



P6SMB

TVS

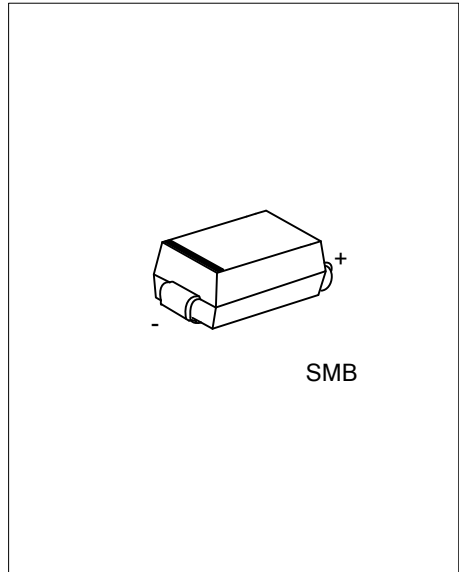
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

DESCRIPTION

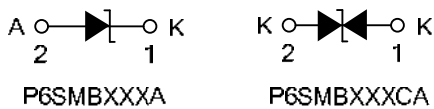
The UTC **P6SMB** is a surface mount transient voltage suppressors, it uses UTC's advanced technology to provide customers with low leakage and very fast response time, etc.

FEATURES

- * Glass passivated chip
- * 600W peak pulse power capability with a 10/1000s waveform, repetitive rate (duty cycle): 0.01 %
- * Low leakage
- * Uni and Bidirectional unit
- * Excellent clamping capability
- * Very fast response time



SYMBOL



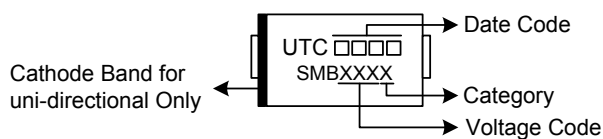
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | Packing |
|-------------------|-------------------|---------|----------------|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | |
| P6SMBXXXAL-SMB-R | P6SMBXXXAG-SMB-R | SMB | K | A | Tape Reel |
| P6SMBXXXCAL-SMB-R | P6SMBXXXCAG-SMB-R | SMB | K | K | Tape Reel |

Note: Pin Assignment: K: Cathode A: Anode

| | |
|--|---|
| <p>P6SMBXXXXXG-SMB-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package (4) Category (5) Output Voltage Code | <ul style="list-style-type: none"> (1) R: Tape Reel (2) SMB: SMB (3) G: Halogen Free and Lead Free, L: Lead Free (4) A: Uni-directional, CA: Bi-directional (5) XXX: refer to ELECTRICAL CHARACTERISTICS |
|--|---|

MARKING



Note: Category, Voltage Code: refer to ELECTRICAL CHARACTERISTICS

■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|-----------|--------------------------------------|--------------------|
| Peak Power Dissipation with a 10/1000 μs Waveform (Note 2) | P_{PP} | 600 | W |
| Peak Pulse Current with a 10/1000 μs Waveform (Note 2) | I_{PP} | See ELECTRICAL CHARACTERISTICS Table | A |
| Power Dissipation On Infinite Heatsink at $T_L = 75^{\circ}\text{C}$ | P_D | 5.0 | W |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Unidirectional Only (Note 3) | I_{FSM} | 100 | A |
| Maximum Instantaneous Forward Voltage at 50 A for Unidirectional Only (Note 4) | V_F | 3.5/5.0 | V |
| Operating Junction Temperature | T_J | -55 ~ +150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55 ~ +150 | $^{\circ}\text{C}$ |

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Non-repetitive current pulse and derated above $T_A=25^{\circ}\text{C}$

