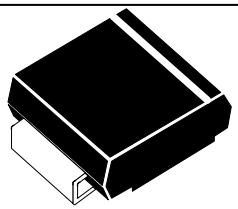
P6SMBxx(C)A

Power Transient Voltage Suppressor

Features

- 600 watts Peak Pulse Power (10/1000μs)
- Unidirectional and Bidirectional Protection
- Fast Response Time : Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- IEC 61000-4-2 (ESD) ±30kV(air), ±30kV(contact)
- MSL: Level 1



SMB
(JEDEC DO-214AA)

Mechanical Characteristics

- JEDEC DO-214AA package
- Molding compound flammability rating: UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS &UL497B & HF Compliant

Applications

- I/O Interfaces
- Power lines
- Telecommunication
- Computers &Consumer Electronics
- Industrial Electronics

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000μs) (see Note1,2& 3)	P_{PPM}	600	Watts
Peak pulse current (10/1000μs) (see Note2&3)	I_{PPM}	See Electrical Characteristics	A
Peak Forward surge current (see Note4&5)	I_{FSM}	100	A
Power Dissipation on infinite heat sink T_L = 50 °C (Fig5)	P_D	5.0	W
Operating Junction Temperature range	T_J	-65 to + 150	℃
Storage Temperature range	T_{STG}	-65 to + 150	℃

Note1: Peak Pulse Power Rating as Pulse Width ,per Fig1.

Note2: Peak Pulse Power or Current Derated above T_A=25℃ Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

Note3: Mounted on 5.0x5.0mm^2 copper pad to each terminal.

Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave.

Note5: Maximum Forward Surge Current only for Unidirectional Device per Fig6.

Electrical Characteristics

Part Number		Reverse Stand off Voltage V_{RWM}	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T	Maximum Clamping Voltage V_C@I_{PP}	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage I_R@V_{RWM}
UNI-POLAR	BI-POLAR	(Volts)	MIN	MAX	(mA)	(Volts)	(Amps)	(μA)
P6SMB6.8A	P6SMB6.8CA	5.80	6.45	7.14	10	10.5	58.1	1000
P6SMB7.5A	P6SMB7.5CA	6.40	7.13	7.88	10	11.3	54.0	500
P6SMB8.2A	P6SMB8.2CA	7.02	7.79	8.61	10	12.1	50.4	200
P6SMB9.1A	P6SMB9.1CA	7.78	8.65	9.55	1	13.4	45.5	50
P6SMB10A	P6SMB10CA	8.55	9.50	10.50	1	14.5	42.1	10
P6SMB11A	P6SMB11CA	9.40	10.50	11.60	1	15.6	39.1	5
P6SMB12A	P6SMB12CA	10.20	11.40	12.60	1	16.7	36.5	5
P6SMB13A	P6SMB13CA	11.10	12.40	13.70	1	18.2	33.5	1
P6SMB15A	P6SMB15CA	12.80	14.30	15.80	1	21.2	28.8	1
P6SMB16A	P6SMB16CA	13.60	15.20	16.80	1	22.5	27.1	1
P6SMB18A	P6SMB18CA	15.30	17.10	18.90	1	25.5	24.2	1
P6SMB20A	P6SMB20CA	17.10	19.00	21.00	1	27.7	22.0	1
P6SMB22A	P6SMB22CA	18.80	20.90	23.10	1	30.6	19.9	1
P6SMB24A	P6SMB24CA	20.50	22.80	25.20	1	33.2	18.4	1
P6SMB27A	P6SMB27CA	23.10	25.70	28.40	1	37.5	16.3	1
P6SMB30A	P6SMB30CA	25.60	28.50	31.50	1	41.4	14.7	1
P6SMB33A	P6SMB33CA	28.20	31.40	34.70	1	45.7	13.3	1
P6SMB36A	P6SMB36CA	30.80	34.20	37.80	1	49.9	12.2	1
P6SMB39A	P6SMB39CA	33.30	37.10	41.00	1	53.9	11.3	1
P6SMB43A	P6SMB43CA	36.80	40.90	45.20	1	59.3	10.3	1
P6SMB47A	P6SMB47CA	40.20	44.70	49.40	1	64.8	9.4	1
P6SMB51A	P6SMB51CA	43.60	48.50	53.60	1	70.1	8.7	1
P6SMB56A	P6SMB56CA	47.80	53.20	58.80	1	77.0	7.9	1
P6SMB62A	P6SMB62CA	53.00	58.90	65.10	1	85.0	7.2	1
P6SMB68A	P6SMB68CA	58.10	64.60	71.40	1	92.0	6.6	1
P6SMB75A	P6SMB75CA	64.10	71.30	78.80	1	103.0	5.9	1
P6SMB82A	P6SMB82CA	70.10	77.90	86.10	1	113.0	5.4	1
P6SMB91A	P6SMB91CA	77.80	86.50	95.50	1	125.0	4.9	1

