	5.7
SMB10J120V	SMB10J120B	1PG	1EG	120.0	133.00	147.00	1	1	193.0	5.2
SMB10J130V	SMB10J130B	1PK	1EK	130.0	144.00	159.00	1	1	209.0	4.8
SMB10J150V	SMB10J150B	1PM	1EM	150.0	167.00	185.00	1	1	243.0	4.2
SMB10J160V	SMB10J160B	1PP	1EP	160.0	178.00	197.00	1	1	259.0	3.9
SMB10J170V	SMB10J170B	1PR	1ER	170.0	189.00	209.00	1	1	275.0	3.7
SMB10J180V	SMB10J180B	1PT	1ET	180.0	201.00	222.00	1	1	292.0	3.5
SMB10J200V	SMB10J200B	1PV	1EV	200.0	224.00	247.00	1	1	324.0	3.1

I_{PP} Peak Pulse Current -- Maxium current that flows through the TVS

V_{RWM} Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

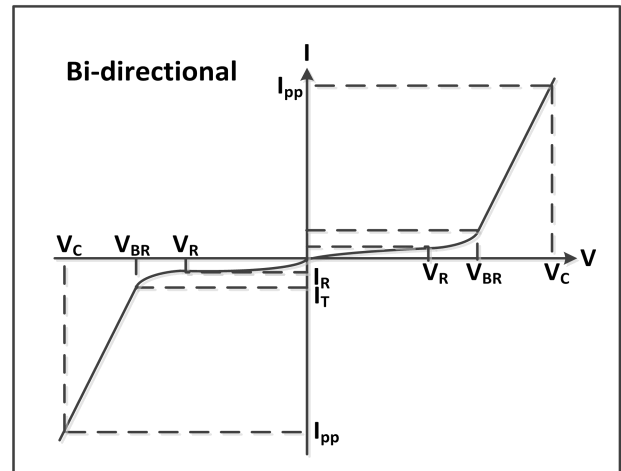
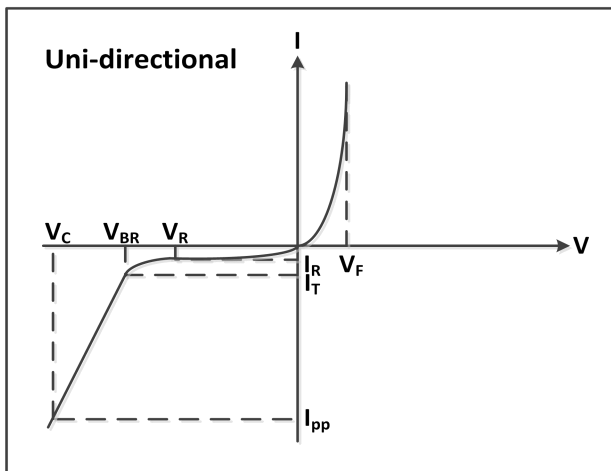
V_{BR} Breakdown Voltage -- Maximum voltage that flows through the TVS at a specifed test current (I_T)

V_C Clamping Voltage -- Peak voltage measured at a specifed I_{ppm} (peak impulse current)

