



THE DATASHEET OF P6SMB15CA



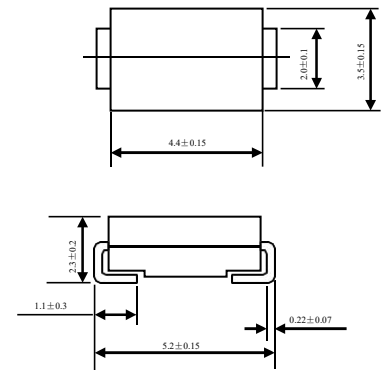
Features:

- ◆ 600W peak pulse power
- ◆ Excellent clamping capability
- ◆ Small clamping voltage
- ◆ Fast response time: uni-directional less than 1.0ps from 0V to V_{BR} , bi-directional less than 5.0ns

Mechanical characteristics:

- ◆ Package: Molded package
- ◆ Encapsulation material: Flame-retardant epoxy recognized by UL94V-O
- ◆ Terminals: Tin-plated
- ◆ Polarity: Cathode indicated by color band
- ◆ Mounting position: Any

SMB / DO-214AA



600W Surface Mount TVS

Dimensional units: inch (mm)

Maximum ratings and electrical characteristics

Measured at an ambient temperature of 25°C unless otherwise specified.

| Parameter | Symbol | Rated Value | Unit |
|--|----------------|-------------|------|
| maximum peak pulse power | P_{PPM} | min. 600 | W |
| maximum peak reverse pulse current (note 1) | I_{PPM} | see table | A |
| steady state power (note 2) | $P_m (AV)$ | 5.0 | W |
| maximum peak forward surge current (note 3) | I_{FSM} | 100 | A |
| maximum transient forward voltage @ 50 A (uni-directional only) (note 4) | V_F | 3.5 | V |
| operating and storage temperature | T_J, T_{STG} | -55 ~ +175 | °C |

Note 1: Pulse current duration 10/1000 μ s.

Note 2: Installation area at lead terminal 5.0mm², with 0.013mm thick thermal copper.

Note 3: Using single half sine wave, 10ms duration; or equivalent square wave, 4 cycles per minute.



