

Description

SMB10J Series transient voltage suppressors are excellent overvoltage protective devices.

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



SMB (DO-214AA)

Features

- Excellent clamping capability
- Low leakage current
- High surge capability
- Glass passivated chip
- Epoxy resin package
- Built-in strain relief
- Will not fatigue
- RoHS Compliant
- Fast response time: typically less than 1.0ps from 0 Volts to VBR min

Mechanical Characteristics

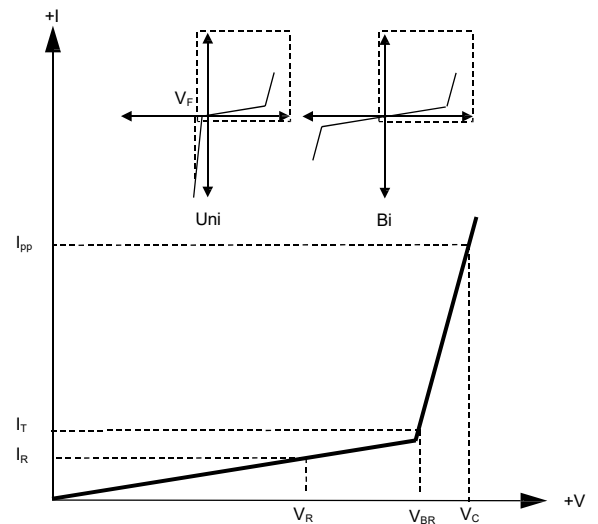
- Package: SMB plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

Applications

- Telecom
- Computer
- Industrial electronic
- Consumer electronic

Electrical Parameters

Parameter	Definition
C_J	Junction Capacitance - typical capacitance measured with 0V or V_R bias
I_{PP}	Peak Pulse Current - maximum rated peak impulse current
V_C	Clamping Voltage - Peak voltage measured across the suppressor at a specified I_{ppm} (peak impulse current)
V_{BR}	Breakdown Voltage - Maximum voltage that flows though the TVS at a specified test current (I_T)
I_R	Leakage Current - maximum peak off-state current measured at V_R
V_R	Peak Off-state Voltage - maximum voltage that can be applied while maintaining off state



Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Units	Remarks
Peak Pulse Power Dissipation	P _{PPM}	1000	W	(Note1)(Note2)
Steady State Power Dissipation	P _D	5	W	(Note3)
Peak Forward Surge Current	I _{FSM}	150	A	(Note4)
Maximum Instantaneous Forward Voltage at 75A	V _{FM}	3.5/5	V	(Note5)
Typical Thermal Resistance Junction to Lead	R _{θJL}	20	°C/W	
Typical Thermal Resistance Junction to Ambient	R _{θJA}	100	°C/W	
Operating Temperature Range	T _J	-55 to 150	°C	
Storage Temperature Range	T _{STG}	-55 to 150	°C	

Notes1: Non-repetitive current pulse , 10/1000us Waveform.

Notes2: Mounted on copper pad area of 5×5mm to each terminal.

Notes3: Infinite HeatSink at T_L=50°C

Notes4: Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 perminute maximum.

Notes5: For UnidirectionalOnly, V_{FM}<3.5V for V_{BR} ≤200V and V_{FM}<5.0V for V_{BR}≥201V.

Electrical Characteristics (TA=25°C unless otherwise)

