

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

### STAND-OFF VOLTAGE - 5.0 TO 190 Volts

### 200 Watt Peak Pulse Power

\* \* \* 标注为常用型号

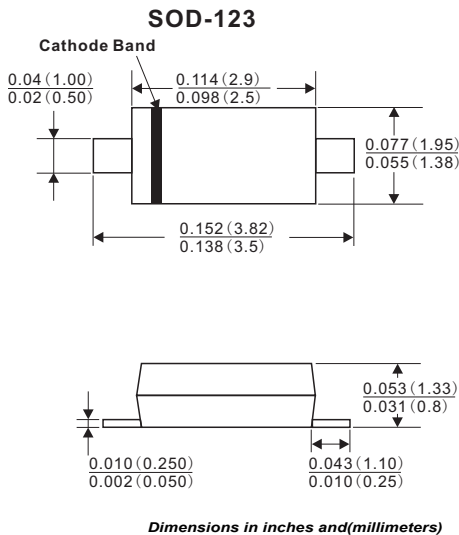
\* \* \* Stand for commonly used models

| PMF PART NUMBER |           | DEVICE MARKING CODE |    | REVER SE STAND -OFF VOLTAGE V <sub>RWM</sub> (V) | BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MIN. @I <sub>T</sub> | BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MAX. @I <sub>T</sub> | TEST CURRENT I <sub>T</sub> (mA) | MAXIMUM CLAMPING VOLTAGE @I <sub>pp</sub> V <sub>c</sub> (V) | PEAK PULSE CURRENT I <sub>pp</sub> (A) | REVERSE LEAKAGE @ VRWM I <sub>r</sub> (μA) |
|-----------------|-----------|---------------------|----|--|--|--|----------------------------------|--|--|--|
| UNI-POLAR       | BI-POLAR  | UNI                 | BI |  |  |  |                                  |  |  |  |
| *PMF5.0A        | PMF5.0CA  | AE                  | WE | 5.0  | 6.40   | 7.00   | 10                               | 9.2  | 21.70                                  | 400  |
| PMF6.0A         | *PMF6.0CA | AG                  | WG | 6.0  | 6.67   | 7.37   | 10                               | 10.3   | 19.40                                  | 400  |
| PMF6.5A         | PMF6.5CA  | AK                  | WK | 6.5  | 7.22   | 7.98   | 10                               | 11.2   | 17.90                                  | 250  |
| PMF7.0A         | PMF7.0CA  | AM                  | WM | 7.0  | 7.78   | 8.60   | 10                               | 12.0   | 16.70                                  | 100  |
| PMF7.5A         | PMF7.5CA  | AP                  | WP | 7.5  | 8.33   | 9.21   | 1                                | 12.9   | 15.50                                  | 50   |
| PMF8.0A         | PMF8.0CA  | AR                  | WR | 8.0  | 8.89   | 9.83   | 1                                | 13.6   | 14.70                                  | 25   |
| PMF8.5A         | PMF8.5CA  | AT                  | WT | 8.5  | 9.44   | 10.40  | 1                                | 14.4   | 13.90                                  | 10   |
| PMF9.0A         | PMF9.0CA  | AV                  | WV | 9.0  | 10.00  | 11.10  | 1                                | 15.4   | 13.00                                  | 5  |
| PMF10A          | PMF10CA   | AX                  | WX | 10.0   | 11.10  | 12.30  | 1                                | 17.0   | 11.80                                  | 2  |
| PMF11A          | PMF11CA   | AZ                  | WZ | 11.0   | 12.20  | 13.50  | 1                                | 18.2   | 11.00                                  | 2  |
| PMF12A          | *PMF12CA  | BE                  | XE | 12.0   | 13.30  | 14.70  | 1                                | 19.9   | 10.10                                  | 2  |
| PMF13A          | PMF13CA   | BG                  | XG | 13.0   | 14.40  | 15.90  | 1                                | 21.5   | 9.30                                   | 1  |
| PMF14A          | PMF14CA   | BK                  | XK | 14.0   | 15.60  | 17.20  | 1                                | 23.2   | 8.62                                   | 1  |
| PMF15A          | PMF15CA   | BM                  | XM | 15.0   | 16.70  | 18.50  | 1                                | 24.4   | 8.20                                   | 1  |
| PMF16A          | PMF16CA   | BP                  | XP | 16.0   | 17.80  | 19.70  | 1                                | 26.0   | 7.69                                   | 1  |
| PMF17A          | PMF17CA   | BR                  | XR | 17.0   | 18.90  | 20.90  | 1                                | 27.6   | 7.25                                   | 1  |
| PMF18A          | PMF18CA   | BT                  | XT | 18.0   | 20.00  | 22.10  | 1                                | 29.2   | 6.85                                   | 1  |
| PMF19A          | PMF19CA   | BU                  | XU | 19.0   | 21.10  | 23.30  | 1                                | 30.6   | 6.54                                   | 1  |
| PMF20A          | PMF20CA   | BV                  | XV | 20.0   | 22.22  | 24.50  | 1                                | 32.4   | 6.17                                   | 1  |
| PMF22A          | PMF22CA   | BX                  | XY | 22.0   | 24.40  | 26.90  | 1                                | 35.5   | 5.63                                   | 1  |
| PMF24A          | *PMF24CA  | BZ                  | XZ | 24.0   | 26.70  | 29.50  | 1                                | 38.9   | 5.14                                   | 1  |
| PMF26A          | PMF26CA   | CE                  | YE | 26.0   | 28.90  | 31.90  | 1                                | 42.1   | 4.75                                   | 1  |
| PMF28A          | PMF28CA   | CG                  | YG | 28.0   | 31.10  | 34.40  | 1                                | 45.4   | 4.41                                   | 1  |