I_R Reverse Leakage Current -- Current measured at V_{RWM}

V_F Forward Voltage Drop for Uni-directional

•I-V Curve Characteristics



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

FIG 1 : Peak Pulse Power Derating Curve

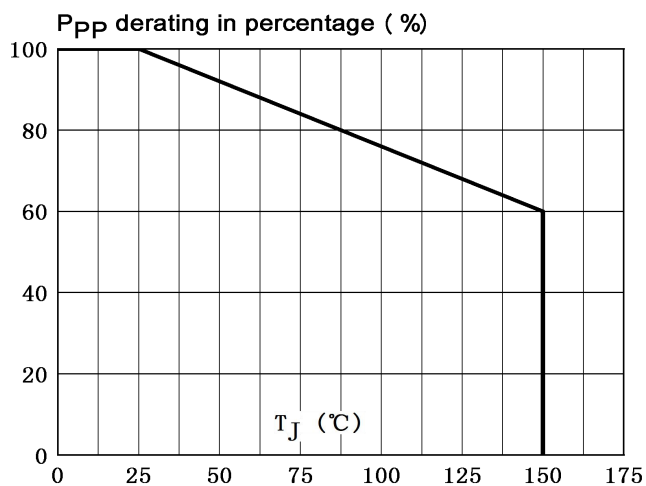


FIG 2: Peak pulse power versus exponential pulse duration

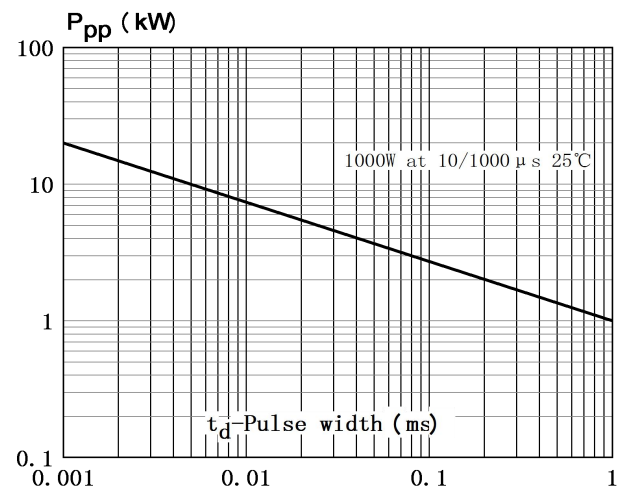
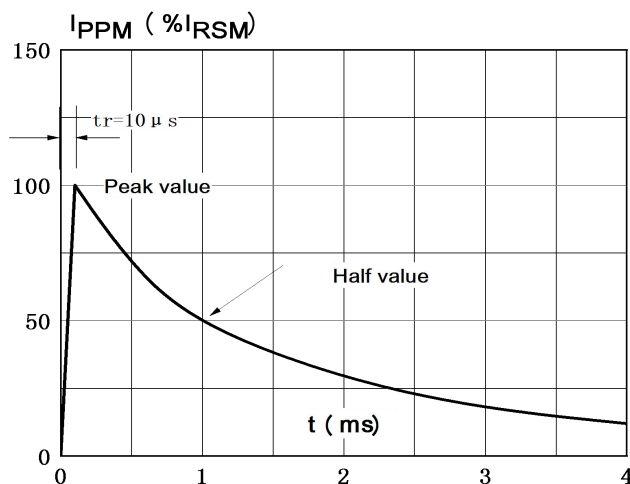
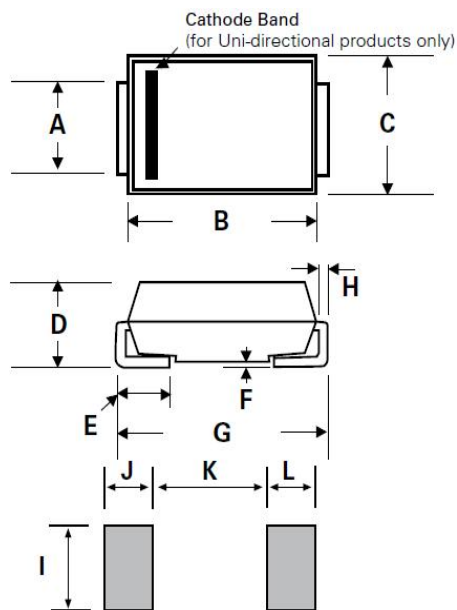


FIG 3: Pulse waveform

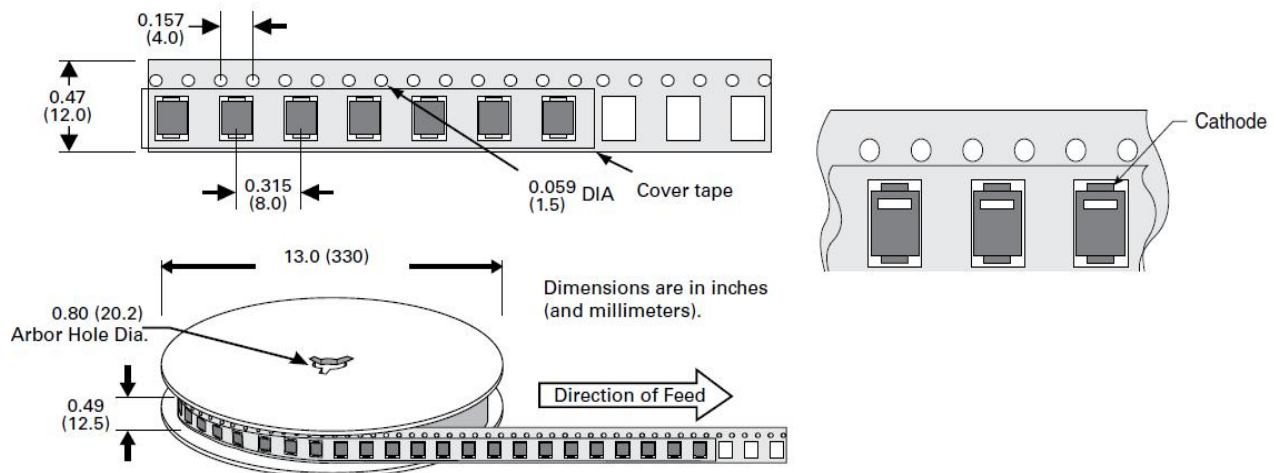


• Dimensions



REF.	Millimeters		Inches	
	Min	Max	Min	Max
A	1.930	2.200	0.076	0.086
B	4.060	4.570	0.160	0.180
C	3.300	3.940	0.130	0.155
D	1.990	2.610	0.078	0.103
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	5.210	5.590	0.205	0.220
H	0.152	0.305	0.006	0.012
I	2.260	-	0.089	-
J	2.160	-	0.085	-
K	-	2.740	-	0.107
L	2.160	-	0.085	-

• Tape and reel specification



●Soldering Parameters

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5°C of actual Peak		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