P6SMB Series

| Electrical Characteristics (at TA=25 °C unless otherwise noted) | | | | | | | | | | |
|---|---------|---------|----------------------------|--------|----------------|---------------------------|---|--------------------|-----------------------------------|--|
| Type | Marking | | Breakdown Voltage | | Test Current | Reverse Stand-Off Voltage | Reverse Leakage | Peak Pulse Current | Maximum Clamping Voltage | Maximum Temperature Coefficient of V _(BR) |
| | One-way | Two-Way | V _(BR) (note 1) | | I _T | V _{WM} | I _D @ V _{WM} (note 2) | I _{PPM} | V _C @ I _{PPM} | |
| | | | V(min) | V(max) | mA | V | µA | A | V | % / °C |
| P6SMB6.8 | | | 6.12 | 7.48 | 10.0 | 5.50 | 1000.0 | 58.0 | 10.8 | 0.057 |
| P6SMB6.8A | 6V8A | 6V8C | 6.45 | 7.14 | 10.0 | 5.80 | 1000.0 | 60.0 | 10.5 | 0.057 |
| P6SMB7.5 | | | 6.75 | 8.25 | 10.0 | 6.05 | 500.0 | 53.0 | 11.7 | 0.061 |
| P6SMB7.5A | 7V5A | 7V5C | 7.13 | 7.88 | 10.0 | 6.40 | 500.0 | 55.0 | 11.3 | 0.061 |
| P6SMB8.2 | | | 7.38 | 9.02 | 10.0 | 6.63 | 200.0 | 50.0 | 12.5 | 0.065 |
| P6SMB8.2A | 8V2A | 8V2C | 7.79 | 8.61 | 10.0 | 7.02 | 200.0 | 52.0 | 12.1 | 0.065 |
| P6SMB9.1 | | | 8.19 | 10.0 | 1.0 | 7.37 | 50.0 | 45.0 | 13.8 | 0.068 |
| P6SMB9.1A | 9V1A | 9V1C | 8.65 | 9.55 | 1.0 | 7.78 | 50.0 | 47.0 | 13.4 | 0.068 |
| P6SMB10 | | | 9.00 | 11.0 | 1.0 | 8.10 | 10.0 | 42.0 | 15.0 | 0.073 |
| P6SMB10A | 10A | 10C | 9.50 | 10.5 | 1.0 | 8.55 | 10.0 | 43.0 | 14.5 | 0.073 |
| P6SMB11 | | | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 38.0 | 16.2 | 0.075 |
| P6SMB11A | 11A | 11C | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 40.0 | 15.6 | 0.075 |
| P6SMB12 | | | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 36.0 | 17.3 | 0.078 |
| P6SMB12A | 12A | 12C | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 37.0 | 16.7 | 0.078 |
| P6SMB13 | | | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 33.0 | 19.0 | 0.081 |
| P6SMB13A | 13A | 13C | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 34.0 | 18.2 | 0.081 |
| P6SMB15 | | | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 28.0 | 22.0 | 0.084 |
| P6SMB15A | 15A | 15C | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 29.0 | 21.2 | 0.084 |
| P6SMB16 | | | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 26.0 | 23.5 | 0.086 |
| P6SMB16A | 16A | 16C | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 28.0 | 22.5 | 0.086 |
| P6SMB18 | | | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 23.0 | 26.5 | 0.088 |
| P6SMB18A | 18A | 18C | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 25.0 | 25.2 | 0.088 |
| P6SMB20 | | | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 21.0 | 29.1 | 0.090 |
| P6SMB20A | 20A | 20C | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 22.0 | 27.7 | 0.090 |
| P6SMB22 | | | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 19.0 | 31.9 | 0.092 |
| P6SMB22A | 22A | 22C | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 20.0 | 30.6 | 0.092 |
| P6SMB24 | | | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 18.0 | 34.7 | 0.094 |
| P6SMB24A | 24A | 24C | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 19.0 | 33.2 | 0.094 |
| P6SMB27 | | | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 16.0 | 39.1 | 0.096 |
| P6SMB27A | 27A | 27C | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 16.8 | 37.5 | 0.096 |
| P6SMB30 | | | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 14.0 | 43.5 | 0.097 |
| P6SMB30A | 30A | 30C | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 15.0 | 41.4 | 0.097 |
| P6SMB33 | | | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 13.0 | 47.7 | 0.098 |
| P6SMB33A | 33A | 33C | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 13.8 | 45.7 | 0.098 |
| P6SMB36 | | | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 12.0 | 52.0 | 0.099 |
| P6SMB36A | 36A | 36C | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 12.6 | 49.9 | 0.099 |
| P6SMB39 | | | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 11.1 | 56.4 | 0.100 |
| P6SMB39A | 39A | 39C | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 11.6 | 53.9 | 0.100 |
| P6SMB43 | | | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 10.0 | 61.9 | 0.101 |
| P6SMB43A | 43A | 43C | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 10.6 | 59.3 | 0.101 |
| P6SMB47 | | | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 9.2 | 67.8 | 0.101 |



