P6SMB Series

Surface Mount Transient Voltage Suppressors

Breakdown Voltage: 6.8 to 600 V
Peak Pulse Power: 600 W

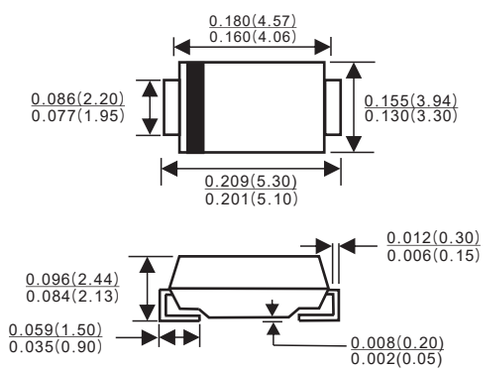
SMB/ DO-214AA

Features

- Glass passivated chip
- 600 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



Dimensions: inch[mm]

Maximum Ratings(T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000μs waveform(1)	P_{PP}	600	W
Peak pulse current wih a 10/1000μs waveform(1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at T_L = 75 °C	P_D	5.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only(2)	I_{FSM}	100	A
Maximum instantaneous forward voltage at 25 A for unidirectional only(3)	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	–55 to +150	°C

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above T_A= 25 °C per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3)V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

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Surface Mount Transient Voltage Suppressors

Electrical Characteristics(T_A=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V_{BR} @I_T			Maximum Reverse Leakage I_R @V_{RWM} (uA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @I_{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
P6SMB6.8A	P6SMB6.8CA	6V8A	6V8C	6.46	7.14	10	1000	5.8	57.14	10.5
P6SMB7.5A	P6SMB7.5CA	7V5A	7V5C	7.13	7.88	10	500	6.4	53.10	11.3
P6SMB8.2A	P6SMB8.2CA	8V2A	8V2C	7.79	8.61	10	200	7.0	49.59	12.1
P6SMB9.1A	P6SMB9.1CA	9V1A	9V1C	8.65	9.56	1	50	7.8	44.78	13.4
P6SMB10A	P6SMB10CA	10A	10C	9.50	10.50	1	10	8.6	41.38	14.5
P6SMB11A	P6SMB11CA	11A	11C	10.45	11.55	1	5	9.4	38.46	15.6
P6SMB12A	P6SMB12CA	12A	12C	11.40	12.60	1	5	10.2	35.93	16.7
P6SMB13A	P6SMB13CA	13A	13C	12.35	13.65	1	1	11.1	32.97	18.2
P6SMB15A	P6SMB15CA	15A	15C	14.25	15.75	1	1	12.8	28.30	21.2
P6SMB16A	P6SMB16CA	16A	16C	15.20	16.80	1	1	13.6	26.67	22.5
P6SMB18A	P6SMB18CA	18A	18C	17.10	18.90	1	1	15.3	23.81	25.2
P6SMB20A	P6SMB20CA	20A	20C	19.00	21.00	1	1	17.1	21.66	27.7
P6SMB22A	P6SMB22CA	22A	22C	20.90	23.10	1	1	18.8	19.61	30.6
P6SMB24A	P6SMB24CA	24A	24C	22.80	25.20	1	1	20.5	18.07	33.2
