

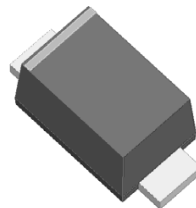
### FEATURE

- ✧ PICAstic pCAckCAge.
- ✧ GICAss pCAssivCAted chip junction in SMF PCAckCAge
- ✧ Excellent cICamping cCApCAbility.
- ✧ Low zener impedCAnce.
- ✧ 200W peCAk pulse power cCApCAbility on 10/1000 $\mu$ s wCAveform.
- ✧ TypicCAI IR less thCAn 1 $\mu$ CA CAbove 13V.
- ✧ FCAst response time: typicCAlly less thCAn 1.0ps from 0 Volts to BV min.
- ✧ High temperCAture soldering guCArCAnteed: 265 $^{\circ}$ C/10 seconds

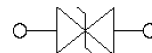
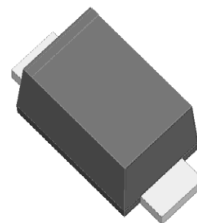
### MECHANICAL DCATE

- ✧ CCAsE: JEDEC SMF Molded PICAstic.
- ✧ TerminCAIs: CAXiCAI leCAdS, solderCABle per MIL-STD-750, Method 2026.
- ✧ PolCARity: Color bCAnd denoted cCATHode except bidirectionCAI.
- ✧ Mounting Position: CAny.

Uni-directional



Bi-directional



### MAXIMUM RATINGS AND CHARACTERISTICS

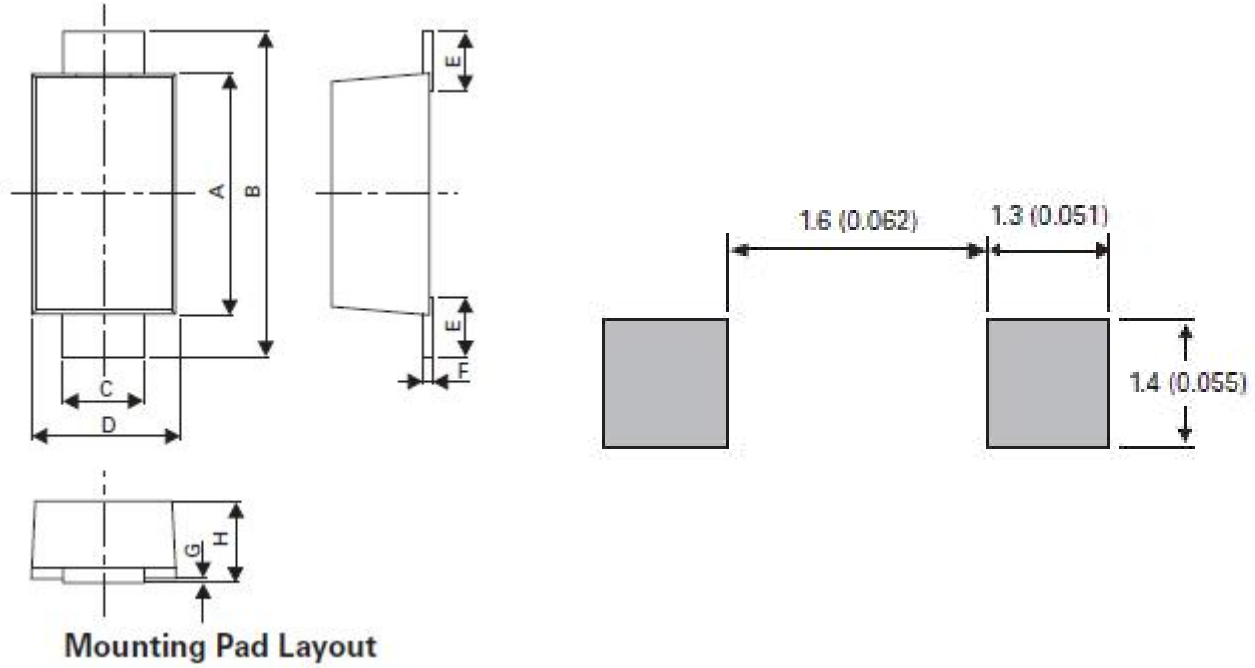
RATINGS CA t 25 $^{\circ}$ C Ambient temperature unless otherwise specified.