3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

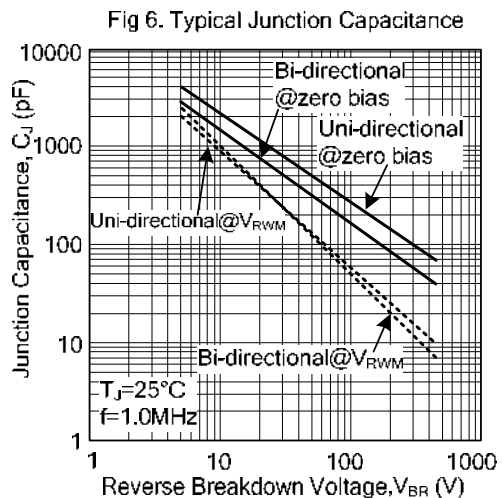
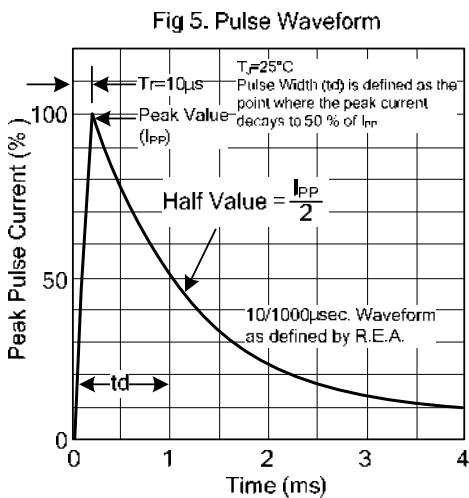
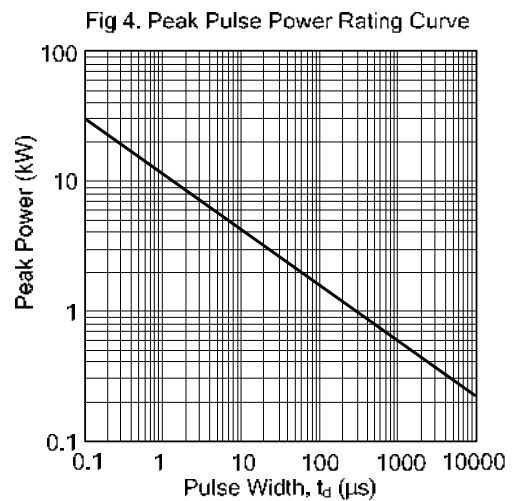
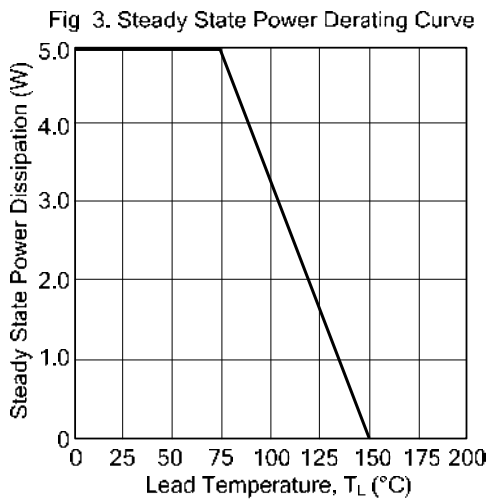
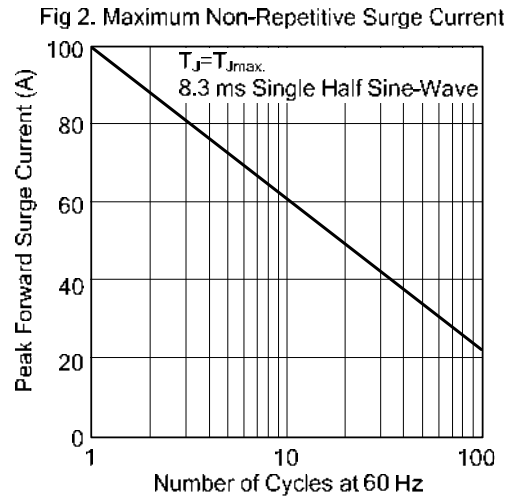
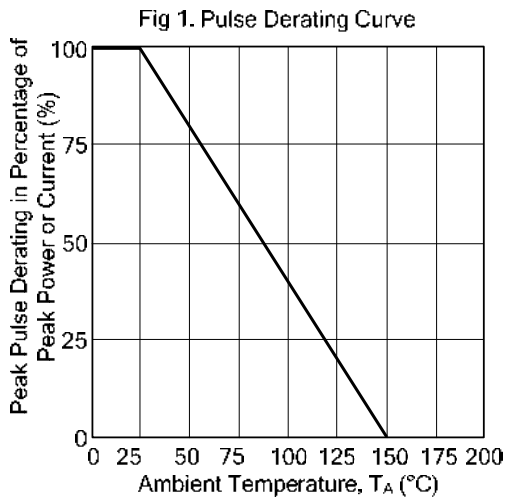
| PART NUMBER (Uni) | PART NUMBER (Bi) | Device Marking Code | | BREAKDOWN VOLTAGE V_{BR} @ I_T | | | MAXIMUM REVERSE LEAKAGE I_R @ V_{RWM} (μA) | WORKING PEAK REVERSE VOLTAGE V_{RWM} (V) | MAXIMUM REVERSE SURGE CURRENT I_{PP} (A) | MAXIMUM CLAMPING VOLTAGE V_C @ I_{PP} (V) |
|-------------------|------------------|---------------------|------|------------------------------------|---------|------------|---|--|--|---|
| | | Uni | Bi | MIN (V) | MAX (V) | I_T (mA) | | | | |
| P6SMB6V8A | P6SMB6V8CA | 6V8A | 6V8C | 6.46 | 7.14 | 10 | 1000 | 5.8 | 57.14 | 10.5 |
| P6SMB7V5A | P6SMB7V5CA | 7V5A | 7V5C | 7.13 | 7.88 | 10 | 500 | 6.4 | 53.10 | 11.3 |
| P6SMB8V2A | P6SMB8V2CA | 8V2A | 8V2C | 7.79 | 8.61 | 10 | 200 | 7.0 | 49.59 | 12.1 |
| P6SMB9V1A | P6SMB9V1CA | 9V1A | 9V1C | 8.65 | 9.56 | 1 | 50 | 7.8 | 44.78 | 13.4 |
| P6SMB10A | P6SMB10CA | 10A | 10C | 9.50 | 10.50 | 1 | 10 | 8.6 | 41.38 | 14.5 |
| P6SMB11A | P6SMB11CA | 11A | 11C | 10.45 | 11.55 | 1 | 5 | 9.4 | 38.46 | 15.6 |
| P6SMB12A | P6SMB12CA | 12A | 12C | 11.40 | 12.60 | 1 | 5 | 10.2 | 35.93 | 16.7 |
| P6SMB13A | P6SMB13CA | 13A | 13C | 12.35 | 13.65 | 1 | 1 | 11.1 | 32.97 | 18.2 |
| P6SMB15A | P6SMB15CA | 15A | 15C | 14.25 | 15.75 | 1 | 1 | 12.8 | 28.30 | 21.2 |
