

Description

P10SMB 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

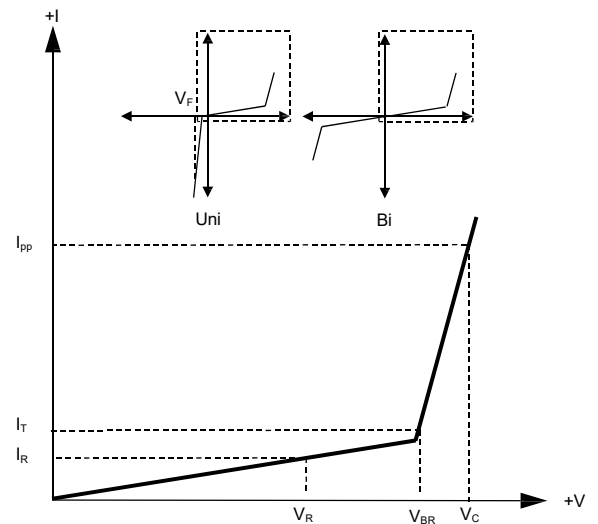
- Package: SMB plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

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				
P10SMB6.8A	P10SMB6.8CA	6.8A	6.8C	5.80	6.45	7.14	10	10.5	95.2	900
P10SMB7.5A	P10SMB7.5CA	7.5A	7.5C	6.40	7.13	7.88	10	11.3	88.5	400
P10SMB8.2A	P10SMB8.2CA	8.2A	8.2C	7.02	7.79	8.61	10	12.1	82.6	180
P10SMB9.1A	P10SMB9.1CA	9.1A	9.1C	7.78	8.65	9.55	1	13.4	74.6	45
P10SMB10A	P10SMB10CA	10A	10C	8.55	9.50	10.50	1	14.5	69.0	8
P10SMB11A	P10SMB11CA	11A	11C	9.40	10.50	11.60	1	15.6	64.1	4
P10SMB12A	P10SMB12CA	12A	12C	10.20	11.40	12.60	1	16.7	59.9	1
P10SMB13A	P10SMB13CA	13A	13C	11.10	12.40	13.70	1	18.2	54.9	1
P10SMB15A	P10SMB15CA	15A	15C	12.80	14.30	15.80	1	21.2	47.2	1
P10SMB16A	P10SMB16CA	16A	16C	13.60	15.20	16.80	1	22.5	44.4	1
P10SMB18A	P10SMB18CA	18A	18C	15.30	17.10	18.90	1	25.5	39.2	1
P10SMB20A	P10SMB20CA	20A	20C	17.10	19.00	21.00	1	27.7	36.1	1
P10SMB22A	P10SMB22CA	22A	22C	18.80	20.90	23.10	1	30.6	32.7	1
P10SMB24A	P10SMB24CA	24A	24C	20.50	22.80	25.20	1	33.2	30.1	1
P10SMB27A	P10SMB27CA	27A	27C	23.10	25.70	28.40	1	37.5	26.7	1
P10SMB30A	P10SMB30CA	30A	30C	25.60	28.50	31.50	1	41.4	24.2	1
P10SMB33A	P10SMB33CA	33A	33C	28.20	31.40	34.70	1	45.7	21.9	1
P10SMB36A	P10SMB36CA	36A	36C	30.80	34.20	37.80	1	49.9	20.0	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				
P10SMB39A	P10SMB39CA	39A	39C	33.30	37.10	41.00	1	53.9	18.6	1
P10SMB43A	P10SMB43CA	43A	43C	36.80	40.90	45.20	1	59.3	16.9	1
P10SMB47A	P10SMB47CA	47A	47C	40.20	44.70	49.40	1	64.8	15.4	1
P10SMB51A	P10SMB51CA	51A	51C	43.60	48.50	53.60	1	70.1	14.3	1
P10SMB56A	P10SMB56CA	56A	56C	47.80	53.20	58.80	1	77.0	13.0	1
P10SMB62A	P10SMB62CA	62A	62C	53.00	58.90	65.10	1	85.0	11.8	1
P10SMB68A	P10SMB68CA	68A	68C	58.10	64.60	71.40	1	92.0	10.9	1
P10SMB75A	P10SMB75CA	75A	75C	64.10	71.30	78.80	1	103.0	9.7	1
P10SMB82A	P10SMB82CA	82A	82C	70.10	77.90	86.10	1	113.0	8.8	1
P10SMB91A	P10SMB91CA	91A	91C	77.80	86.50	95.50	1	125.0	8.0	1
P10SMB100A	P10SMB100CA	100A	100C	85.50	95.00	105.00	1	137.0	7.3	1
P10SMB110A	P10SMB110CA	110A	110C	94.00	105.00	116.00	1	152.0	6.6	1
P10SMB120A	P10SMB120CA	120A	120C	102.00	114.00	126.00	1	165.0	6.1	1
P10SMB130A	P10SMB130CA	130A	130C	111.00	124.00	137.00	1	179.0	5.6	1
P10SMB150A	P10SMB150CA	150A	150C	128.00	143.00	158.00	1	207.0	4.8	1
P10SMB160A	P10SMB160CA	160A	160C	136.00	152.00	168.00	1	219.0	4.6	1
P10SMB170A	P10SMB170CA	170A	170C	144.50	162.00	179.00	1	234.0	4.3	1
P10SMB180A	P10SMB180CA	180A	180C	153.00	171.00	189.00	1	246.0	4.1	1