P6SMB27A	P6SMB27CA	27A	27C	25.65	28.35	1	1	23.1	16.00	37.5
P6SMB30A	P6SMB30CA	30A	30C	28.50	31.50	1	1	25.6	14.49	41.4
P6SMB33A	P6SMB33CA	33A	33C	31.35	34.65	1	1	28.2	13.13	45.7
P6SMB36A	P6SMB36CA	36A	36C	34.20	37.80	1	1	30.8	12.02	49.9
P6SMB39A	P6SMB39CA	39A	39C	37.05	40.95	1	1	33.3	11.13	53.9
P6SMB43A	P6SMB43CA	43A	43C	40.85	45.15	1	1	36.8	10.12	59.3
P6SMB47A	P6SMB47CA	47A	47C	44.65	49.35	1	1	40.2	9.26	64.8
P6SMB51A	P6SMB51CA	51A	51C	48.45	53.55	1	1	43.6	8.56	70.1
P6SMB56A	P6SMB56CA	56A	56C	53.20	58.80	1	1	47.8	7.79	77.0
P6SMB62A	P6SMB62CA	62A	62C	58.90	65.10	1	1	53.0	7.06	85.0
P6SMB68A	P6SMB62CA	68A	68C	64.60	71.40	1	1	58.1	6.52	92.0
P6SMB75A	P6SMB75CA	75A	75C	71.25	78.75	1	1	64.1	5.83	103.0
P6SMB82A	P6SMB82CA	82A	82C	77.90	86.10	1	1	70.1	5.31	113.0
P6SMB91A	P6SMB91CA	91A	91C	86.45	95.55	1	1	77.8	4.80	125.0
P6SMB100A	P6SMB100CA	100A	100C	95.00	105.00	1	1	85.5	4.38	137.0
P6SMB110A	P6SMB110CA	110A	110C	104.50	115.50	1	1	94.0	3.95	152.0
P6SMB120A	P6SMB120CA	120A	120C	114.00	126.00	1	1	102.0	3.64	165.0
P6SMB130A	P6SMB130CA	130A	130C	123.50	136.50	1	1	111.0	3.35	179.0
P6SMB150A	P6SMB150CA	150A	150C	142.50	157.50	1	1	128.0	2.90	207.0
P6SMB160A	P6SMB160CA	160A	160C	152.00	168.00	1	1	136.0	2.74	219.0
P6SMB170A	P6SMB170CA	170A	170C	161.50	178.50	1	1	145.0	2.56	234.0
P6SMB180A	P6SMB180CA	180A	180C	171.00	189.00	1	1	154.0	2.44	246.0
P6SMB200A	P6SMB200CA	200A	200C	190.00	210.00	1	1	171.0	2.19	274.0
P6SMB220A	P6SMB220CA	220A	220C	209.00	231.00	1	1	185.0	1.83	328.0
P6SMB250A	P6SMB250CA	250A	250C	237.50	262.50	1	1	214.0	1.74	344.0
P6SMB300A	P6SMB300CA	300A	300C	285.00	315.00	1	1	256.0	1.45	414.0
P6SMB350A	P6SMB350CA	350A	350C	332.50	367.50	1	1	299.3	1.24	482.0
P6SMB380A	P6SMB380CA	380A	380C	361.00	399.00	1	1	324.9	1.14	524.4
P6SMB400A	P6SMB400CA	400A	400C	380.00	420.00	1	1	342.0	1.09	548.0
P6SMB440A	P6SMB440CA	440A	440C	418.00	462.00	1	1	376.2	0.99	607.2
P6SMB500A	P6SMB500CA	500A	500C	475.00	525.00	1	1	427.5	0.87	690.0
P6SMB520A	P6SMB520CA	520A	520C	494.00	546.00	1	1	444.6	0.84	717.6
P6SMB550A	P6SMB550CA	550A	550C	522.50	577.50	1	1	470.3	0.79	759.0
P6SMB600A	P6SMB600CA	600A	600C	570.00	630.00	1	1	513.0	0.72	828.0