| PMF30A          | *PMF30CA  | CK                  | YK | 30.0   | 33.30  | 36.80  | 1                                | 48.4   | 4.13                                   | 1  |
| PMF33A          | PMF33CA   | CM                  | YM | 33.0   | 36.70  | 40.60  | 1                                | 53.3   | 3.75                                   | 1  |
| PMF36A          | *PMF36CA  | CP                  | YP | 36.0   | 40.00  | 44.20  | 1                                | 58.1   | 3.44                                   | 1  |
| PMF40A          | PMF40CA   | CR                  | YR | 40.0   | 44.40  | 49.10  | 1                                | 64.5   | 3.10                                   | 1  |
| PMF43A          | PMF43CA   | CT                  | YT | 43.0   | 47.80  | 52.80  | 1                                | 69.4   | 2.88                                   | 1  |
| PMF45A          | PMF45CA   | CV                  | YV | 45.0   | 50.00  | 55.30  | 1                                | 72.7   | 2.75                                   | 1  |
| PMF48A          | PMF48CA   | CX                  | YX | 48.0   | 53.30  | 58.90  | 1                                | 77.4   | 2.58                                   | 1  |
| PMF51A          | PMF51CA   | CZ                  | YZ | 51.0   | 56.70  | 62.70  | 1                                | 82.4   | 2.43                                   | 1  |
| PMF54A          | PMF54CA   | RE                  | ZE | 54.0   | 60.00  | 66.30  | 1                                | 87.1   | 2.30                                   | 1  |
| PMF58A          | *PMF58CA  | RG                  | ZG | 58.0   | 64.40  | 71.20  | 1                                | 93.6   | 2.14                                   | 1  |
| PMF60A          | PMF60CA   | RK                  | ZK | 60.0   | 66.70  | 73.70  | 1                                | 96.8   | 2.07                                   | 1  |
| PMF64A          | PMF64CA   | RM                  | ZM | 64.0   | 71.10  | 78.60  | 1                                | 103.0  | 1.94                                   | 1  |
| PMF70A          | PMF70CA   | RP                  | ZP | 70.0   | 77.80  | 86.00  | 1                                | 113.0  | 1.77                                   | 1  |
| PMF75A          | PMF75CA   | RR                  | ZR | 75.0   | 83.30  | 92.10  | 1                                | 121.0  | 1.65                                   | 1  |
| PMF78A          | PMF78CA   | RT                  | ZT | 78.0   | 86.70  | 95.80  | 1                                | 126.0  | 1.59                                   | 1  |
| PMF80A          | PMF80CA   | RU                  | ZU | 80.0   | 88.80  | 97.60  | 1                                | 129.0  | 1.55                                   | 1  |
| PMF85A          | PMF85CA   | RV                  | ZV | 85.0   | 94.40  | 104.00   | 1                                | 137.0  | 1.46                                   | 1  |
| PMF90A          | PMF90CA   | RX                  | ZX | 90.0   | 100.00   | 111.00   | 1                                | 146.0  | 1.37                                   | 1  |
| PMF100A         | PMF100CA  | RZ                  | ZZ | 100.0  | 111.00   | 123.00   | 1                                | 162.0  | 1.23                                   | 1  |
| PMF110A         | PMF110CA  | SE                  | VE | 110.0  | 122.00   | 135.00   | 1                                | 177.0  | 1.13                                   | 1  |
| PMF120A         | PMF120CA  | SG                  | VG | 120.0  | 133.00   | 147.00   | 1                                | 193.0  | 1.04                                   | 1  |
| PMF130A         | PMF130CA  | SK                  | VK | 130.0  | 144.00   | 159.00   | 1                                | 209.0  | 0.96                                   | 1  |
| PMF140A         | PMF140CA  | SL                  | VL | 140.0  | 155.00   | 171.00   | 1                                | 224.0  | 0.89                                   | 1  |
| PMF150A         | PMF150CA  | SM                  | VM | 150.0  | 167.00   | 185.00   | 1                                | 243.0  | 0.82                                   | 1  |
| PMF160A         | PMF160CA  | SP                  | VP | 160.0  | 178.00   | 197.00   | 1                                | 259.0  | 0.77                                   | 1  |
| PMF170A         | PMF170CA  | SR                  | VR | 170.0  | 189.00   | 209.00   | 1                                | 275.0  | 0.73                                   | 1  |
| PMF180A         | PMF180CA  | ST                  | VT | 180.0  | 200.00   | 220.00   | 1                                | 290.0  | 0.69                                   | 1  |
| PMF190A         | PMF190CA  | SU                  | VU | 190.0  | 211.00   | 232.00   | 1                                | 290.0  | 0.69                                   | 1  |