Part Number (Uni)	Part Number (Bi)	Marking Code		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} (A)	Maximun Reverse Leakage I _R @ V _R (μA)
		Uni	Bi		Min	Max				
SMB10J5.0A	SMB10J5.0CA	TKE	TAE	5	6.4	7	10	9.2	108.8	800
SMB10J6.0A	SMB10J6.0CA	TKG	TAG	6	6.67	7.37	10	10.3	97.2	800
SMB10J6.5A	SMB10J6.5CA	TKK	TAK	6.5	7.22	7.98	10	11.2	89.3	500
SMB10J7.0A	SMB10J7.0CA	TKM	TAM	7	7.78	8.6	10	12	83.3	200
SMB10J7.5A	SMB10J7.5CA	TKP	TAP	7.5	8.33	9.21	1	12.9	77.7	100
SMB10J8.0A	SMB10J8.0CA	TKR	TAR	8	8.89	9.83	1	13.6	73.7	50
SMB10J8.5A	SMB10J8.5CA	TKT	TAT	8.5	9.44	10.4	1	14.4	69.5	20
SMB10J9.0A	SMB10J9.0CA	TKV	TAV	9	10	11.1	1	15.4	65.0	10
SMB10J10A	SMB10J10CA	TKX	TAX	10	11.1	12.3	1	17	58.8	5
SMB10J11A	SMB10J11CA	TKZ	TAZ	11	12.2	13.5	1	18.2	55.0	1
SMB10J12A	SMB10J12CA	TLE	TBE	12	13.3	14.7	1	19.9	50.3	1
SMB10J13A	SMB10J13CA	TLG	TBG	13	14.4	15.9	1	21.5	46.7	1
SMB10J14A	SMB10J14CA	TLK	TBK	14	15.6	17.2	1	23.2	43.2	1
SMB10J15A	SMB10J15CA	TLM	TBM	15	16.7	18.5	1	24.4	41.0	1
SMB10J16A	SMB10J16CA	TLP	TBP	16	17.8	19.7	1	26	38.5	1
SMB10J17A	SMB10J17CA	TLR	TBR	17	18.9	20.9	1	27.6	36.3	1
SMB10J18A	SMB10J18CA	TLT	TBT	18	20	22.1	1	29.2	34.3	1
SMB10J20A	SMB10J20CA	TLV	TBV	20	22.2	24.5	1	32.4	31.0	1

Electrical Characteristics (TA=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Marking Code		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} (A)	Maximun Reverse Leakage I _R @ V _R (μA)
		Uni	Bi		Min	Max				
SMB10J22A	SMB10J22CA	TLX	TBX	22	24.4	26.9	1	35.5	28.17	1
SMB10J24A	SMB10J24CA	TLZ	TBZ	24	26.7	29.5	1	38.9	25.71	1
SMB10J26A	SMB10J26CA	TME	TCE	26	28.9	31.9	1	42.1	23.75	1
SMB10J28A	SMB10J28CA	TMG	TCG	28	31.1	34.4	1	45.4	22.03	1
SMB10J30A	SMB10J30CA	TMK	TCK	30	33.3	36.8	1	48.4	20.66	1
SMB10J33A	SMB10J33CA	TMM	TCM	33	36.7	40.6	1	53.3	18.76	1
SMB10J36A	SMB10J36CA	TMP	TCP	36	40	44.2	1	58.1	17.21	1
SMB10J40A	SMB10J40CA	TMR	TCR	40	44.4	49.1	1	64.5	15.50	1
SMB10J43A	SMB10J43CA	TMT	TCT	43	47.8	52.8	1	69.4	14.41	1
SMB10J45A	SMB10J45CA	TMV	TCV	45	50	55.3	1	72.7	13.76	1
SMB10J48A	SMB10J48CA	TMX	TCX	48	53.3	58.9	1	77.4	12.92	1
SMB10J51A	SMB10J51CA	TMZ	TCZ	51	56.7	62.7	1	82.4	12.14	1
SMB10J54A	SMB10J54CA	TNE	TDE	54	60	66.3	1	87.1	11.48	1
SMB10J58A	SMB10J58CA	TNG	TDG	58	64.4	71.2	1	93.6	10.68	1
SMB10J60A	SMB10J60CA	TNK	TDK	60	66.7	73.7	1	96.8	10.33	1
SMB10J64A	SMB10J64CA	TNM	TDM	64	71.1	78.6	1	103	9.71	1
SMB10J70A	SMB10J70CA	TNP	TDP	70	77.8	86	1	113	8.85	1
SMB10J75A	SMB10J75CA	TNR	TDR	75	83.3	92.1	1	121	8.26	1
SMB10J78A	SMB10J78CA	TNT	TDT	78	86.7	95.8	1	126	7.94	1
SMB10J85A	SMB10J85CA	TNV	TDV	85	94.4	104	1	137	7.30	1
SMB10J90A	SMB10J90CA	TNX	TDX	90	100	111	1	146	6.85	1
SMB10J100A	SMB10J100CA	TNZ	TDZ	100	111	123	1	162	6.17	1
SMB10J110A	SMB10J110CA	TPE	TEE	110	122	135	1	177	5.65	1
SMB10J120A	SMB10J120CA	TPG	TEG	120	133	147	1	193	5.18	1