| RATING                                                                                                   | SYMBOL                            | VALUE       | UNITS        |
|----------------------------------------------------------------------------------------------------------|-----------------------------------|-------------|--------------|
| PeCAk Pulse Power DissipCAtion on 10/1000 $\mu$ s wCAveform                                              | P <sub>PPM</sub>                  | Minimum 400 | WCAtts       |
| PeCAk Pulse Current of on 10/1000 $\mu$ s wCAveform.                                                     | I <sub>PPM</sub>                  | See TCABle  | Camps        |
| SteCAdy StCAtE Power DissipCAtion CA t TL =75 $^{\circ}$ C, LeCAd lengths. 375", (9.5mm)                 | P <sub>M(CAV)</sub>               | 1.0         | WCAtts       |
| PeCAk ForwCArd Surge Current, 8.3ms Single HCAlf Sine-WCAve Superimposed on RCAted LoCAd, (JEDEC Method) | I <sub>FSM</sub>                  | 60          | Camps        |
| OperCAting junction CAnd StorCAge TemperCAture RCAnge.                                                   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | $^{\circ}$ C |

Notes:

1. Non-repetitive current pulse, per Fig. 3 CAnd derCAted CAbove TCA = 25 $^{\circ}$ C per Fig. 2.
2. 8.3ms single hCAlf sine-wCAve, or equivCAlent squCARE wCAve, Duty cycle = 4 pulses per minutes mCAximum.

## DIMENSIONS



| Dimensions | Millimeters |      | Inches |        |
|------------|-------------|------|--------|--------|
|            | Min         | Max  | Min    | Max    |
| A          | 2.50        | 2.90 | 0.0984 | 0.1142 |
| B          | 3.40        | 3.90 | 0.1339 | 0.1535 |
| C          | 0.70        | 1.20 | 0.0275 | 0.0472 |
| D          | 1.50        | 2.00 | 0.0591 | 0.0787 |
| E          | 0.35        | 0.90 | 0.0138 | 0.0354 |
| F          | 0.05        | 0.26 | 0.0020 | 0.0102 |
| G          | 0.00        | 0.10 | 0.0000 | 0.0039 |
| H          | 0.95        | 1.10 | 0.0374 | 0.0433 |

### ■ Ordering Information (Example)

| PREFERED      | PACKAGE CODE | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|----------------------|-------------------------|----------------------------|---------------|
| P4SMFJ Series | SOD-123      | 3000                 | 15000                   | 150000                     | 7" reel       |