Note:

1. The available parts are "A" type only,the parts without A(V_{BR} is ±10%) is not available
2. Add suffix 'C 'or ' CA ' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double

Ratings and Characteristics Curves (T_A=25℃ unless otherwise noted)

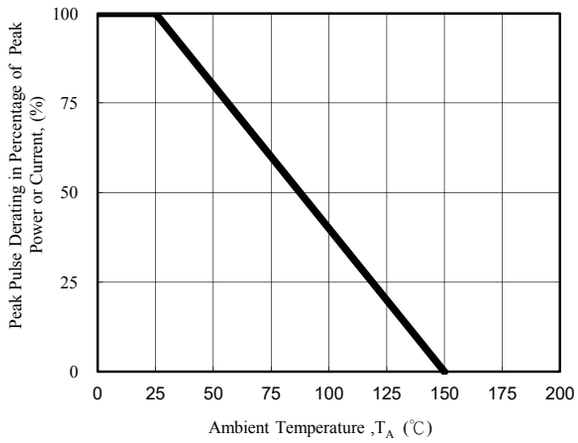


Fig. 1 - Pulse Derating Curve

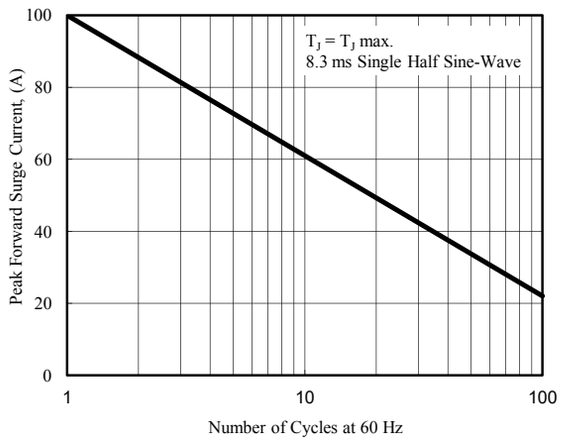


Fig. 2 - Maximum Non-Repetitive Surge Current

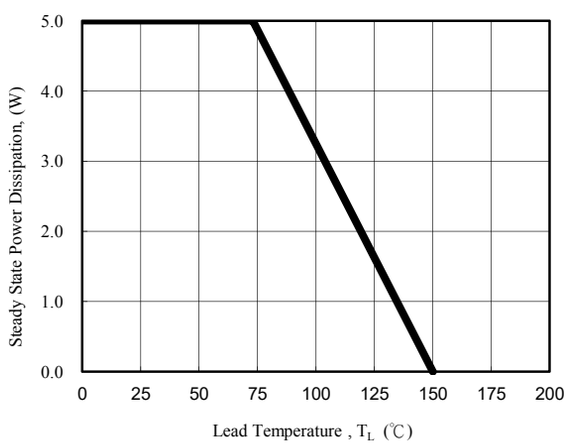


Fig. 3 - Steady State Power Derating Curve

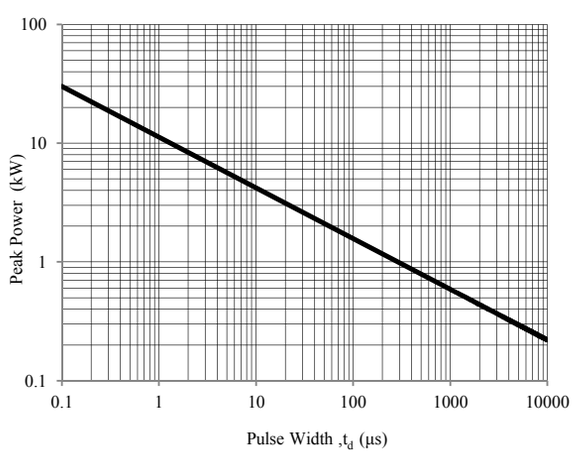


Fig. 4 - Peak Pulse Power Rating Curve

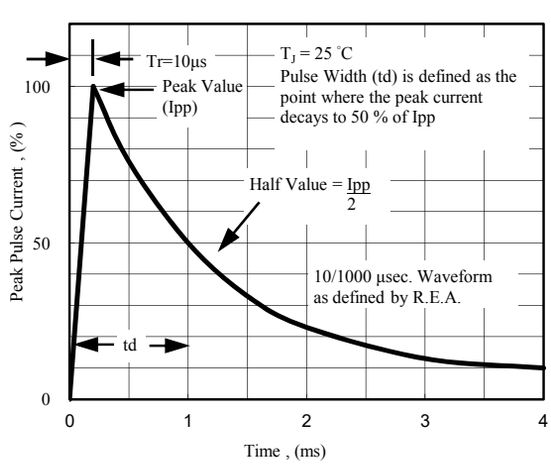


Fig. 5 - Pulse Waveform

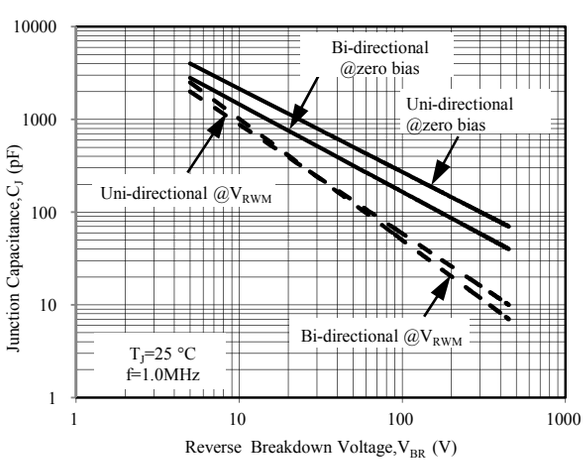


Fig. 6 - Typical Junction Capacitance

PACKAGE	SPQ/PCS	CARTON SPQ/PCS	CARTON SIZE/CM	CARTON GW/KG	CARTON NW/KG
SMB	3000/REEL	48000	36X35.8X36.5	12.00	11.00