

P6SMB6.8CA-P6SMB440CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

V_{BR} : 6.8 - 440 Volts

P_{PK} : 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_{BR(min.)}
- * Typical I_R less than 1μA above 10V
- * Pb / RoHS Free

MECHANICAL DATA

- * Case : SMB Molded plastic
- * Epoxy : UL94V-0 rate flame retardant
- * Lead : Lead Formed for Surface Mount
- * Mounting position : Any
- * Weight : 0.108 gram

DEVICES FOR UNIPOLAR APPLICATIONS

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

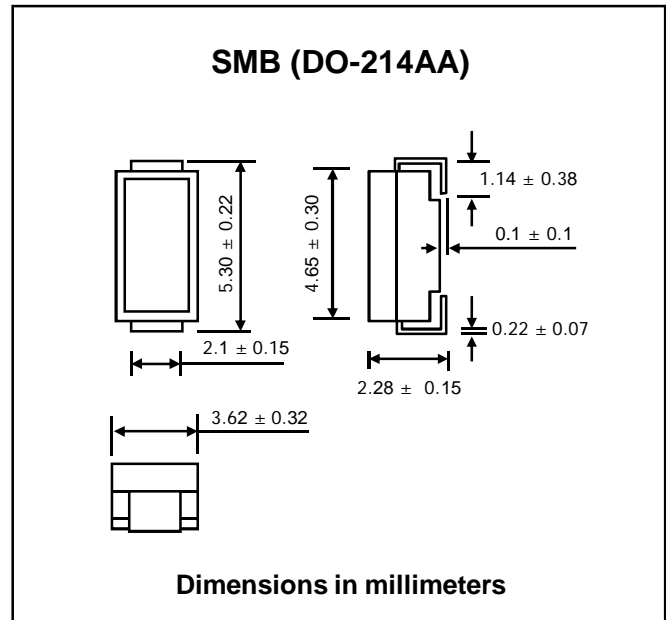
MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Unit |
|--|-----------------------------------|---------------|-------|
| Peak Power Dissipation at Ta = 25°C, Tp=1ms (Note1) | P _{PK} | Minimum 600 | Watts |
| Steady State Power Dissipation at TL = 75 °C | P _D | 5.0 | Watts |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3) | I _{FSM} | 100 | Amps. |
| Operating and Storage Temperature Range | T _J , T _{STG} | - 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 mm² (0.013 mm thick).
- (3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum.



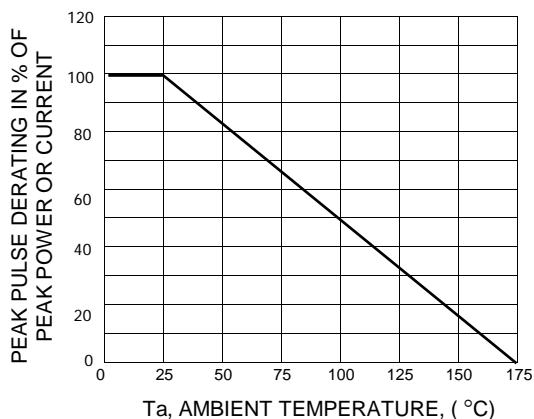
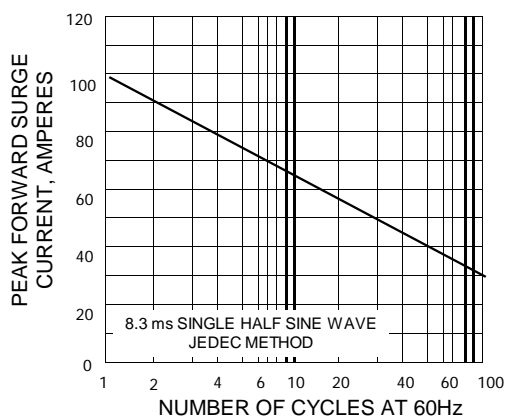
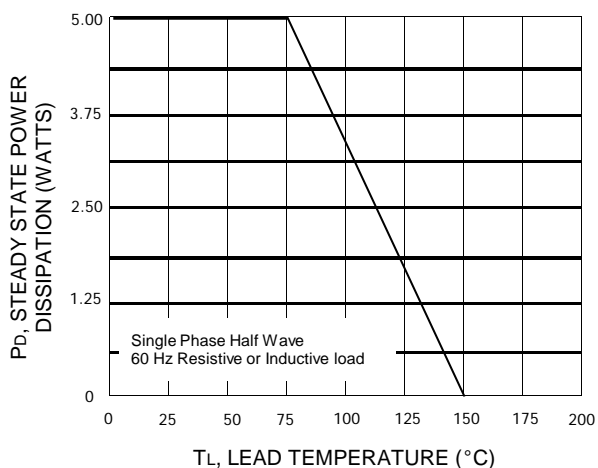
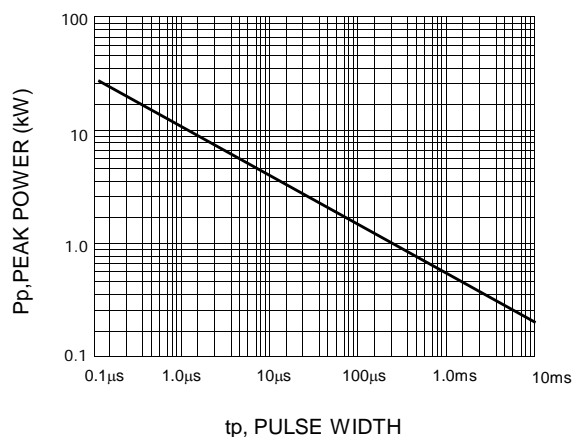
ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

| 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) | (μ 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 μ 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