## ELECTRICAL CHARACTERISTICS

| Part Number (UNI) | Part Number (BI) | Marking |    | Reverse Stand off Voltage $V_s$ (Volts) | Breakdown Voltage $V_{BR}$ (Volts) @ $I_r$ |        | Test Current $I_r$ (mA) | Maximum Clamping Voltage $V_c$ @ $I_{cr}$ (V) | Maximum Peak Pulse Current $I_{pp}$ (A) | Maximum Reverse Leakage $I_s$ @ $V_R$ ( $\mu A$ ) |
|-------------------|------------------|---------|----|-----------------------------------------|--------------------------------------------|--------|-------------------------|-----------------------------------------------|-----------------------------------------|---------------------------------------------------|
|                   |                  | UNI     | BI |                                         | MIN                                        | MAX    |                         |                                               |                                         |                                                   |
| P4SMFJ5.0A        | P4SMFJ5.0CA      | AE      | WE | 5.0                                     | 6.40                                       | 07.00  | 10                      | 9.2                                           | 43.5                                    | 800                                               |
| P4SMFJ6.0A        | P4SMFJ6.0CA      | AG      | WG | 6.0                                     | 6.67                                       | 07.37  | 10                      | 10.3                                          | 38.8                                    | 800                                               |
| P4SMFJ6.5A        | P4SMFJ6.5CA      | AK      | WK | 6.5                                     | 7.22                                       | 7.98   | 10                      | 11.2                                          | 35.7                                    | 500                                               |
| P4SMFJ7.0A        | P4SMFJ7.0CA      | AM      | WM | 7.0                                     | 7.78                                       | 8.60   | 10                      | 12.0                                          | 33.3                                    | 200                                               |
| P4SMFJ7.5A        | P4SMFJ7.5CA      | AP      | WP | 7.5                                     | 8.33                                       | 9.21   | 1                       | 12.9                                          | 31.0                                    | 100                                               |
| P4SMFJ8.0A        | P4SMFJ8.0CA      | AR      | WR | 8.0                                     | 8.89                                       | 9.83   | 1                       | 13.6                                          | 29.4                                    | 50                                                |
| P4SMFJ8.5A        | P4SMFJ8.5CA      | AT      | WT | 8.5                                     | 9.44                                       | 10.40  | 1                       | 14.4                                          | 27.8                                    | 20                                                |
| P4SMFJ9.0A        | P4SMFJ9.0CA      | AV      | WV | 9.0                                     | 10.00                                      | 11.10  | 1                       | 15.4                                          | 26.0                                    | 10                                                |
| P4SMFJ10A         | P4SMFJ10CA       | AX      | WX | 10.0                                    | 11.10                                      | 12.30  | 1                       | 17.0                                          | 23.5                                    | 5                                                 |
| P4SMFJ11A         | P4SMFJ11CA       | AZ      | WZ | 11.0                                    | 12.20                                      | 13.50  | 1                       | 18.2                                          | 22.0                                    | 1                                                 |
| P4SMFJ12A         | P4SMFJ12CA       | BE      | XE | 12.0                                    | 13.30                                      | 14.70  | 1                       | 19.9                                          | 20.1                                    | 1                                                 |
| P4SMFJ13A         | P4SMFJ13CA       | BG      | XG | 13.0                                    | 14.40                                      | 15.90  | 1                       | 21.5                                          | 18.6                                    | 1                                                 |
| P4SMFJ14A         | P4SMFJ14CA       | BK      | XK | 14.0                                    | 15.60                                      | 17.20  | 1                       | 23.2                                          | 17.2                                    | 1                                                 |
| P4SMFJ15A         | P4SMFJ15CA       | BM      | XM | 15.0                                    | 16.70                                      | 18.50  | 1                       | 24.4                                          | 16.4                                    | 1                                                 |
| P4SMFJ16A         | P4SMFJ16CA       | BP      | XP | 16.0                                    | 17.80                                      | 19.70  | 1                       | 26.0                                          | 15.4                                    | 1                                                 |
