

### Features

- For surface mounted applications in order to optimize board space.
- Low profile package.
- Excellent clamping capability.
- IEC61000-4-2 ESD 15kV Air, 8kV contact compliance
- Protects one I/O line
- Lead-free parts meet RoHS requirements.
- Meet HF requirements.

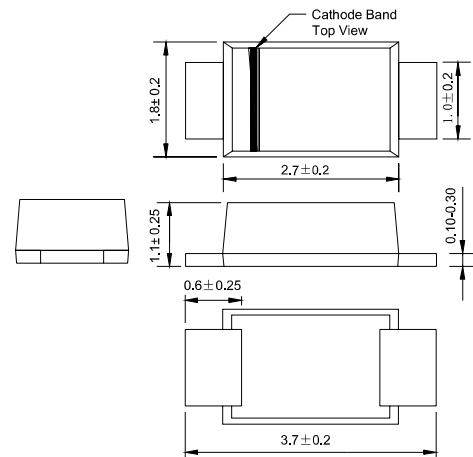
### Applications

- Personal digital assistants (PDA)
- Cellular handsets & Accessories
- Portable devices
- Portable instrumentation
- Handhelds and notebooks
- Digital cameras

### Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.02 gram

SOD-123FL



Dimensions in millimeters

### Maximum ratings and Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER                            | CONDITIONS                                                                                       | Symbol    | Value       | UNIT               |
|--------------------------------------|--------------------------------------------------------------------------------------------------|-----------|-------------|--------------------|
| Peak Power Dissipation               | Peak Pulse Power Dissipation at $T_A=25^{\circ}\text{C}$ by $10 \times 1000\mu\text{s}$ (Note 1) | $P_{PPM}$ | 200         | W                  |
| Operating junction temperature range |                                                                                                  | $T_J$     | -55 to +150 | $^{\circ}\text{C}$ |
| Storage temperature range            |                                                                                                  | $T_{STG}$ | -55 to +150 | $^{\circ}\text{C}$ |

Note: 1. Non-repetitive current pulse, per Fig. 2 and derated above  $T_A=25^{\circ}\text{C}$  per Fig. 1