| P6SMB16A | P6SMB16CA | 16A | 16C | 15.20 | 16.80 | 1 | 1 | 13.6 | 26.67 | 22.5 |
| P6SMB18A | P6SMB18CA | 18A | 18C | 17.10 | 18.90 | 1 | 1 | 15.3 | 23.81 | 25.2 |
| P6SMB20A | P6SMB20CA | 20A | 20C | 19.00 | 21.00 | 1 | 1 | 17.1 | 21.66 | 27.7 |
| P6SMB22A | P6SMB22CA | 22A | 22C | 20.90 | 23.10 | 1 | 1 | 18.8 | 19.61 | 30.6 |
| P6SMB24A | P6SMB24CA | 24A | 24C | 22.80 | 25.20 | 1 | 1 | 20.5 | 18.07 | 33.2 |
| P6SMB27A | P6SMB27CA | 27A | 27C | 25.65 | 28.35 | 1 | 1 | 23.1 | 16.00 | 37.5 |
| P6SMB30A | P6SMB30CA | 30A | 30C | 28.50 | 31.50 | 1 | 1 | 25.6 | 14.49 | 41.4 |
| P6SMB33A | P6SMB33CA | 33A | 33C | 31.35 | 34.65 | 1 | 1 | 28.2 | 13.13 | 45.7 |
| P6SMB36A | P6SMB36CA | 36A | 36C | 34.20 | 37.80 | 1 | 1 | 30.8 | 12.02 | 49.9 |
| P6SMB39A | P6SMB39CA | 39A | 39C | 37.05 | 40.95 | 1 | 1 | 33.3 | 11.13 | 53.9 |
| P6SMB43A | P6SMB43CA | 43A | 43C | 40.85 | 45.15 | 1 | 1 | 36.8 | 10.12 | 59.3 |
| P6SMB47A | P6SMB47CA | 47A | 47C | 44.65 | 49.35 | 1 | 1 | 40.2 | 9.26 | 64.8 |
| P6SMB51A | P6SMB51CA | 51A | 51C | 48.45 | 53.55 | 1 | 1 | 43.6 | 8.56 | 70.1 |
| P6SMB56A | P6SMB56CA | 56A | 56C | 53.20 | 58.80 | 1 | 1 | 47.8 | 7.79 | 77.0 |
| P6SMB62A | P6SMB62CA | 62A | 62C | 58.90 | 65.10 | 1 | 1 | 53.0 | 7.06 | 85.0 |
| P6SMB68A | P6SMB68CA | 68A | 68C | 64.60 | 71.40 | 1 | 1 | 58.1 | 6.52 | 92.0 |
| P6SMB75A | P6SMB75CA | 75A | 75C | 71.25 | 78.75 | 1 | 1 | 64.1 | 5.83 | 103.0 |
| P6SMB82A | P6SMB82CA | 82A | 82C | 77.90 | 86.10 | 1 | 1 | 70.1 | 5.31 | 113.0 |
| P6SMB91A | P6SMB91CA | 91A | 91C | 86.45 | 95.55 | 1 | 1 | 77.8 | 4.80 | 125.0 |