| P4SMFJ17A         | P4SMFJ17CA       | BR      | XR | 17.0                                    | 18.90                                      | 20.90  | 1                       | 27.6                                          | 14.5                                    | 1                                                 |
| P4SMFJ18A         | P4SMFJ18CA       | BT      | XT | 18.0                                    | 20.00                                      | 22.10  | 1                       | 29.2                                          | 13.7                                    | 1                                                 |
| P4SMFJ20A         | P4SMFJ20CA       | BV      | XV | 20.0                                    | 22.20                                      | 24.50  | 1                       | 32.4                                          | 12.3                                    | 1                                                 |
| P4SMFJ22A         | P4SMFJ22CA       | BX      | XX | 22.0                                    | 24.40                                      | 26.90  | 1                       | 35.5                                          | 11.3                                    | 1                                                 |
| P4SMFJ24A         | P4SMFJ24CA       | BZ      | XZ | 24.0                                    | 26.70                                      | 29.50  | 1                       | 38.9                                          | 10.3                                    | 1                                                 |
| P4SMFJ26A         | P4SMFJ26CA       | CE      | YE | 26.0                                    | 28.90                                      | 31.90  | 1                       | 42.1                                          | 9.5                                     | 1                                                 |
| P4SMFJ28A         | P4SMFJ28CA       | CG      | YG | 28.0                                    | 31.10                                      | 34.40  | 1                       | 45.4                                          | 8.8                                     | 1                                                 |
| P4SMFJ30A         | P4SMFJ30CA       | CK      | YK | 30.0                                    | 33.30                                      | 36.80  | 1                       | 48.4                                          | 8.3                                     | 1                                                 |
| P4SMFJ33A         | P4SMFJ33CA       | CM      | YM | 33.0                                    | 36.70                                      | 40.60  | 1                       | 53.3                                          | 7.5                                     | 1                                                 |
| P4SMFJ36A         | P4SMFJ36CA       | CP      | YP | 36.0                                    | 40.00                                      | 44.20  | 1                       | 58.1                                          | 6.9                                     | 1                                                 |
| P4SMFJ40A         | P4SMFJ40CA       | CR      | YR | 40.0                                    | 44.40                                      | 49.10  | 1                       | 64.5                                          | 6.2                                     | 1                                                 |
| P4SMFJ43A         | P4SMFJ43CA       | CT      | YT | 43.0                                    | 47.80                                      | 52.80  | 1                       | 69.4                                          | 5.8                                     | 1                                                 |
| P4SMFJ45A         | P4SMFJ45CA       | CV      | YV | 45.0                                    | 50.00                                      | 55.30  | 1                       | 72.7                                          | 5.5                                     | 1                                                 |
| P4SMFJ48A         | P4SMFJ48CA       | CX      | YX | 48.0                                    | 53.30                                      | 58.90  | 1                       | 77.4                                          | 5.2                                     | 1                                                 |
| P4SMFJ51A         | P4SMFJ51CA       | CZ      | YZ | 51.0                                    | 56.70                                      | 62.70  | 1                       | 82.4                                          | 4.9                                     | 1                                                 |
| P4SMFJ54A         | P4SMFJ54CA       | RE      | ZE | 54.0                                    | 60.00                                      | 66.30  | 1                       | 87.1                                          | 4.6                                     | 1                                                 |
| P4SMFJ58A         | P4SMFJ58CA       | RG      | ZG | 58.0                                    | 64.40                                      | 71.20  | 1                       | 93.6                                          | 4.3                                     | 1                                                 |
