

P6SMB*** CA Series

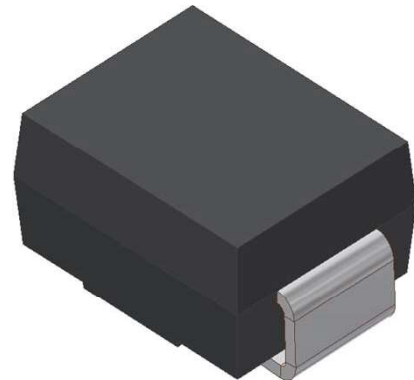
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 6.8 TO 600 Volts, 600 Watt Peak Pulse Power

1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition Rate (duty cycle): 0.01%
- Fast response time: typically less than 1.0ps
- Typical IR less than 1mA above 10V
- High temperature soldering guaranteed: 260°C/10 seconds,
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.
- Weight: 0.088g

SMB
(JEDEC DO-214AA)



2. MECHANICAL DATA

Case: Epoxy, Molded

Terminals: Plated leads, solderable per MIL-STD-202, Method 208

Polarity: Without Color band denoted cathode

Mounting Position: Any

3. MAXIMUM RATINGS (Ta = 25°C)

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

| RATING | VALUE | UNITS |
|--|-------------|-------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (Note 1) | Minimum 600 | Watts |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (Note 2) | 3.0 | Watts |
| Operating Temperature Range | -55 to +150 | °C |
| Storage Temperature Range | -55 to +150 | °C |

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on Copper Leaf area of 1.57in²(40mm²).
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