Rating And Characteristic Curves (TA=25°C unless otherwise noted)

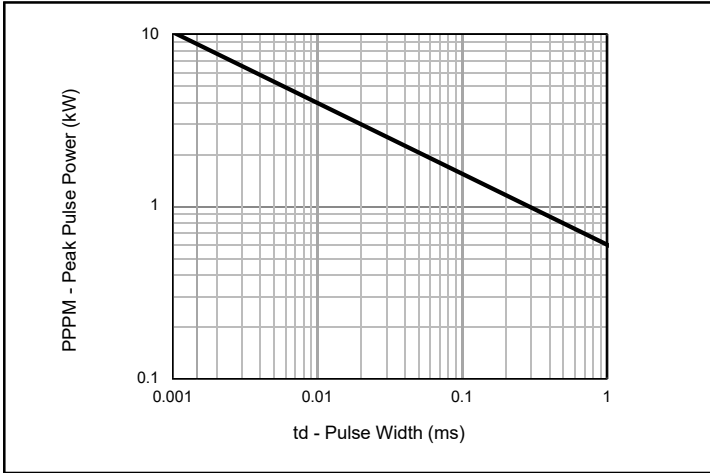


Fig. 1 - Peak Pulse Power Rating

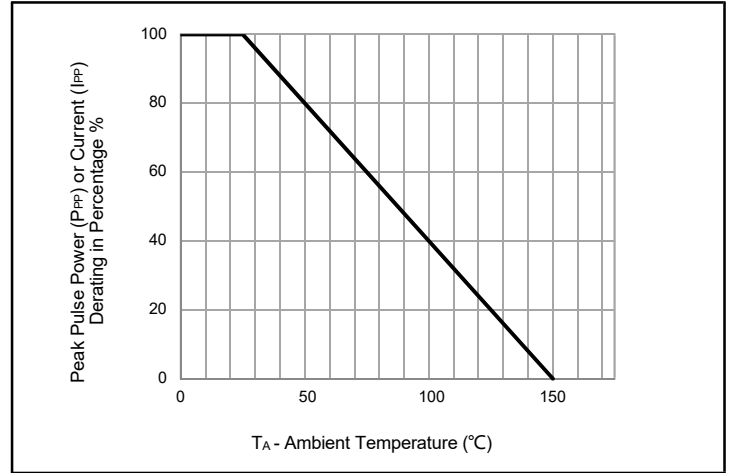


Fig. 2 - Pulse Derating Curve

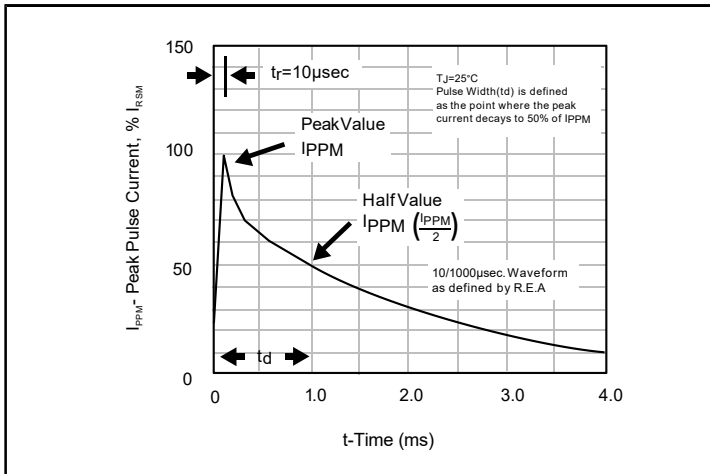


Fig. 3 - Pulse Waveform

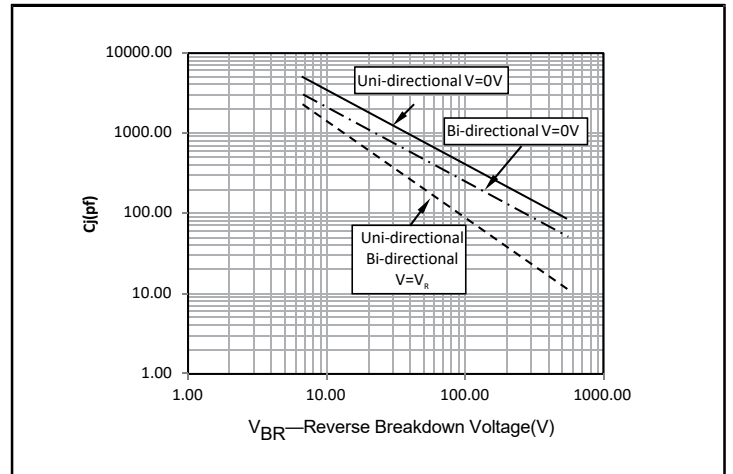


Fig. 4 - Typical Junction Capacitance