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

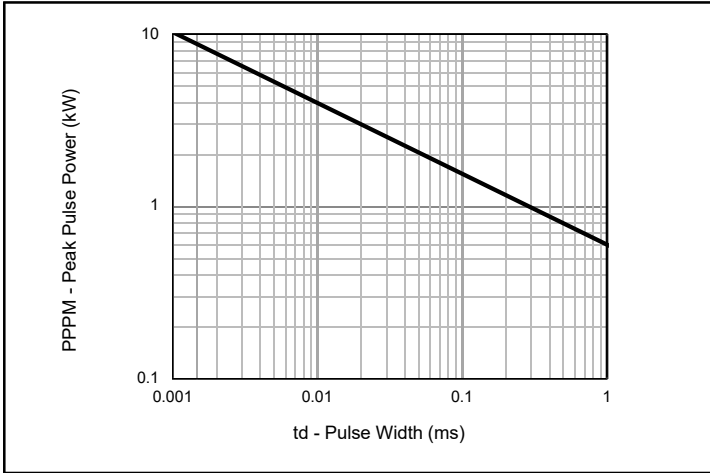


Fig. 1 - Peak Pulse Power Rating

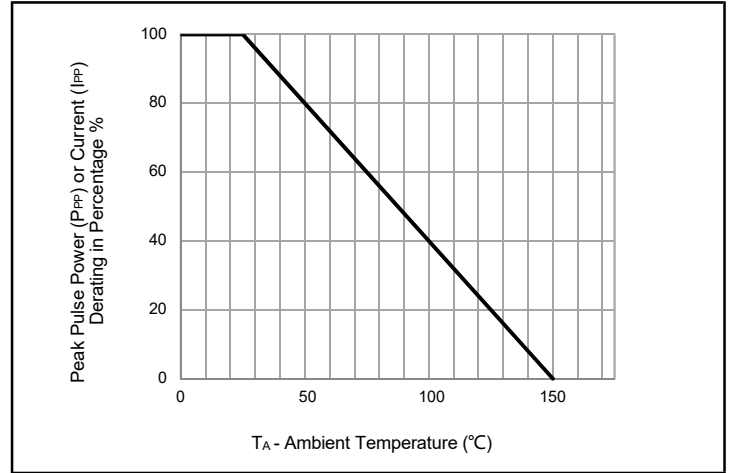


Fig. 2 - Pulse Derating Curve

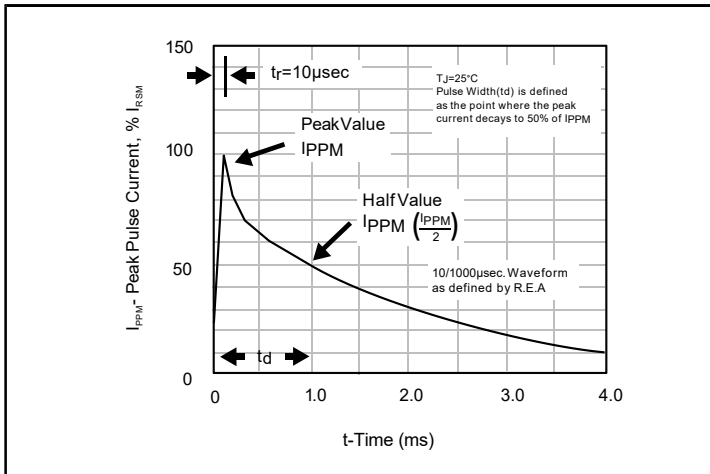


Fig. 3 - Pulse Waveform

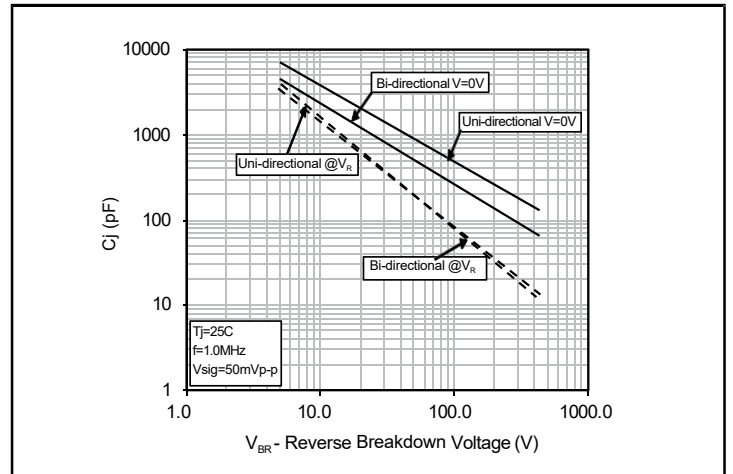