P6SMB Series

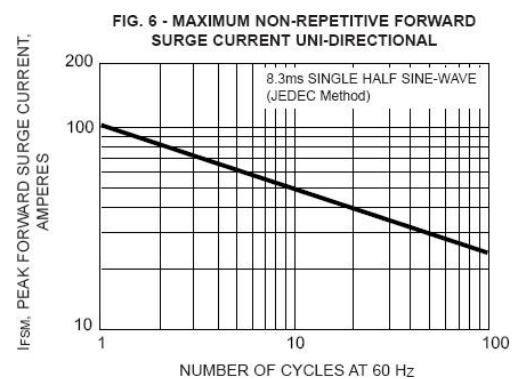
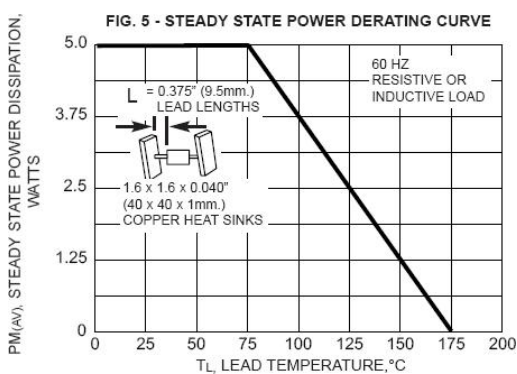
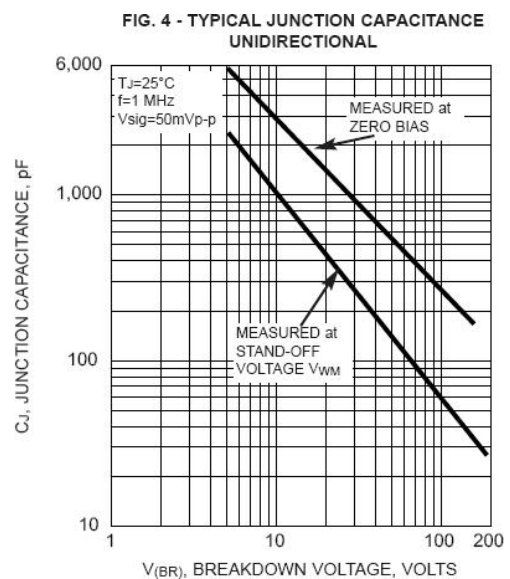
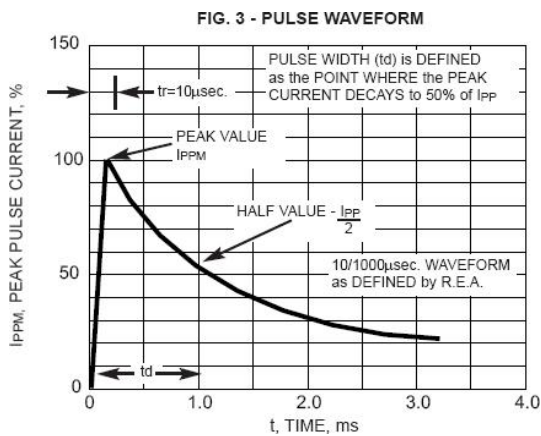
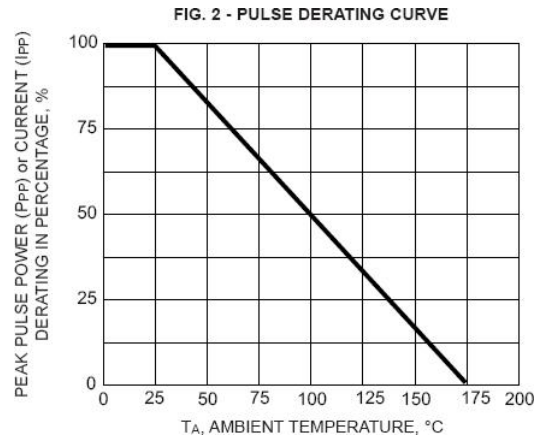
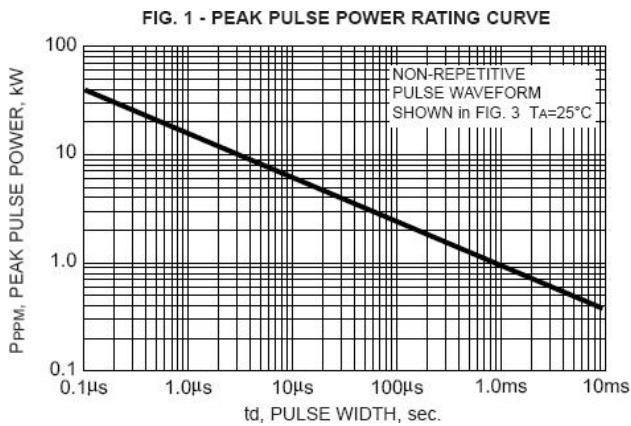
| Type | Marking | | Breakdown Voltage | | Test Current | Reverse Leakage | Peak Pulse Current | Maximum Clamping Voltage | Maximum Temperature Coefficient of $V_{(BR)}$ |
|-----------|---------|---------|---------------------|--------|--------------|------------------------------------|--------------------|--------------------------|---|
| | One-way | Two-Way | $V_{(BR)}$ (note 1) | | I_T mA | $I_D @ V_{WM}$ (note 2) μA | I_{PPM} A | $V_C @ I_{PPM}$ V | % / °C |
| | | | V(min) | V(max) | | | | | |
| P6SMB47A | 47A | 47C | 44.7 | 49.4 | 49.4 | 5.0 | 9.7 | 64.8 | 0.101 |
| P6SMB51 | | | 45.9 | 56.1 | 56.1 | 5.0 | 8.5 | 73.5 | 0.102 |
| P6SMB51A | 51A | 51C | 48.5 | 53.6 | 53.6 | 5.0 | 8.9 | 70.1 | 0.102 |
| P6SMB56 | | | 50.4 | 61.6 | 61.6 | 5.0 | 7.8 | 80.5 | 0.103 |
| P6SMB56A | 56A | 56C | 53.2 | 58.8 | 58.8 | 5.0 | 8.1 | 77.0 | 0.103 |
| P6SMB58A | 58A | 58C | 55.1 | 60.9 | 60.9 | 5.0 | 7.8 | 80.7 | 0.103 |
| P6SMB62 | | | 55.8 | 68.2 | 68.2 | 5.0 | 7.0 | 89.0 | 0.104 |
| P6SMB62A | 62A | 62C | 58.9 | 65.1 | 65.1 | 5.0 | 7.4 | 85.0 | 0.104 |
| P6SMB68 | | | 61.2 | 74.8 | 74.8 | 5.0 | 6.4 | 98.0 | 0.104 |
| P6SMB68A | 68A | 68C | 64.6 | 71.4 | 71.4 | 5.0 | 6.8 | 92.0 | 0.104 |
| P6SMB75 | | | 67.5 | 82.5 | 82.5 | 5.0 | 5.8 | 108 | 0.105 |
| P6SMB75A | 75A | 75C | 71.3 | 78.8 | 78.8 | 5.0 | 6.1 | 103 | 0.105 |
| P6SMB82 | | | 73.8 | 90.2 | 90.2 | 5.0 | 5.3 | 118 | 0.105 |
| P6SMB82A | 82A | 82C | 77.9 | 86.1 | 86.1 | 5.0 | 5.5 | 113 | 0.105 |
| P6SMB91 | | | 81.9 | 100 | 100 | 5.0 | 4.8 | 131 | 0.106 |