# SMF3.3.0(C)A~ SMF170(C)A

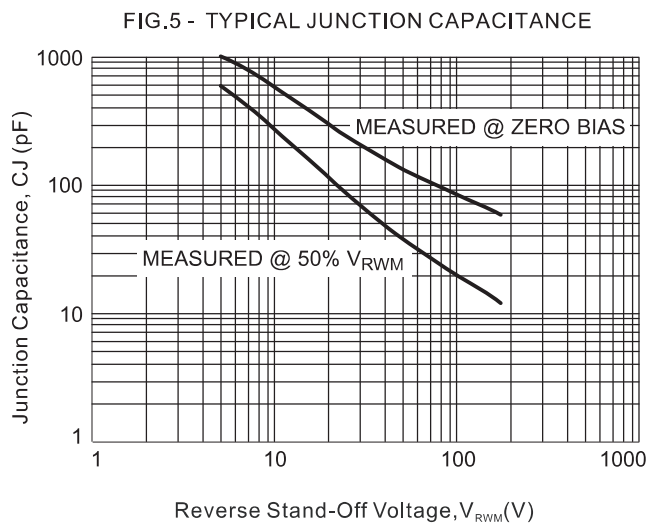
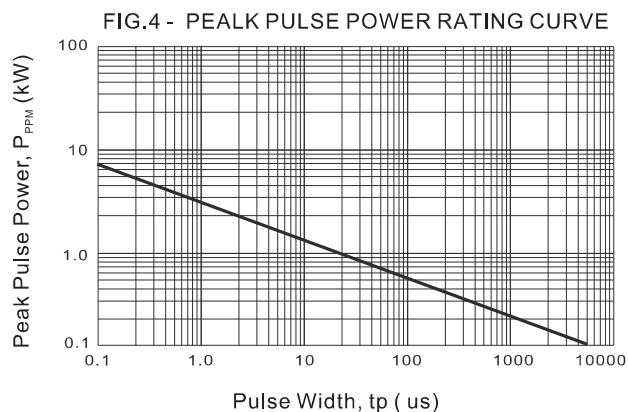
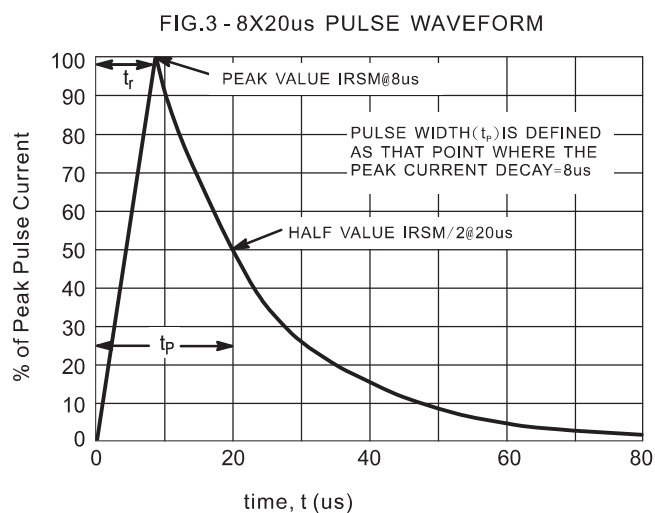
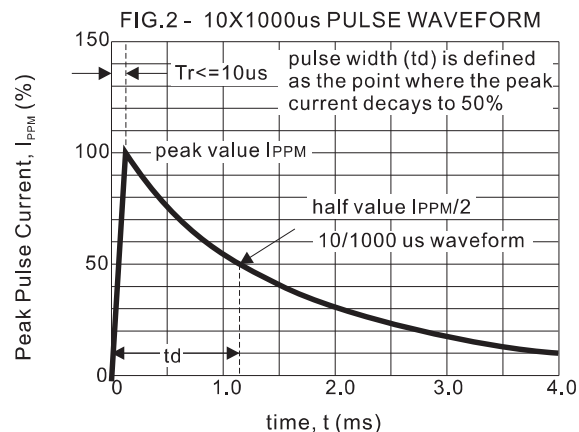
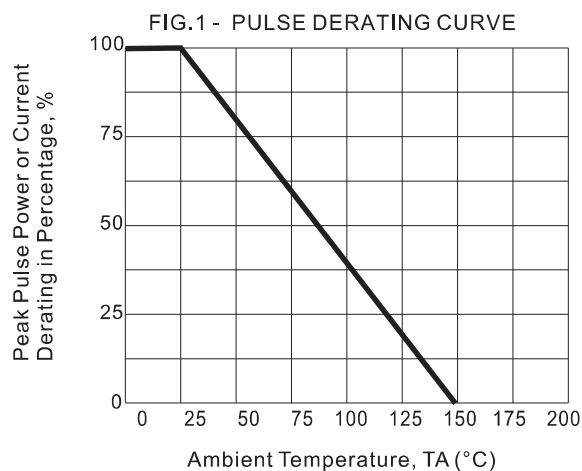
## 200W Surface Mount Unidirectional and Bidirectional