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| Bi-Directional Part Number | Device marking code | Reverse Stand-off Voltage VRWM (V) | Breakdown Voltage VBR (V) Min. @IT | Breakdown Voltage VBR (V) Max. @IT | Test Current IT (mA) | Maximum Clamping Voltage @PP VC (V) | Peak Pulse Current Ipp (A) | Reverse Leakage @VRWM IR (uA) |
|----------------------------|---------------------|------------------------------------|------------------------------------|------------------------------------|----------------------|-------------------------------------|----------------------------|-------------------------------|
| P6SMB6.8CA | 6.8CA | 5.80 | 6.45 | 7.14 | 10.0 | 10.5 | 58.10 | 500 |
| P6SMB7.5CA | 7.5CA | 6.40 | 7.13 | 7.88 | 10.0 | 11.3 | 54.00 | 500 |
| P6SMB8.2CA | 8.2CA | 7.02 | 7.79 | 8.61 | 10.0 | 12.1 | 50.40 | 200 |
| P6SMB9.1CA | 9.1CA | 7.78 | 8.65 | 9.55 | 1.0 | 13.4 | 45.50 | 50 |
| P6SMB10CA | 10CA | 8.55 | 9.50 | 10.50 | 1.0 | 14.5 | 42.10 | 10 |
| P6SMB11CA | 11CA | 9.40 | 10.50 | 11.60 | 1.0 | 15.6 | 39.10 | 5 |
| P6SMB12CA | 12CA | 10.20 | 11.40 | 12.60 | 1.0 | 16.7 | 36.50 | 5 |
| P6SMB13CA | 13CA | 11.10 | 12.40 | 13.70 | 1.0 | 18.2 | 33.50 | 1 |
| P6SMB15CA | 15CA | 12.80 | 14.30 | 15.80 | 1.0 | 21.2 | 28.80 | 1 |
| P6SMB16CA | 16CA | 13.60 | 15.20 | 16.80 | 1.0 | 22.5 | 27.10 | 1 |
| P6SMB18CA | 18CA | 15.30 | 17.10 | 18.90 | 1.0 | 25.5 | 24.20 | 1 |
| P6SMB20CA | 20CA | 17.10 | 19.00 | 21.00 | 1.0 | 27.7 | 22.00 | 1 |
| P6SMB22CA | 22CA | 18.80 | 20.90 | 23.10 | 1.0 | 30.6 | 19.90 | 1 |
| P6SMB24CA | 24CA | 20.50 | 22.80 | 25.20 | 1.0 | 33.2 | 18.40 | 1 |
| P6SMB27CA | 27CA | 23.10 | 25.70 | 28.40 | 1.0 | 37.5 | 16.30 | 1 |
| P6SMB30CA | 30CA | 25.60 | 28.50 | 31.50 | 1.0 | 41.4 | 14.70 | 1 |
| P6SMB33CA | 33CA | 28.20 | 31.40 | 34.70 | 1.0 | 45.7 | 13.30 | 1 |
| P6SMB36CA | 36CA | 30.80 | 34.20 | 37.80 | 1.0 | 49.9 | 12.20 | 1 |
| P6SMB39CA | 39CA | 33.30 | 37.10 | 41.00 | 1.0 | 53.9 | 11.30 | 1 |
| P6SMB43CA | 43CA | 36.80 | 40.90 | 45.20 | 1.0 | 59.3 | 10.30 | 1 |
| P6SMB47CA | 47CA | 40.20 | 44.70 | 49.40 | 1.0 | 64.8 | 9.40 | 1 |
| P6SMB51CA | 51CA | 43.60 | 48.50 | 53.60 | 1.0 | 70.1 | 8.70 | 1 |
| P6SMB56CA | 56CA | 47.80 | 53.20 | 58.80 | 1.0 | 77.0 | 7.90 | 1 |
| P6SMB58CA | 58CA | 52.78 | 55.10 | 60.90 | 1.0 | 79.8 | 7.70 | 1 |
| P6SMB62CA | 62CA | 53.00 | 58.90 | 65.10 | 1.0 | 85.0 | 7.20 | 1 |
| P6SMB68CA | 68CA | 58.10 | 64.60 | 71.40 | 1.0 | 92.0 | 6.60 | 1 |
| P6SMB75CA | 75CA | 64.10 | 71.30 | 78.80 | 1.0 | 103.0 | 5.90 | 1 |
| P6SMB82CA | 82CA | 70.10 | 77.90 | 86.10 | 1.0 | 113.0 | 5.40 | 1 |
| P6SMB91CA | 91CA | 77.80 | 86.50 | 95.50 | 1.0 | 125.0 | 4.90 | 1 |
| P6SMB100CA | 100CA | 85.5 | 95.0 | 105.0 | 1.0 | 137.0 | 4.50 | 1 |
| P6SMB110CA | 110CA | 94.0 | 105.0 | 116.0 | 1.0 | 152.0 | 4.00 | 1 |
| P6SMB120CA | 120CA | 102.0 | 114.0 | 126.0 | 1.0 | 165.0 | 3.70 | 1 |
| P6SMB130CA | 130CA | 111.0 | 124.0 | 137.0 | 1.0 | 179.0 | 3.40 | 1 |
| P6SMB150CA | 150CA | 128.0 | 143.0 | 158.0 | 1.0 | 207.0 | 2.90 | 1 |
| P6SMB160CA | 160CA | 136.0 | 152.0 | 168.0 | 1.0 | 219.0 | 2.80 | 1 |
| P6SMB170CA | 170CA | 145.0 | 162.0 | 179.0 | 1.0 | 234.0 | 2.60 | 1 |
| P6SMB180CA | 180CA | 154.0 | 171.0 | 189.0 | 1.0 | 246.0 | 2.50 | 1 |
| P6SMB200CA | 200CA | 171.0 | 190.0 | 210.0 | 1.0 | 274.0 | 2.20 | 1 |
| P6SMB210CA | 210CA | 179.6 | 199.5 | 220.5 | 1.0 | 288.0 | 2.10 | 1 |
| P6SMB220CA | 220CA | 185.0 | 209.0 | 231.0 | 1.0 | 328.0 | 1.90 | 1 |
| P6SMB250CA | 250CA | 214.0 | 237.0 | 263.0 | 1.0 | 344.0 | 1.80 | 1 |
| P6SMB300CA | 300CA | 256.0 | 285.0 | 315.0 | 1.0 | 414.0 | 1.50 | 1 |
| P6SMB350CA | 350CA | 300.0 | 332.0 | 368.0 | 1.0 | 482.0 | 1.30 | 1 |
| P6SMB400CA | 400CA | 342.0 | 380.0 | 420.0 | 1.0 | 548.0 | 1.10 | 1 |
| P6SMB440CA | 440CA | 376.0 | 418.0 | 462.0 | 1.0 | 602.0 | 1.00 | 1 |
| P6SMB480CA | 480CA | 408.0 | 456.0 | 504.0 | 1.0 | 658.0 | 0.90 | 1 |
| P6SMB510CA | 510CA | 434.0 | 485.0 | 535.0 | 1.0 | 698.0 | 0.90 | 1 |
| P6SMB530CA | 530CA | 451.0 | 503.5 | 556.5 | 1.0 | 725.0 | 0.80 | 1 |
| P6SMB540CA | 540CA | 460.0 | 513.0 | 567.0 | 1.0 | 740.0 | 0.80 | 1 |
| P6SMB550CA | 550CA | 468.0 | 522.5 | 577.5 | 1.0 | 760.0 | 0.80 | 1 |
| P6SMB600CA | 600CA | 512.0 | 570.0 | 630.0 | 1.0 | 828.0 | 0.75 | 1 |