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.

For parts with A , the VBR is ± 5%

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR STAND-OFF VOLTAGE - 5.0 TO 190 Volts 200 Watt Peak Pulse Power



### FEATURES

- ⊙ 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 from 0 Volts to V(BR) for unidirectional types
- ⊙ Typical IR less than 1μA above 10V
- ⊙ High Temperature soldering: 260°C/10 seconds at terminals
- ⊙ Plastic package has Underwriters Laboratory Flammability 94V-0
- ⊙ Pb-free plated

### Mechanical Date

- Case: JEDEC SOD-123 molded plastic over passivated chip
- Terminals: Solder plated, solderable per MIL-STD-750 Method 2026
- Polarity: For uni-directional types the bandby laser denotes the cathode, which is positive with respect to the anode under normal TVS operation

### DEVICES FOR BIPOLAR APPLICATION

For Bidirectional use C or CA Suffix for types PMF5.0 thru types PMF170 (e.g. PMF5.0C , PMF170CA)  
Electrical characteristics apply in both directions

### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| RATING   | SYMBOL                            | VALUE       | UNITS |
|--|-----------------------------------|-------------|-------|
| Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1,2 ,FIG.1)                                       | P <sub>PPM</sub>                  | Minimum 200 | Watts |
| Peak Pulse Current of on 10/1000μs waveform (Note 1,FIG.3)   | I <sub>PPM</sub>                  | SEE TABLE 1 | Amps  |
| Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load,(JEDEC Method) (Note2,3) | I <sub>FSM</sub>                  | 20          | Amps  |
| Operating junction and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C    |

Notes :

- 1.Non-repetitive current pulse , per Fig. 3 and derated above T<sub>A</sub> = 25°C per Fig. 2 .
- 2.Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal
- 3.8.3ms single half sine-wave , or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

## RATINGS AND CHARACTERISTIC CURVES

### Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Fig.1 Peak Pulse Power Rating Curve