Electrical Characteristics (Cont.)

Part Number		Reverse Stand off Voltage V_{RWM}	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T	Maximum Clamping Voltage V_C@I_{PP}	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage I_R@V_{RWM}
UNI-POLAR	BI-POLAR	(Volts)	MIN	MAX	(mA)	(Volts)	(Amps)	(μA)
P6SMB100A	P6SMB100CA	85.50	95.00	105.00	1	137.0	4.5	1
P6SMB110A	P6SMB110CA	94.00	105.00	116.00	1	152.0	4.0	1
P6SMB120A	P6SMB120CA	102.00	114.00	126.00	1	165.0	3.7	1
P6SMB130A	P6SMB130CA	111.00	124.00	137.00	1	179.0	3.4	1
P6SMB150A	P6SMB150CA	128.00	143.00	158.00	1	207.0	2.9	1
P6SMB160A	P6SMB160CA	136.00	152.00	168.00	1	219.0	2.8	1
P6SMB170A	P6SMB170CA	145.00	162.00	179.00	1	234.0	2.6	1
P6SMB180A	P6SMB180CA	154.00	171.00	189.00	1	246.0	2.5	1
P6SMB200A	P6SMB200CA	171.00	190.00	210.00	1	274.0	2.2	1
P6SMB220A	P6SMB220CA	185.00	209.00	231.00	1	328.0	1.9	1
P6SMB250A	P6SMB250CA	214.00	237.00	263.00	1	344.0	1.8	1
P6SMB300A	P6SMB300CA	256.00	285.00	315.00	1	414.0	1.5	1
P6SMB350A	P6SMB350CA	300.00	332.00	368.00	1	482.0	1.3	1
P6SMB400A	P6SMB400CA	342.00	380.00	420.00	1	548.0	1.1	1
P6SMB440A	P6SMB440CA	376.00	418.00	462.00	1	602.0	1.0	1
P6SMB480A	P6SMB480CA	408.00	456.00	504.00	1	658.0	0.9	1
P6SMB510A	P6SMB510CA	434.00	485.00	535.00	1	698.0	0.9	1
P6SMB530A	P6SMB530CA	477.00	503.50	556.50	1	725.0	0.8	1
P6SMB540A	P6SMB540CA	486.00	513.00	567.00	1	740.0	0.8	1
P6SMB550A	P6SMB550CA	495.00	522.50	577.50	1	760.0	0.8	1
P6SMB600A	P6SMB600CA	512.00	570.00	630.00	1	828.0	0.75	1

