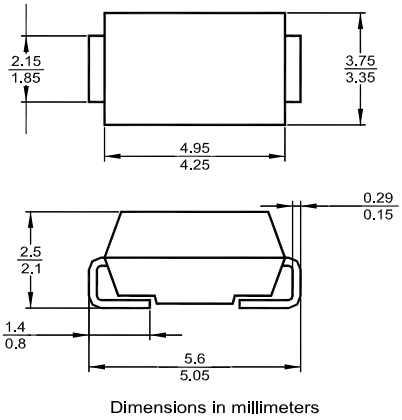
P6SMB Series

Surface Mount Transient Voltage Suppressors

Features

- 600 W Surge capability at 1 ms
- Excellent clamping capability
- Low Zener impedance

SMB (DO-214AA)



Dimensions in millimeters

Mechanical Data

- Case: DO-214AA (SMB) molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Lead Formed for surface mount
- Polarity: Color band denotes cathode end except Bipolar
- Mounting Position: Any

Description

- Devices for bidirectional applications
- For bidirectional use CA suffix
- Electrical characteristics apply in both directions

Absolute Maximum Ratings (T_a = 25 °C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T_a = 25 °C, tp = 1 ms [1)]	P_{PK}	Min. 600	W
Steady State Power Dissipation at T_L = 75 °C [2)]	P_D	5	W
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC Method) [3)]	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage at 50 A [4)]	V_F	3.5 / 5	V
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150	°C

[1)] Non-repetitive current pulse and derated above T_a = 25 °C.

[2)] Mounted on copper lead area at 5 mm^2 (0.013 mm thick).

[3)] 8.3 ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

[4)] V_F: 3.5 V Max. for types P6SMB6.8A~P6SMB91A, V_F: 5 V Max. for types P6SMB100A~P6SMB440A per 1/2 square or equivalent sine wave. PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

Electrical Characteristics (Rating at T_a = 25 ºC unless otherwise specified)

Type	Working Peak Reverse Voltage	Breakdown Voltage [1]			Maximum Clamping Voltage		Maximum Reverse Current [2]	Maximum Temperature Coefficient of V_{BR}
		V_{BR}		at I_T	V_C	at I_{PPM}	I_R at V_{RWM}	θV_{BR}
	V_{RWM} (V)	Min. (V)	Max. (V)	(mA)	Max. (V)	(A)	Max. (µA)	%/°C
P6SMB6.8A / CA	5.8	6.45	7.14	10	10.5	57	1000	0.057
P6SMB7.5A / CA	6.4	7.13	7.88	10	11.3	53	500	0.061
P6SMB8.2A / CA	7.02	7.79	8.61	10	12.1	50	200	0.065
P6SMB9.1A / CA	7.78	8.65	9.55	1	13.4	45	50	0.068
P6SMB10A / CA	8.55	9.5	10.5	1	14.5	41	10	0.073
P6SMB11A / CA	9.4	10.5	11.6	1	15.6	38	5	0.075
P6SMB12A / CA	10.2	11.4	12.6	1	16.7	36	5	0.078
P6SMB13A / CA	11.1	12.4	13.7	1	18.2	33	5	0.081
P6SMB15A / CA	12.8	14.3	15.8	1	21.2	28	5	0.084
P6SMB16A / CA	13.6	15.2	16.8	1	22.5	27	5	0.086
P6SMB18A / CA	15.3	17.1	18.9	1	25.2	24	5	0.088
P6SMB20A / CA	17.1	19	21	1	27.7	22	5	0.09
P6SMB22A / CA	18.8	20.9	23.1	1	30.6	20	5	0.092
P6SMB24A / CA	20.5	22.8	25.2	1	33.2	18	5	0.094
P6SMB27A / CA	23.1	25.7	28.4	1	37.5	16	5	0.096
P6SMB30A / CA	25.6	28.5	31.5	1	41.4	14.4	5	0.097
P6SMB33A / CA	28.2	31.4	34.7	1	45.7	13.2	5	0.098
P6SMB36A / CA	30.8	34.2	37.8	1	49.9	12	5	0.099
P6SMB39A / CA	33.3	37.1	41	1	53.9	11.2	5	0.1
P6SMB43A / CA	36.8	40.9	45.2	1	59.3	10.1	5	0.101
P6SMB47A / CA	40.2	44.7	49.4	1	64.8	9.3	5	0.101
P6SMB51A / CA	43.6	48.5	53.6	1	70.1	8.6	5	0.102
P6SMB56A / CA	47.8	53.2	58.8	1	77	7.8	5	0.103
P6SMB62A / CA	53	58.9	65.1	1	85	7.1	5	0.104
P6SMB68A / CA	58.1	64.6	71.4	1	92	6.5	5	0.104
P6SMB75A / CA	64.1	71.3	78.8	1	103	5.8	5	0.105
P6SMB82A / CA	70.1	77.9	86.1	1	113	5.3	5	0.105
P6SMB91A / CA	77.8	86.5	95.5	1	125	4.8	5	0.106
P6SMB100A / CA	85.5	95	105	1	137	4.4	5	0.106
P6SMB110A / CA	94	105	116	1	152	4	5	0.107
P6SMB120A / CA	102	114	126	1	165	3.6	5	0.107
P6SMB130A / CA	111	124	137	1	179	3.3	5	0.107
P6SMB150A / CA	128	143	158	1	207	2.9	5	0.108
P6SMB160A / CA	136	152	168	1	219	2.7	5	0.108
P6SMB170A / CA	145	162	179	1	234	2.6	5	0.108
P6SMB180A / CA	154	171	189	1	246	2.4	5	0.108
P6SMB200A / CA	171	190	210	1	274	2.2	5	0.108
P6SMB220A / CA	185	209	231	1	328	1.83	5	0.108
P6SMB250A / CA	214	237	263	1	344	1.75	5	0.11
P6SMB300A / CA	256	285	315	1	414	1.45	5	0.11
P6SMB350A / CA	300	332	368	1	482	1.25	5	0.11
P6SMB400A / CA	342	380	420	1	548	1.1	5	0.11
P6SMB440A / CA	376	418	462	1	602	1	5	0.11