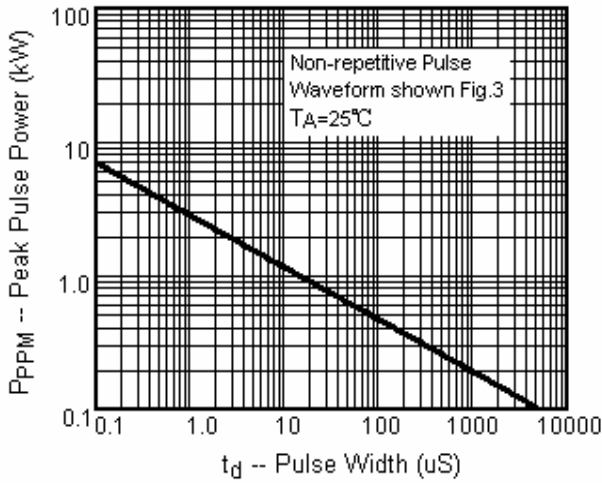


Fig.2 Pulse Derating Curve

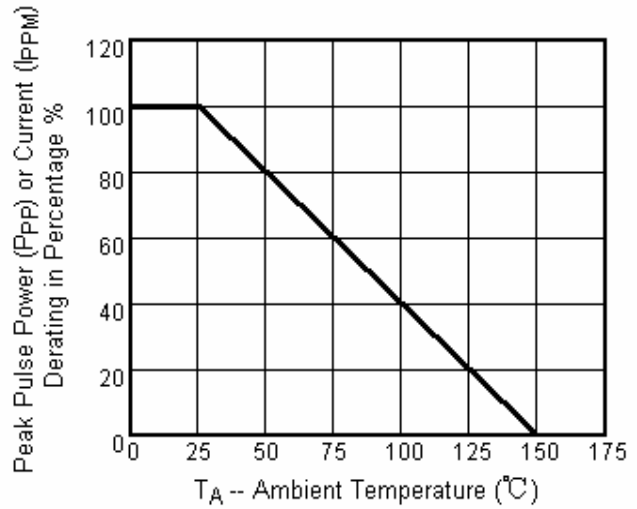


Fig.3 Pulse Waverform

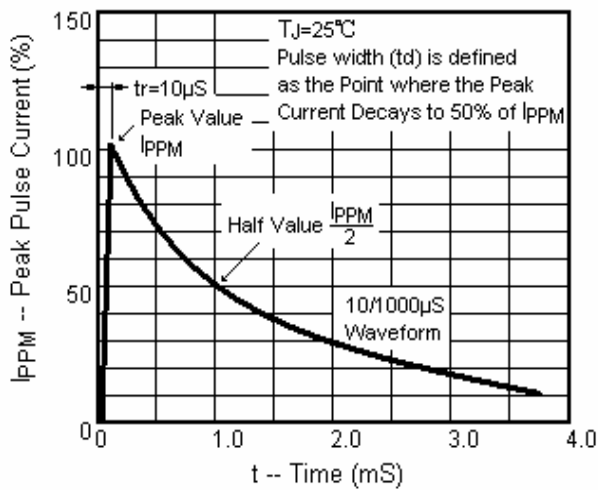


Fig.4 Typical Junction Capacitance

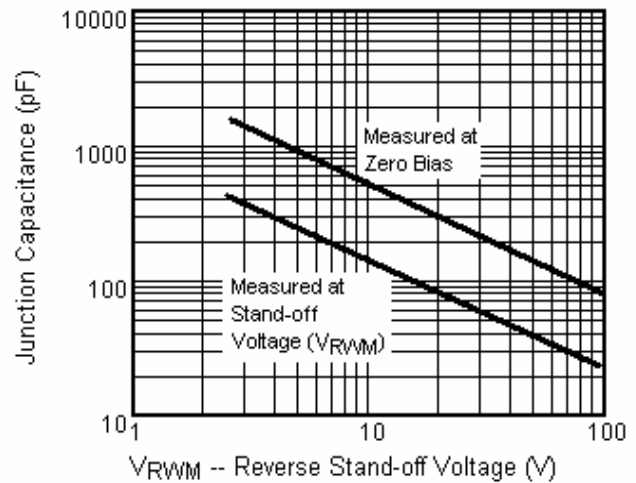


Fig.2 Maximum Non-Repetitive Peak Forward Surge Current