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

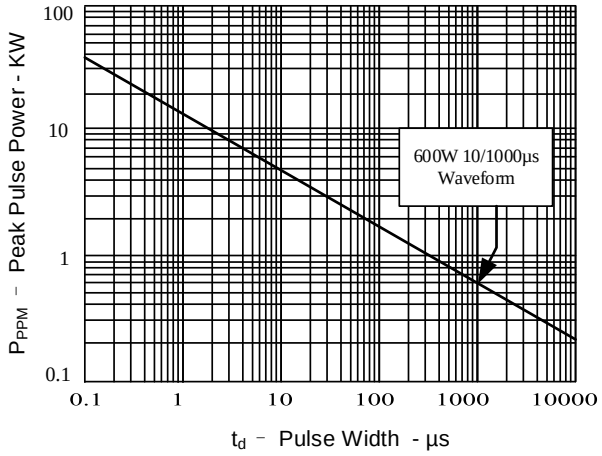


Figure 2: Pulse Derating Curve

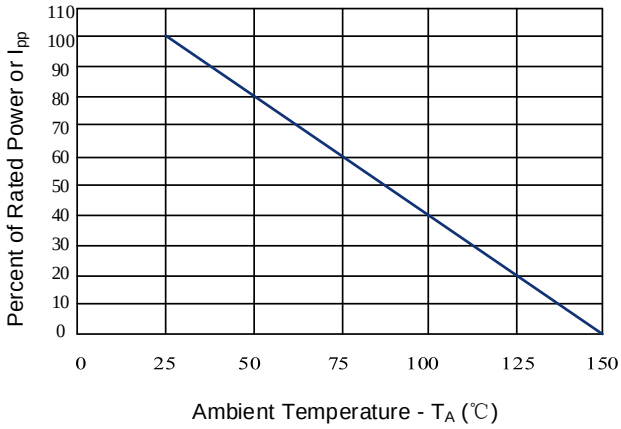


Figure 3: Pulse Waveform

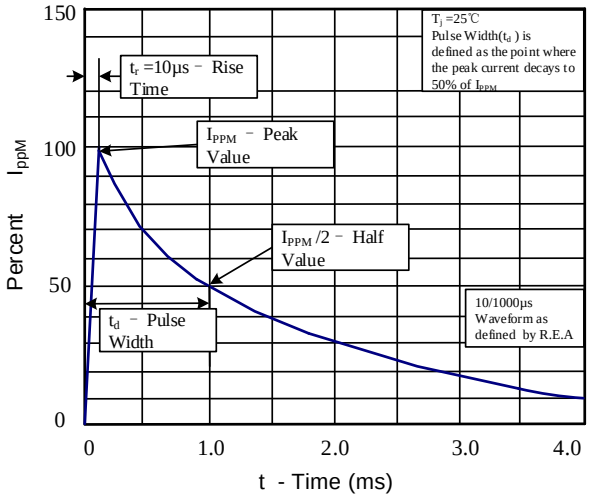


Figure 4: Typical Junction Capacitance

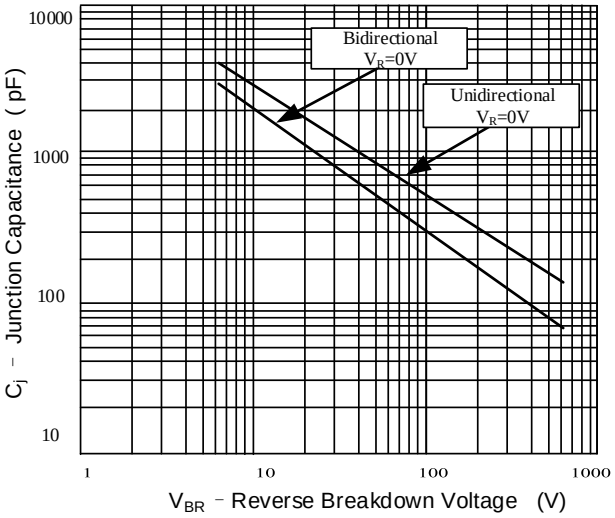


Figure 5: Steady State Power Dissipation Derating Curve

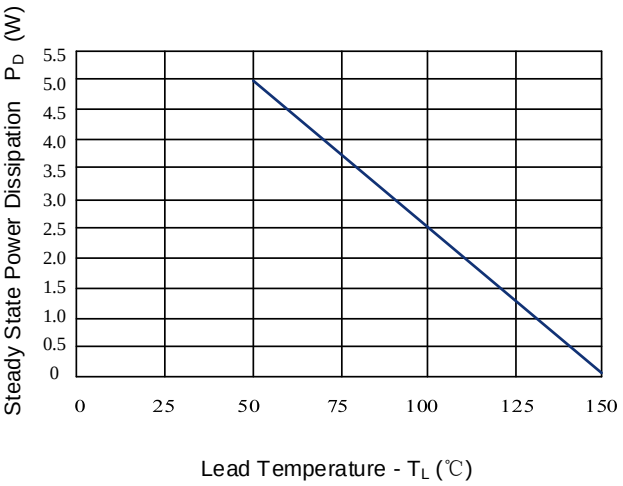
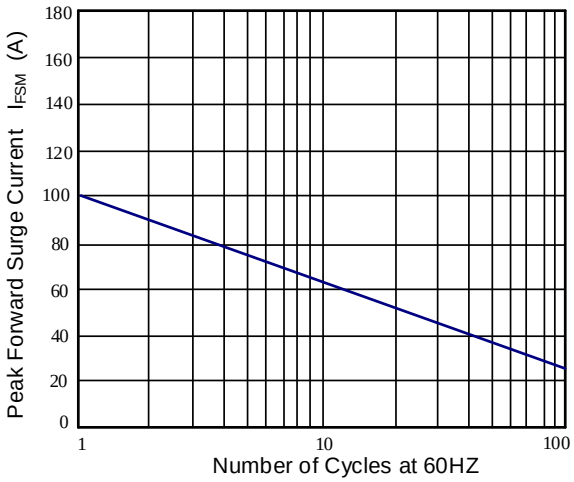


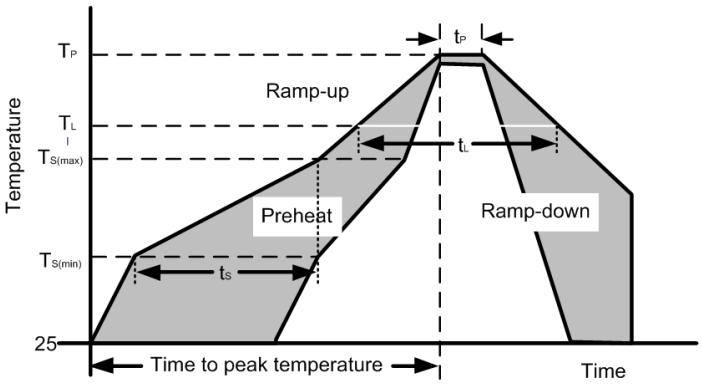
Figure 6: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

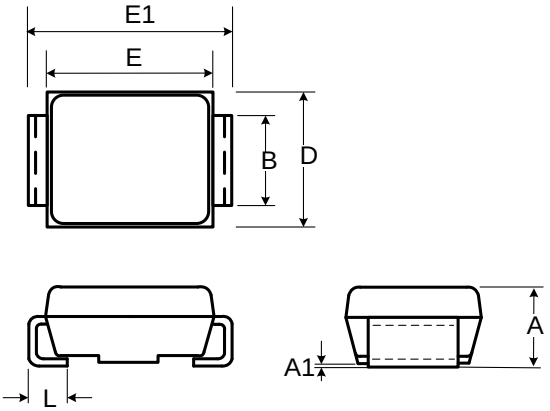
Soldering Parameters

Reflow Condition		
Pre Heat	Temperature min ($T_{S(min)}$)	150°C
	Temperature max ($T_{S(max)}$)	200°C
	Time (min to max) (t_s)	60-190 s
Average ramp up rate (Liquidus Temp) (T_L) to peak		3°C/s max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/s max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60-150 s
Peak Temperature (T_P)		260+0/-5°C
Time within 5°C of actual peak Temperature (t_p)		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature (T_P)		8 minutes max
Do not exceed		260°C

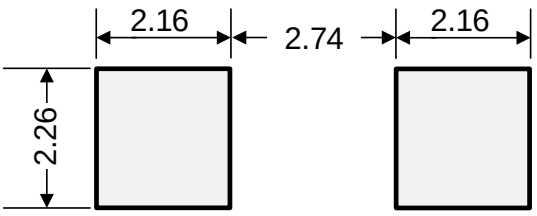


Outline Drawing – SMB(DO-214AA)