| P6SMB91A | 91A | 91C | 86.5 | 95.5 | 95.5 | 5.0 | 5.0 | 125 | 0.106 |
| P6SMB100 | | | 90.0 | 110 | 110 | 5.0 | 4.3 | 144 | 0.106 |
| P6SMB100A | 100A | 100C | 95.0 | 105 | 105 | 5.0 | 4.5 | 137 | 0.106 |
| P6SMB110 | | | 99.0 | 121 | 121 | 5.0 | 3.9 | 158 | 0.107 |
| P6SMB110A | 110A | 110C | 105 | 116 | 116 | 5.0 | 4.1 | 152 | 0.107 |
| P6SMB120 | | | 108 | 132 | 132 | 5.0 | 3.6 | 173 | 0.107 |
| P6SMB120A | 120A | 120C | 114 | 126 | 126 | 5.0 | 3.8 | 165 | 0.107 |
| P6SMB130 | | | 117 | 143 | 143 | 5.0 | 3.3 | 187 | 0.107 |
| P6SMB130A | 130A | 130C | 124 | 137 | 137 | 5.0 | 3.5 | 179 | 0.107 |
| P6SMB150 | | | 135 | 165 | 165 | 5.0 | 2.9 | 215 | 0.108 |
| P6SMB150A | 150A | 150C | 143 | 158 | 158 | 5.0 | 3.0 | 207 | 0.108 |
| P6SMB160 | | | 144 | 176 | 176 | 5.0 | 2.7 | 230 | 0.108 |
| P6SMB160A | 160A | 160C | 152 | 168 | 168 | 5.0 | 2.8 | 219 | 0.108 |
| P6SMB170 | | | 153 | 187 | 187 | 5.0 | 2.5 | 244 | 0.108 |
| P6SMB170A | 170A | 170C | 162 | 179 | 179 | 5.0 | 2.6 | 234 | 0.108 |
| P6SMB180 | | | 162 | 198 | 198 | 5.0 | 2.4 | 258 | 0.108 |
| P6SMB180A | 180A | 180C | 171 | 189 | 189 | 5.0 | 2.5 | 246 | 0.108 |
| P6SMB200 | | | 180 | 220 | 220 | 5.0 | 2.1 | 287 | 0.108 |
| P6SMB200A | 200A | 200C | 190 | 210 | 210 | 5.0 | 2.2 | 274 | 0.108 |

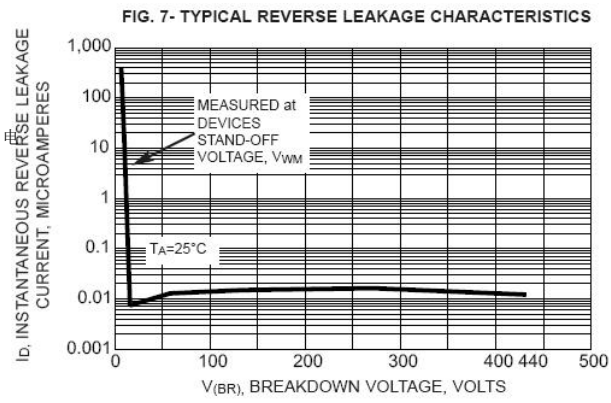
Note 1: $V_{(BR)}$ is measured after applying I_T for 300 μ s, where I_T is a square wave or equivalent pulse waveform.

Note 2: For bidirectional types, if V_{RWM} is 10V or less, I_D doubles.

Note 3: Models labeled with C or CA after the part number indicate bidirectional types, with electrical characteristics applicable in both directions.

Ratings And Characteristic Curves





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