5. ELECTRICAL CHARACTERISTICS CURVES

Fig. 1-Peak Pulse Power Rating Curve

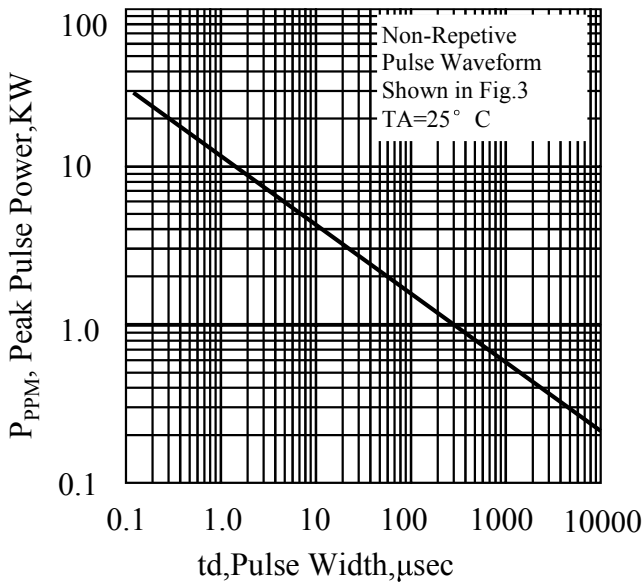


Fig. 2-Pulse Derating Curve

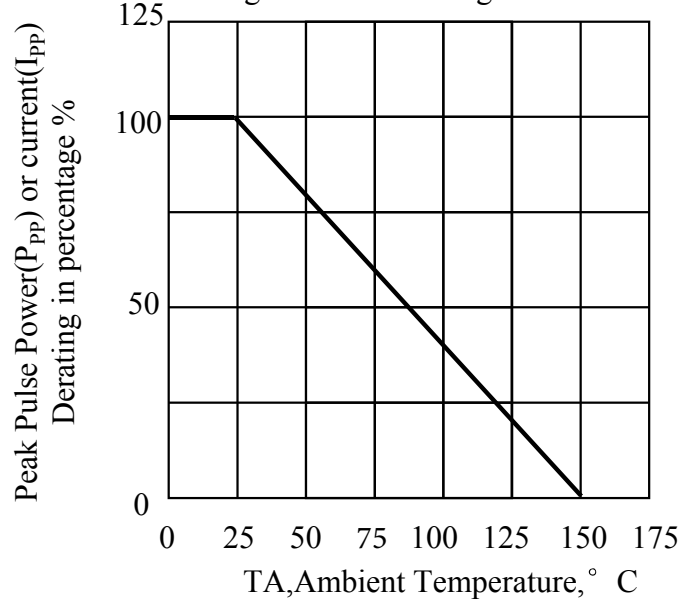


Fig. 3-Pulse Waveform

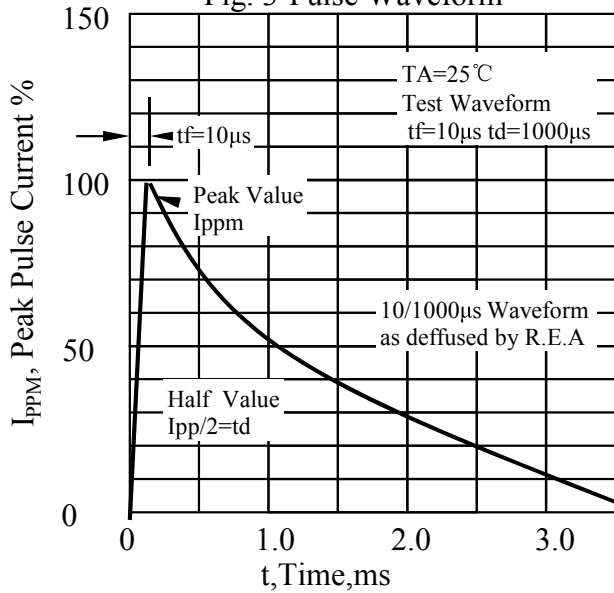
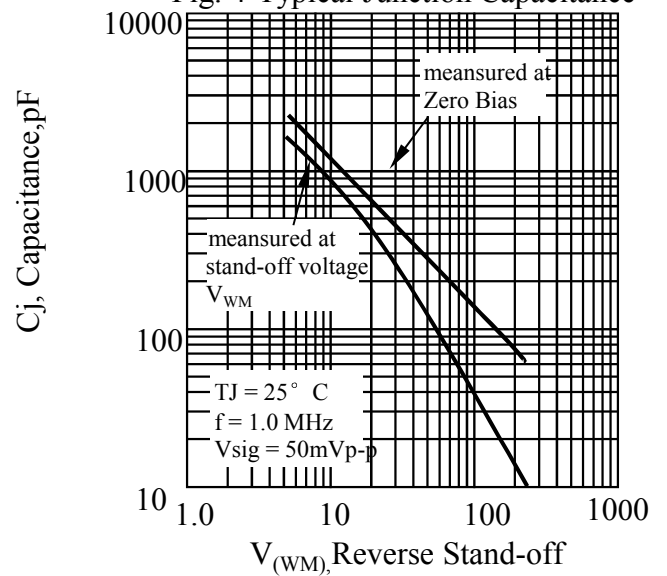
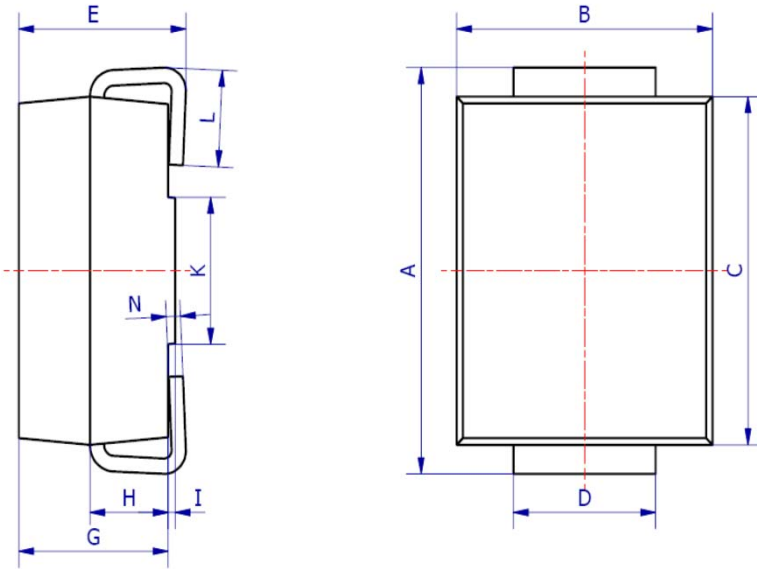


Fig. 4-Typical Junction Capacitance

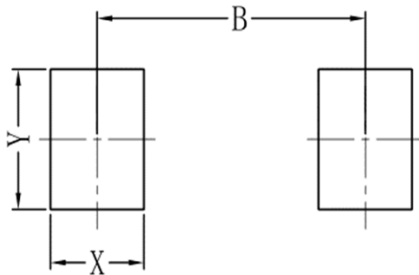


6. OUTLINE AND DIMENSIONS



| SMB | | | |
|----------------------|------|------|------|
| DIM | Min | Max | Typ. |
| A | 5.20 | 5.45 | 5.25 |
| B | 3.20 | 4.00 | 3.60 |
| C | 4.30 | 4.60 | 4.50 |
| D | 1.80 | 2.20 | 2.00 |
| E | 2.20 | 2.50 | 2.35 |
| G | 1.90 | 2.30 | 2.10 |
| H | 0.95 | 1.25 | 1.10 |
| I | 0.05 | 0.15 | 0.10 |
| K | 1.70 | 2.10 | 1.90 |
| L | 0.90 | 1.50 | 1.20 |
| N | 0.10 | 0.30 | 0.20 |
| All Dimensions in mm | | | |

7. SOLDERING FOOTPRINT



| SMB | |
|-----|------|
| DIM | (mm) |
| X | 1.60 |
| Y | 2.20 |
| B | 4.60 |