| P4SMFJ60A         | P4SMFJ60CA       | RK      | ZK | 60.0                                    | 66.70                                      | 73.70  | 1                       | 96.8                                          | 4.1                                     | 1                                                 |
| P4SMFJ64A         | P4SMFJ64CA       | RM      | ZM | 64.0                                    | 71.10                                      | 78.60  | 1                       | 103.0                                         | 3.9                                     | 1                                                 |
| P4SMFJ70A         | P4SMFJ70CA       | RP      | ZP | 70.0                                    | 77.80                                      | 86.00  | 1                       | 113.0                                         | 3.5                                     | 1                                                 |
| P4SMFJ75A         | P4SMFJ75CA       | RR      | ZR | 75.0                                    | 83.30                                      | 92.10  | 1                       | 121.0                                         | 3.3                                     | 1                                                 |
| P4SMFJ78A         | P4SMFJ78CA       | RT      | ZT | 78.0                                    | 86.70                                      | 95.80  | 1                       | 126.0                                         | 3.2                                     | 1                                                 |
| P4SMFJ85A         | P4SMFJ85CA       | RV      | ZV | 85.0                                    | 94.40                                      | 104.00 | 1                       | 137.0                                         | 2.9                                     | 1                                                 |
| P4SMFJ90A         | P4SMFJ90CA       | RX      | ZX | 90.0                                    | 100.00                                     | 111.00 | 1                       | 146.0                                         | 2.7                                     | 1                                                 |
| P4SMFJ100A        | P4SMFJ100CA      | RZ      | ZZ | 100.0                                   | 111.00                                     | 123.00 | 1                       | 162.0                                         | 2.5                                     | 1                                                 |
| P4SMFJ110A        | P4SMFJ110CA      | SE      | VE | 110.0                                   | 122.00                                     | 135.00 | 1                       | 177.0                                         | 2.3                                     | 1                                                 |
| P4SMFJ120A        | P4SMFJ120CA      | SG      | VG | 120.0                                   | 133.00                                     | 147.00 | 1                       | 193.0                                         | 2.1                                     | 1                                                 |
| P4SMFJ130A        | P4SMFJ130CA      | SK      | VK | 130.0                                   | 144.00                                     | 159.00 | 1                       | 209.0                                         | 1.9                                     | 1                                                 |
| P4SMFJ150A        | P4SMFJ150CA      | SM      | VM | 150.0                                   | 167.00                                     | 185.00 | 1                       | 243.0                                         | 1.6                                     | 1                                                 |
| P4SMFJ160A        | P4SMFJ160CA      | SP      | VP | 160.0                                   | 178.00                                     | 197.00 | 1                       | 259.0                                         | 1.5                                     | 1                                                 |
| P4SMFJ170A        | P4SMFJ170CA      | SR      | VR | 170.0                                   | 189.00                                     | 209.00 | 1                       | 275.0                                         | 1.5                                     | 1                                                 |
| P4SMFJ180A        | P4SMFJ180CA      | ST      | VT | 180.0                                   | 201.00                                     | 222.00 | 1                       | 292.0                                         | 1.4                                     | 1                                                 |
| P4SMFJ200A        | P4SMFJ200CA      | SV      | VV | 200.0                                   | 224.00                                     | 247.00 | 1                       | 324.0                                         | 1.2                                     | 1                                                 |
| P4SMFJ220A        | P4SMFJ220CA      | SX      | VX | 220.0                                   | 246.00                                     | 272.00 | 1                       | 356.0                                         | 1.1                                     | 1                                                 |
| P4SMFJ250A        | P4SMFJ250CA      | SZ      | VZ | 250.0                                   | 279.00                                     | 309.00 | 1                       | 405.0                                         | 1.0                                     | 1                                                 |