Ref.（mm）	Millimeters	
	Min.	Max.
A	2.130	2.600
A1	-	0.300
B	1.900	2.200
E	4.100	4.750
E1	5.210	5.590
D	3.300	3.940
L	0.760	1.520

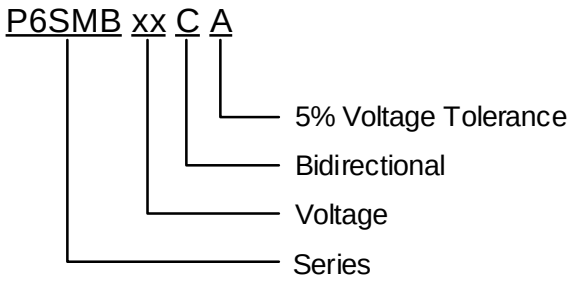


Recommended Solder Pad Layout

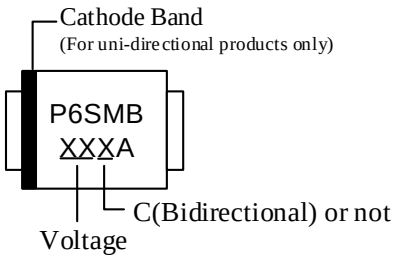


Dimensions in mm

Part Numbering System



Part Marking System



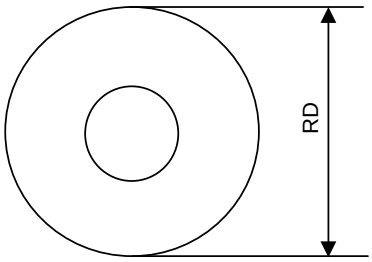
Package Information

Package Type	Description	Quantity（pcs）	Standard
SMB(DO-214AA)	Tape & Reel -12mm/13″ tape	3000	EIA-481-D

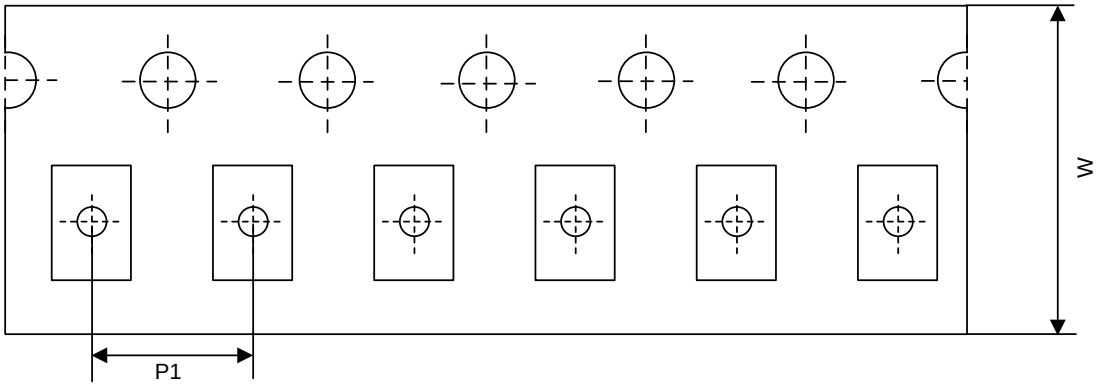
Tape and Reel Information

RD	Reel Dimensions	13inch
W	Overall width of the carrier tape	12mm
P1	Pitch between successive cavity centers	8mm

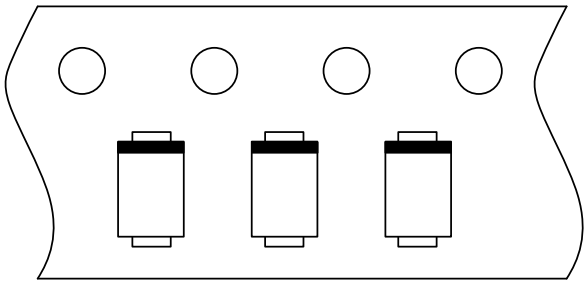
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



User Direction of Feed

Top View

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