

## P6SMB6.8CA - P6SMB440CA

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

**V<sub>BR</sub> : 6.8 - 440 Volts**

**P<sub>PK</sub> : 600 Watts**

### FEATURES :

- \* 600W surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time : typically less than 1.0 ps from 0 volt to V<sub>BR(min.)</sub>
- \* Typical I<sub>R</sub> less than 1μA above 10V
- \* Pb / RoHS Free

### MECHANICAL DATA

- \* Case : SMB Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Lead Formed for Surface Mount
- \* Polarity : Color band denotes cathode end except Bipolar.
- \* Mounting position : Any
- \* Weight : 0.093 grams

### DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without "C"  
Electrical characteristics apply in both directions

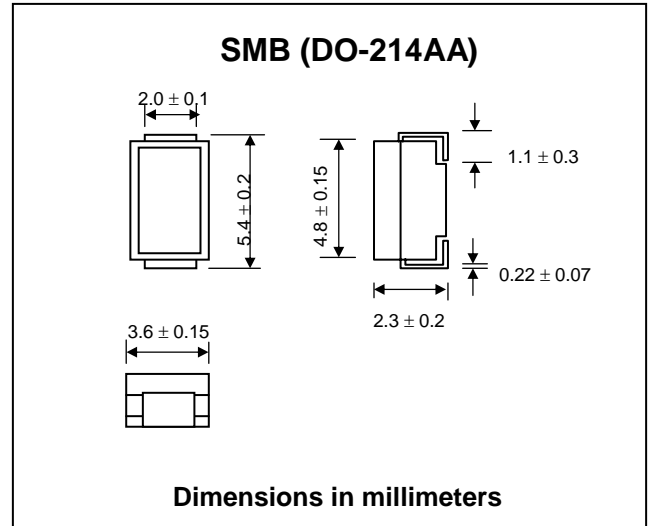
### MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation at Ta = 25°C, Tp=1ms (Note1)	P <sub>PK</sub>	Minimum 600	Watts
Steady State Power Dissipation at TL = 75 °C	P <sub>D</sub>	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I <sub>FSM</sub>	100	Amps.
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to + 150	°C

### Notes:

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on copper Lead area at 5.0 mm<sup>2</sup> ( 0.013 mm thick ).
- (3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum.



## ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

Type No.	Breakdown Voltage @ $I_t$ (Note 1)		Working Peak Reverse Voltage $V_{RWM}$	Maximum Reverse Leakage @ $V_{RWM}$ $I_R$	Maximum Reverse Current $I_{RSM}$	Maximum Clamping Voltage @ $I_{RSM}$ $V_{RSM}$	Maximum Temperature Co-efficient of $V_{BR}$ (% / °C)	
	$V_{BR}$ (V)							$I_t$
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)	(% / °C)
P6SMB6.8CA	6.45	7.14	10	5.80	2000	57.0	10.5	0.057
P6SMB7.5CA	7.13	7.88	10	6.40	1000	53.0	11.3	0.061
P6SMB8.2CA	7.79	8.61	10	7.02	400	50.0	12.1	0.065
P6SMB9.1CA	8.65	9.55	1.0	7.78	100	45.0	13.4	0.068
P6SMB10CA	9.50	10.5	1.0	8.55	20	41.0	14.5	0.073
P6SMB11CA	10.5	11.6	1.0	9.40	5.0	38.0	15.6	0.075
P6SMB12CA	11.4	12.6	1.0	10.2	5.0	36.0	16.7	0.078
P6SMB13CA	12.4	13.7	1.0	11.1	5.0	33.0	18.2	0.081
P6SMB15CA	14.3	15.8	1.0	12.8	5.0	28.0	21.2	0.084
P6SMB16CA	15.2	16.8	1.0	13.6	5.0	27.0	22.5	0.086
P6SMB18CA	17.1	18.9	1.0	15.3	5.0	24.0	25.2	0.088
P6SMB20CA	19.0	21.0	1.0	17.1	5.0	22.0	27.7	0.090
P6SMB22CA	20.9	23.1	1.0	18.8	5.0	20.0	30.6	0.092
P6SMB24CA	22.8	25.2	1.0	20.5	5.0	18.0	33.2	0.094
P6SMB27CA	25.7	28.4	1.0	23.1	5.0	16.0	37.5	0.096
P6SMB30CA	28.5	31.5	1.0	25.6	5.0	14.4	41.4	0.097
P6SMB33CA	31.4	34.7	1.0	28.2	5.0	13.2	45.7	0.098
P6SMB36CA	34.2	37.8	1.0	30.8	5.0	12.0	49.9	0.099
P6SMB39CA	37.1	41.0	1.0	33.3	5.0	11.2	53.9	0.100
P6SMB43CA	40.9	45.2	1.0	36.8	5.0	10.1	59.3	0.101
P6SMB47CA	44.7	49.4	1.0	40.2	5.0	9.3	64.8	0.101
P6SMB51CA	48.5	53.6	1.0	43.6	5.0	8.6	70.1	0.102
P6SMB56CA	53.2	58.8	1.0	47.8	5.0	7.8	77.0	0.103
P6SMB62CA	58.9	65.1	1.0	53.0	5.0	7.1	85.0	0.104
P6SMB68CA	64.6	71.4	1.0	58.1	5.0	6.5	92.0	0.104
P6SMB75CA	71.3	78.8	1.0	64.1	5.0	5.8	103	0.105
P6SMB82CA	77.9	86.1	1.0	70.1	5.0	5.3	113	0.105
P6SMB91CA	86.5	95.5	1.0	77.8	5.0	4.8	125	0.106
P6SMB100CA	95.0	105	1.0	85.5	5.0	4.4	137	0.106
P6SMB110CA	105	116	1.0	94.0	5.0	4.0	152	0.107
P6SMB120CA	114	126	1.0	102	5.0	3.6	165	0.107
P6SMB130CA	124	137	1.0	111	5.0	3.3	179	0.107
P6SMB150CA	143	158	1.0	128	5.0	2.9	207	0.108
P6SMB160CA	152	168	1.0	136	5.0	2.7	219	0.108
P6SMB170CA	162	179	1.0	145	5.0	2.6	234	0.108
P6SMB180CA	171	189	1.0	154	5.0	2.4	246	0.108
P6SMB200CA	190	210	1.0	171	5.0	2.2	274	0.108
P6SMB220CA	209	231	1.0	185	5.0	1.83	328	0.108
P6SMB250CA	237	263	1.0	214	5.0	1.75	344	0.110
P6SMB300CA	285	315	1.0	256	5.0	1.45	414	0.110
P6SMB350CA	332	368	1.0	300	5.0	1.25	482	0.110
P6SMB400CA	380	420	1.0	342	5.0	1.10	548	0.110
P6SMB440CA	418	462	1.0	376	5.0	1.00	602	0.110