Characteristics at Ta = 25°C

Table 1

| Type    |          | Marking |       | V <sub>RMW</sub> | Breakdown Voltage                |        | Test Current   | Reverse Leakage                   | Max. Clamp Voltage               | Peak Pulse Current |
|---------|----------|---------|-------|------------------|----------------------------------|--------|----------------|-----------------------------------|----------------------------------|--------------------|
|         |          |         |       |                  | V <sub>BR</sub> @ I <sub>T</sub> |        | I <sub>T</sub> | I <sub>s</sub> @ V <sub>RWM</sub> | V <sub>c</sub> @ I <sub>PP</sub> | I <sub>PP</sub>    |
|         |          |         |       |                  | Min                              | Max    |                |                                   |                                  |                    |
| Uni     | Bi       | Uni     | Bi    | V                | V                                | V      | mA             | μA                                | V                                | A                  |
| SMF3.3A | SMF3.3CA | 3.3A    | 3.3CA | 3                | 4.10                             | 6.00   | 1              | 45                                | 7.3                              | 27.4               |
| SMF5.0A | SMF5.0CA | AE      | CAE   | 5                | 6.40                             | 7.00   | 10             | 200                               | 9.2                              | 21.7               |
| SMF6.0A | SMF6.0CA | AG      | CAG   | 6                | 6.67                             | 7.37   | 10             | 100                               | 10.3                             | 19.4               |
| SMF6.5A | SMF6.5CA | AK      | CAK   | 7                | 7.22                             | 7.98   | 10             | 75                                | 11.2                             | 17.9               |
| SMF7.0A | SMF7.0CA | AM      | CAM   | 7                | 7.78                             | 8.60   | 10             | 50                                | 12.0                             | 16.7               |
| SMF7.5A | SMF7.5CA | AP      | CAP   | 8                | 8.33                             | 9.21   | 1              | 50                                | 12.9                             | 15.5               |
| SMF8.0A | SMF8.0CA | AR      | CAR   | 8                | 8.89                             | 9.83   | 1              | 25                                | 13.6                             | 14.7               |
| SMF8.5A | SMF8.5CA | AT      | CAT   | 9                | 9.44                             | 10.40  | 1              | 10                                | 14.4                             | 13.9               |
| SMF9.0A | SMF9.0CA | AV      | CAV   | 9                | 10.00                            | 11.10  | 1              | 5                                 | 15.4                             | 13.0               |
| SMF10A  | SMF10CA  | AX      | CAX   | 10               | 11.10                            | 12.30  | 1              | 3                                 | 17.0                             | 11.8               |
| SMF11A  | SMF11CA  | AZ      | CAZ   | 11               | 12.20                            | 13.50  | 1              | 3                                 | 18.2                             | 11.0               |
| SMF12A  | SMF12CA  | BE      | CBE   | 12               | 13.30                            | 14.70  | 1              | 3                                 | 19.9                             | 10.1               |
| SMF13A  | SMF13CA  | BG      | CBG   | 13               | 14.40                            | 15.90  | 1              | 1                                 | 21.5                             | 9.3                |
| SMF14A  | SMF14CA  | BK      | CBK   | 14               | 15.60                            | 17.20  | 1              | 1                                 | 23.2                             | 8.6                |
| SMF15A  | SMF15CA  | BM      | CBM   | 15               | 16.70                            | 18.50  | 1              | 1                                 | 24.4                             | 8.2                |
| SMF16A  | SMF16CA  | BP      | CBP   | 16               | 17.80                            | 19.70  | 1              | 1                                 | 26.0                             | 7.7                |
| SMF17A  | SMF17CA  | BR      | CBR   | 17               | 18.90                            | 20.90  | 1              | 1                                 | 27.6                             | 7.2                |
| SMF18A  | SMF18CA  | BT      | CBT   | 18               | 20.00                            | 22.10  | 1              | 1                                 | 29.2                             | 6.8                |
| SMF20A  | SMF20CA  | BV      | CBV   | 20               | 22.20                            | 24.50  | 1              | 1                                 | 32.4                             | 6.2                |
| SMF22A  | SMF22CA  | BX      | CBX   | 22               | 24.40                            | 26.90  | 1              | 1                                 | 35.5                             | 5.6                |
| SMF24A  | SMF24CA  | BZ      | CBZ   | 24               | 26.70                            | 29.50  | 1              | 1                                 | 38.9                             | 5.1                |
| SMF26A  | SMF26CA  | CE      | CCE   | 26               | 28.90                            | 31.90  | 1              | 1                                 | 42.1                             | 4.8                |
| SMF28A  | SMF28CA  | CG      | CCG   | 28               | 31.10                            | 34.40  | 1              | 1                                 | 45.4                             | 4.4                |
| SMF30A  | SMF30CA  | CK      | CKK   | 30               | 33.30                            | 36.80  | 1              | 1                                 | 48.4                             | 4.1                |