Fig. 4 - Typical Junction Capacitance

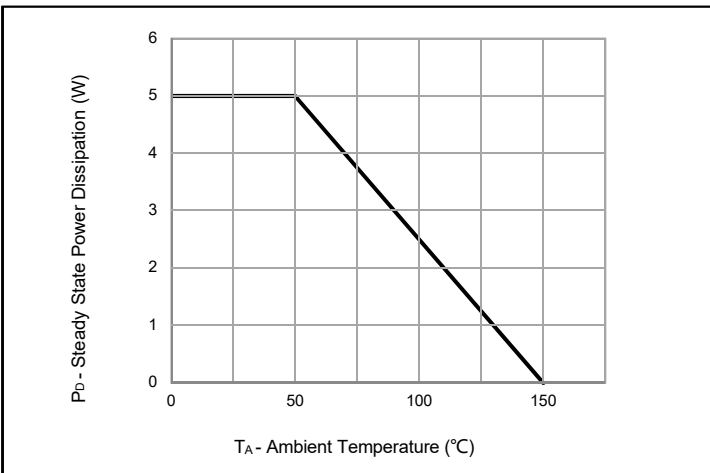


Fig. 5 - Steady State Power Dissipation Derating Curve

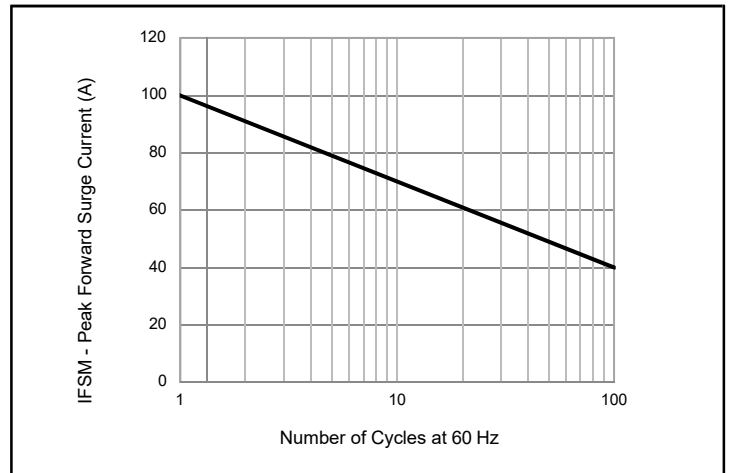
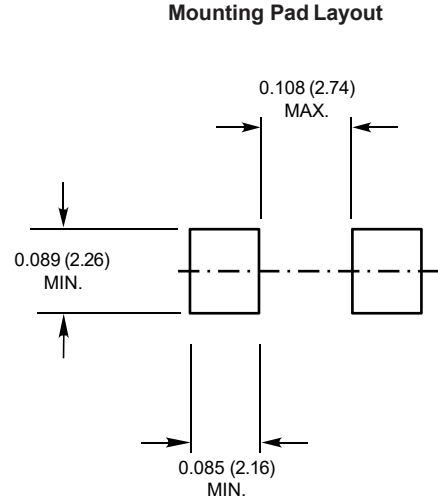
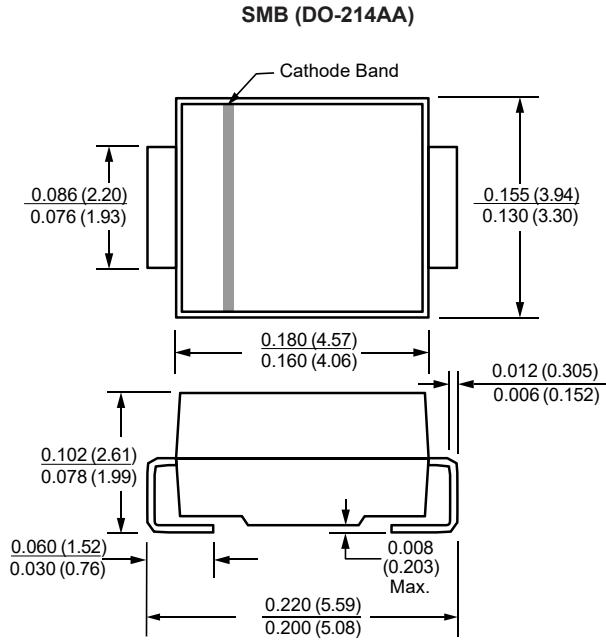
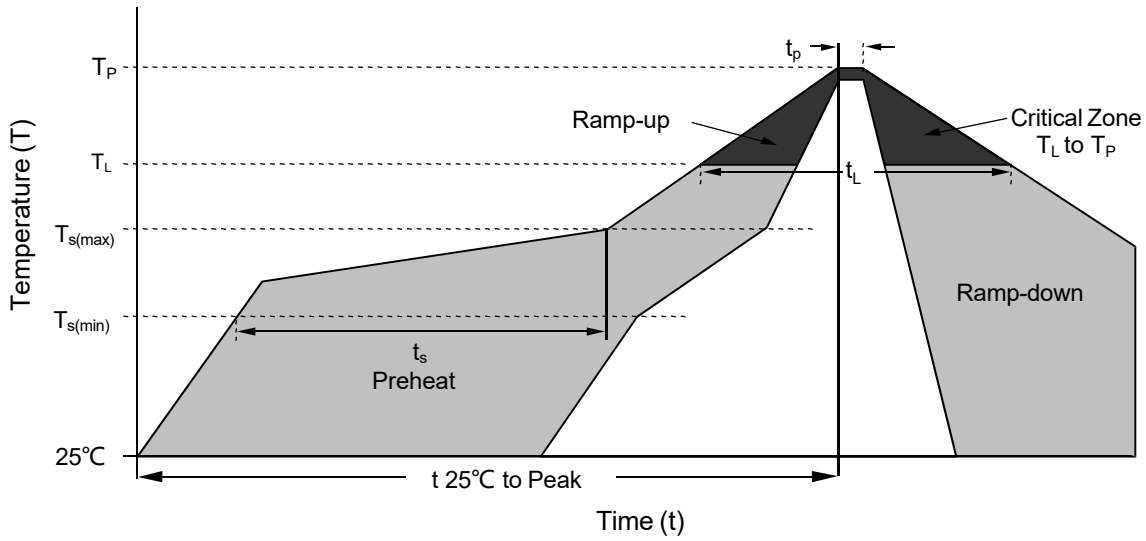


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Package Outline Dimensions in inches (millimeters)

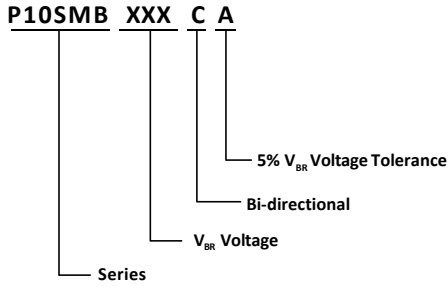


Soldering Parameters

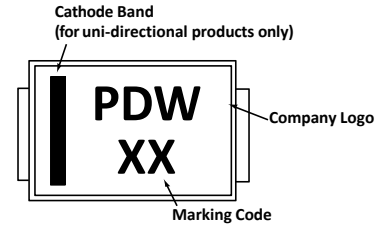


Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (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