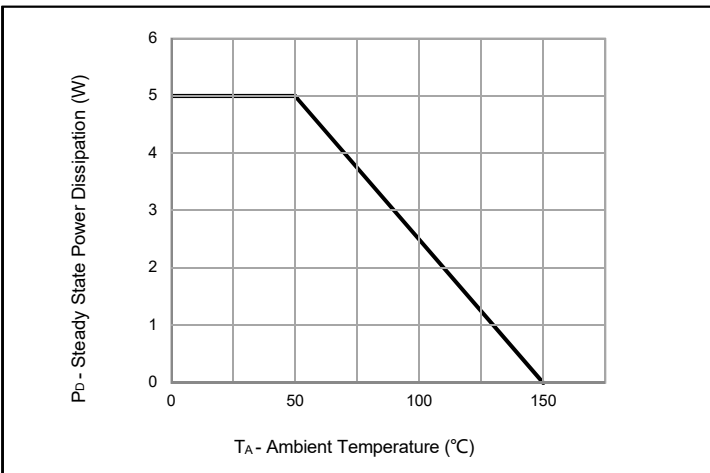


Fig. 5 - Steady State Power Dissipation Derating Curve

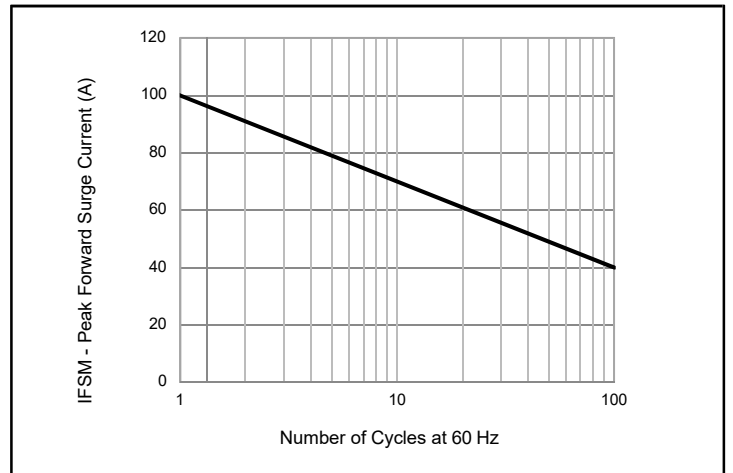
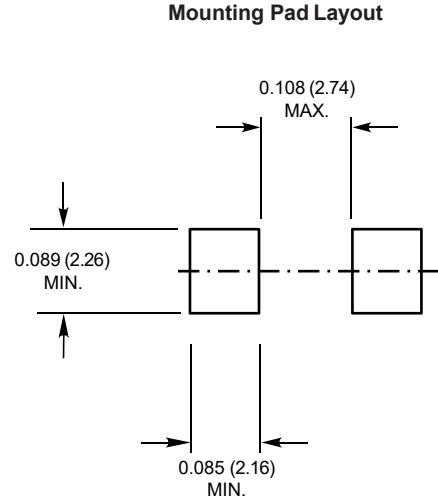
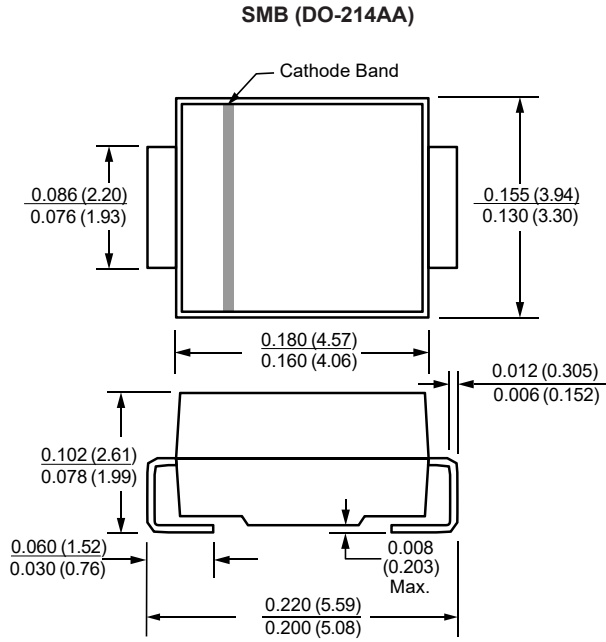
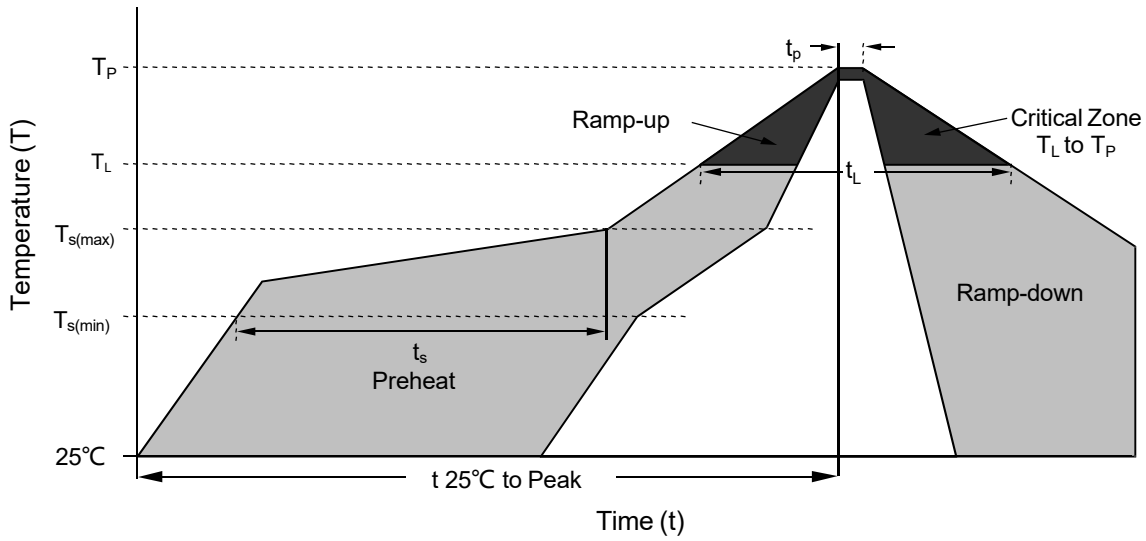


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Package Outline Dimensions in inches (millimeters)

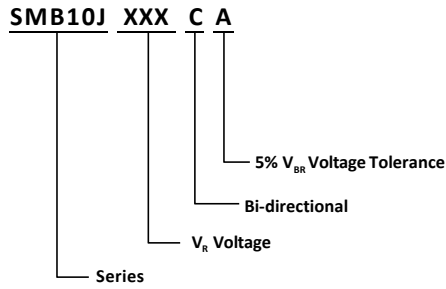


Soldering Parameters

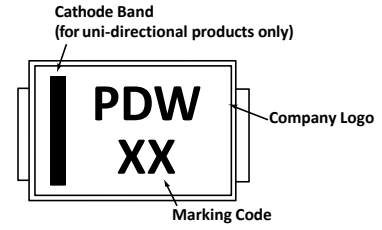


Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature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

Part Numbering System



Part Marking System



Summary of Packing Options

Package	Packing Description	Packing Quantity
SMB	Tape/Reel, 13" reel	3000

Tape and Reel Specification