■ ELECTRICAL CHARACTERISTICS (Cont.)

| PART NUMBER (Uni) | PART NUMBER (Bi) | Device Marking Code | | BREAKDOWN VOLTAGE V_{BR} @ I_T | | | MAXIMUM REVERSE LEAKAGE I_R @ V_{RWM} (μA) | WORKING PEAK REVERSE VOLTAGE V_{RWM} (V) | MAXIMUM REVERSE SURGE CURRENT I_{PP} (A) | MAXIMUM CLAMPING VOLTAGE V_C @ I_{PP} (V) |
|-------------------|------------------|---------------------|------|------------------------------------|---------|------------|---|--|--|---|
| | | Uni | Bi | MIN (V) | MAX (V) | I_T (mA) | | | | |
| P6SMB100A | P6SMB100CA | 100A | 100C | 95.00 | 105.00 | 1 | 1 | 85.5 | 4.38 | 137.0 |
| P6SMB110A | P6SMB110CA | 110A | 110C | 104.50 | 115.50 | 1 | 1 | 94.0 | 3.95 | 152.0 |
| P6SMB120A | P6SMB120CA | 120A | 120C | 114.00 | 126.00 | 1 | 1 | 102.0 | 3.64 | 165.0 |
| P6SMB130A | P6SMB130CA | 130A | 130C | 123.50 | 136.50 | 1 | 1 | 111.0 | 3.35 | 179.0 |
| P6SMB150A | P6SMB150CA | 150A | 150C | 142.50 | 157.50 | 1 | 1 | 128.0 | 2.90 | 207.0 |
| P6SMB160A | P6SMB160CA | 160A | 160C | 152.00 | 168.00 | 1 | 1 | 136.0 | 2.74 | 219.0 |
| P6SMB170A | P6SMB170CA | 170A | 170C | 161.50 | 178.50 | 1 | 1 | 145.0 | 2.56 | 234.0 |
| P6SMB180A | P6SMB180CA | 180A | 180C | 171.00 | 189.00 | 1 | 1 | 154.0 | 2.44 | 246.0 |
| P6SMB200A | P6SMB200CA | 200A | 200C | 190.00 | 210.00 | 1 | 1 | 171.0 | 2.19 | 274.0 |
| P6SMB220A | P6SMB220CA | 220A | 220C | 209.00 | 231.00 | 1 | 1 | 185.0 | 1.83 | 328.0 |
| P6SMB250A | P6SMB250CA | 250A | 250C | 237.50 | 262.50 | 1 | 1 | 214.0 | 1.74 | 344.0 |
| P6SMB300A | P6SMB300CA | 300A | 300C | 285.00 | 315.00 | 1 | 1 | 256.0 | 1.45 | 414.0 |
| P6SMB350A | P6SMB350CA | 350A | 350C | 332.50 | 367.50 | 1 | 1 | 299.3 | 1.24 | 482.0 |
| P6SMB380A | P6SMB380CA | 380A | 380C | 361.00 | 399.00 | 1 | 1 | 324.9 | 1.14 | 524.4 |
| P6SMB400A | P6SMB400CA | 400A | 400C | 380.00 | 420.00 | 1 | 1 | 342.0 | 1.09 | 548.0 |
| P6SMB440A | P6SMB440CA | 440A | 440C | 418.00 | 462.00 | 1 | 1 | 376.2 | 0.99 | 607.2 |
| P6SMB500A | P6SMB500CA | 500A | 500C | 475.00 | 525.00 | 1 | 1 | 427.5 | 0.87 | 690.0 |
| P6SMB520A | P6SMB520CA | 520A | 520C | 494.00 | 546.00 | 1 | 1 | 444.6 | 0.84 | 717.6 |
| P6SMB550A | P6SMB550CA | 550A | 550C | 522.50 | 577.50 | 1 | 1 | 470.3 | 0.79 | 759.0 |
| P6SMB600A | P6SMB600CA | 600A | 600C | 570.00 | 630.00 | 1 | 1 | 513.0 | 0.72 | 828.0 |

- Notes: 1. The available parts are "A" type only, the parts without A (V_{BR} is $\pm 10\%$) is not available.
 2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
 3. For Bi-Directional devices having VR of 10 volts and under, the IR limit is double.

■ TYPICAL CHARACTERISTICS



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