[1] V_{BR} measured after I_T applied for 300 µs square wave pulse or equivalent.
[2] For bipolar types moving V_{RWM} of 10 V and less, the I_R limit is doubled.

FIG.1 - PULSE DERATING CURVE

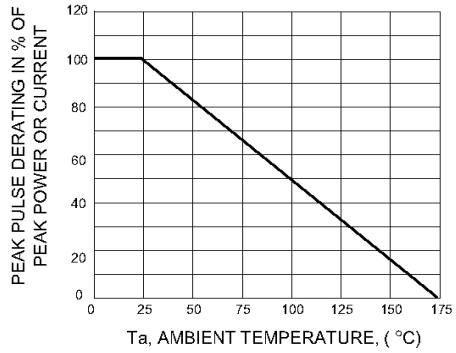


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

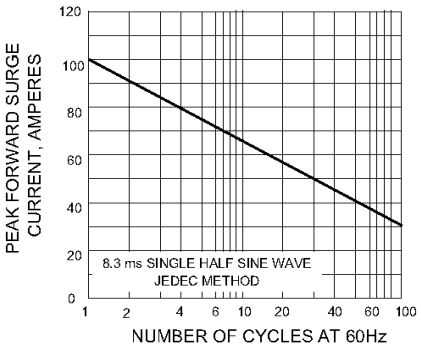


FIG.3 - STEADY STATE POWER DERATING

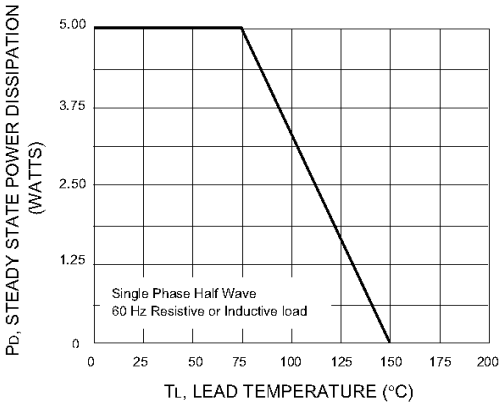


FIG.4 - PULSE RATING CURVE

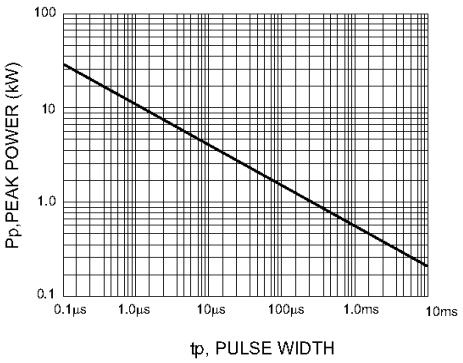


FIG.5 - PULSE WAVEFORM