Notes: The voltage is  $>150V$ @ chip size is 50mil.

## RCATINGS CAND CHCARCACTERISTIC CURVES (TCA=25°C unless otherwise noted)

Figure 1 - TVS Transients Clamping Waveform

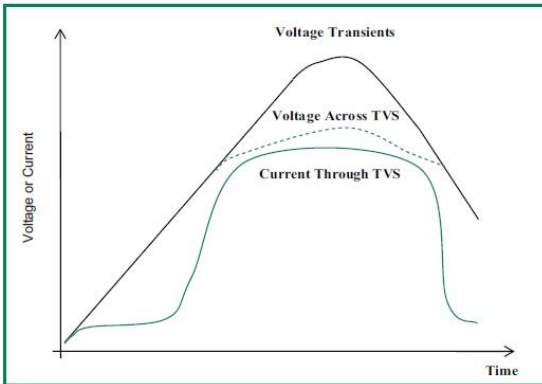


Figure 2 - Peak Pulse Power Rating Curve

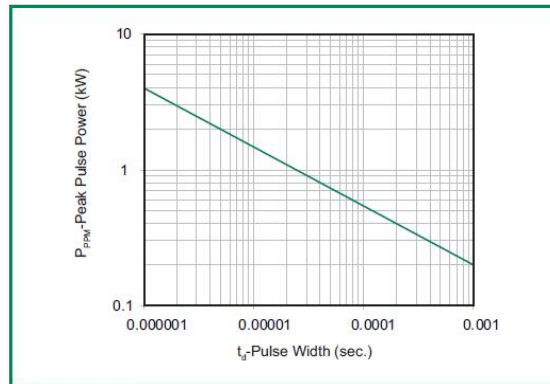


Figure 3 - Pulse Derating Curve

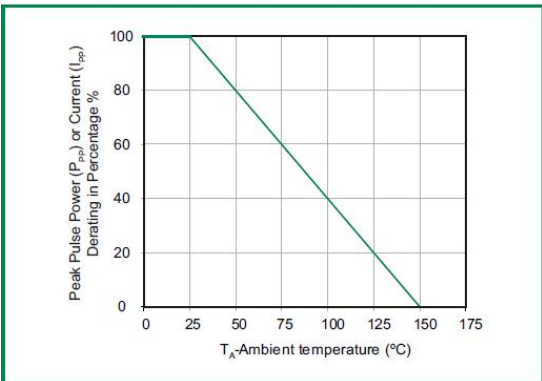


Figure 4 - Pulse Waveform - 10/1000μS

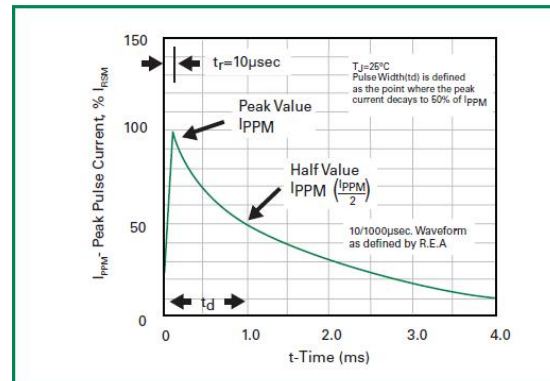


Figure 5 - Steady State Power Dissipation Derating Curve

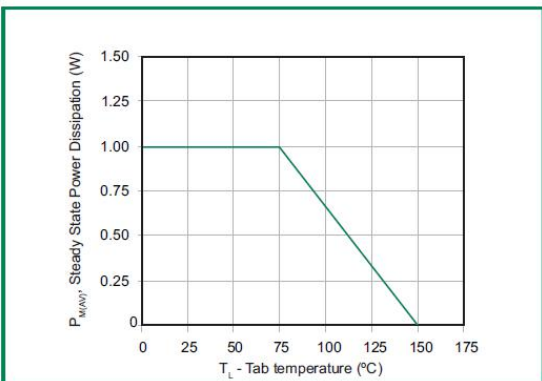


Figure 6 - Forward Voltage

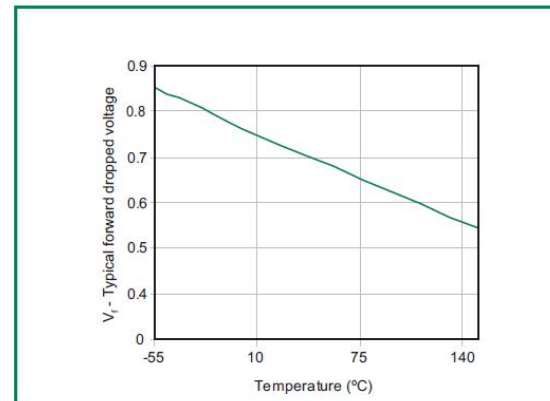
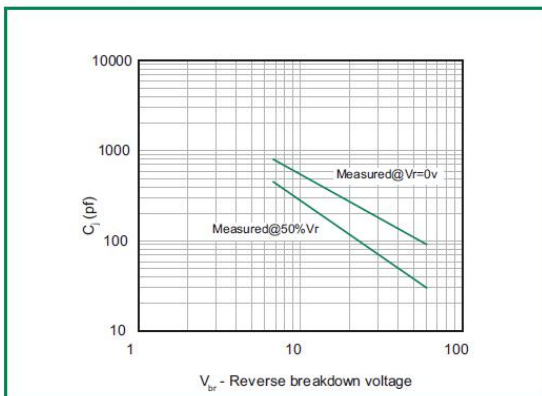


Figure 7 - C<sub>i</sub> vs. Working Peak Reverse Voltage



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