### Notes:

- (1)  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent.
- (2) "P6SMB" will be omitted in marking on the diode.

## RATING AND CHARACTERISTIC CURVES ( P6SMB SERIES )

FIG.1 - PULSE DERATING CURVE

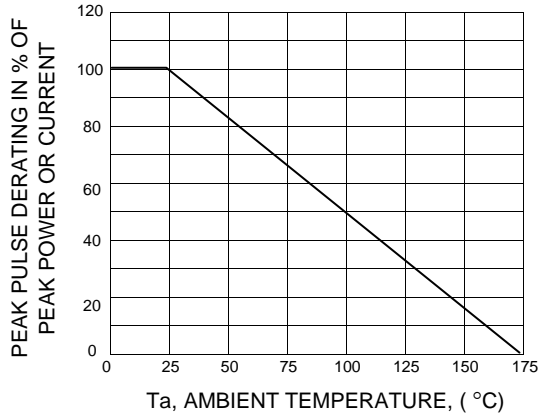


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

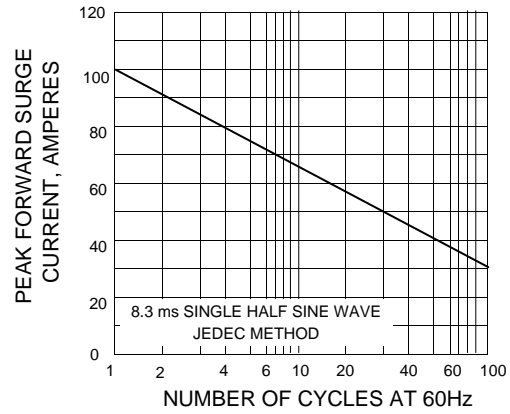


FIG.3 - STEADY STATE POWER DERATING

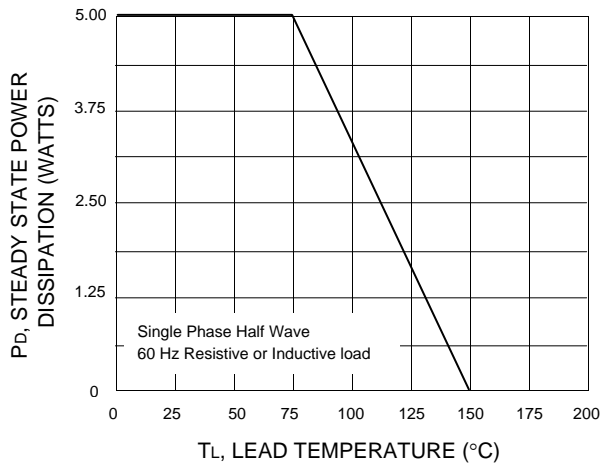


FIG.4 - PULSE RATING CURVE

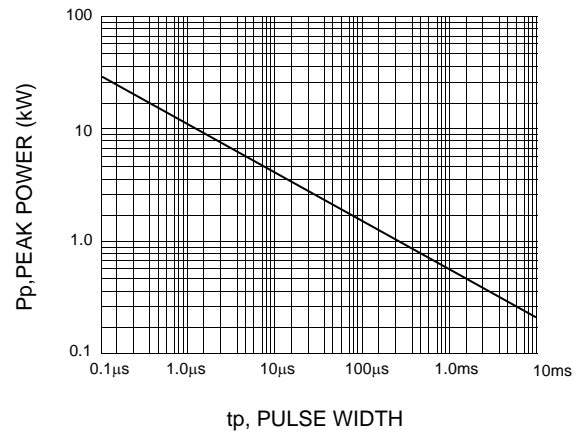


FIG.5 - PULSE WAVEFORM