| SMF33A  | SMF33CA  | CM      | CCM   | 33               | 36.70                            | 40.60  | 1              | 1                                 | 53.3                             | 3.8                |
| SMF36A  | SMF36CA  | CP      | CCP   | 36               | 40.00                            | 44.20  | 1              | 1                                 | 58.1                             | 3.4                |
| SMF40A  | SMF40CA  | CR      | CCR   | 40               | 44.40                            | 49.10  | 1              | 1                                 | 64.5                             | 3.1                |
| SMF43A  | SMF43CA  | CT      | CCT   | 43               | 47.80                            | 52.80  | 1              | 1                                 | 69.4                             | 2.9                |
| SMF45A  | SMF45CA  | CV      | CCV   | 45               | 50.00                            | 55.30  | 1              | 1                                 | 72.7                             | 2.8                |
| SMF48A  | SMF48CA  | CX      | CCX   | 48               | 53.30                            | 58.90  | 1              | 1                                 | 77.4                             | 2.6                |
| SMF51A  | SMF51CA  | CZ      | CCZ   | 51               | 56.70                            | 62.70  | 1              | 1                                 | 82.4                             | 2.4                |
| SMF54A  | SMF54CA  | DE      | CDE   | 54               | 60.00                            | 66.30  | 1              | 1                                 | 87.1                             | 2.3                |
| SMF58A  | SMF58CA  | DG      | CDG   | 58               | 64.40                            | 71.20  | 1              | 1                                 | 93.6                             | 2.1                |
| SMF60A  | SMF60CA  | DK      | CDK   | 60               | 66.70                            | 73.70  | 1              | 1                                 | 96.8                             | 1.8                |
| SMF64A  | SMF64CA  | DM      | CDM   | 64               | 71.10                            | 78.60  | 1              | 1                                 | 103.0                            | 1.7                |
| SMF70A  | SMF70CA  | DP      | CDP   | 70               | 77.80                            | 86.00  | 1              | 1                                 | 113.0                            | 1.5                |
| SMF75A  | SMF75CA  | DR      | CDR   | 75               | 83.30                            | 92.10  | 1              | 1                                 | 121.0                            | 1.4                |
| SMF78A  | SMF78CA  | DT      | CDT   | 78               | 86.70                            | 95.80  | 1              | 1                                 | 126.0                            | 1.4                |
| SMF85A  | SMF85CA  | DV      | CDV   | 85               | 94.40                            | 104.00 | 1              | 1                                 | 137.0                            | 1.3                |
| SMF90A  | SMF90CA  | DX      | CDX   | 90               | 100.00                           | 111.00 | 1              | 1                                 | 146.0                            | 1.2                |
| SMF100A | SMF100CA | DZ      | CDZ   | 100              | 111.00                           | 123.00 | 1              | 1                                 | 162.0                            | 1.1                |
| SMF110A | SMF110CA | EE      | CEE   | 110              | 122.00                           | 135.00 | 1              | 1                                 | 177.0                            | 1.0                |
| SMF120A | SMF120CA | EG      | CEG   | 120              | 133.00                           | 147.00 | 1              | 1                                 | 193.0                            | 0.9                |
| SMF130A | SMF130CA | EK      | CEK   | 130              | 144.00                           | 159.00 | 1              | 1                                 | 209.0                            | 0.8                |
| SMF150A | SMF150CA | EM      | CEM   | 150              | 167.00                           | 185.00 | 1              | 1                                 | 243.0                            | 0.7                |
| SMF160A | SMF160CA | EP      | CEP   | 160              | 178.00                           | 197.00 | 1              | 1                                 | 259.0                            | 0.7                |
| SMF170A | SMF170CA | ER      | CER   | 170              | 189.00                           | 209.00 | 1              | 1                                 | 275.0                            | 0.6                |
| SMF180A | SMF180CA | ET      | CET   | 180              | 201.00                           | 222.00 | 1              | 1                                 | 292.0                            | 0.5                |
| SMF200A | SMF200CA | EX      | CEX   | 200              | 224.00                           | 247.00 | 1              | 1                                 | 324.0                            | 0.5                |
| SMF220A | SMF220CA | E22     | CE22  | 220              | 246.00                           | 272.00 | 1              | 1                                 | 356.0                            | 0.5                |

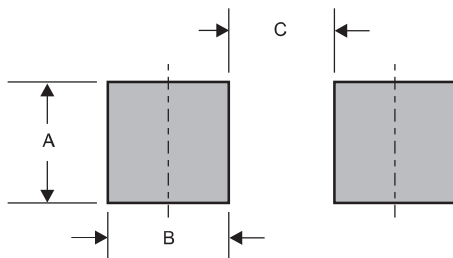
### Rating and characteristic curves (SMF SERIES)



### Pinning information

| Pin                                           | Simplified outline                                                                | Symbol                                                                              |
|-----------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Uni-Directional<br>Pin1 cathode<br>Pin2 anode |  |  |
| Bi-Directional                                |  |  |

### Suggested solder pad layout



Dimensions in inches and (millimeters)

| PACKAGE   | A            | B            | C            |
|-----------|--------------|--------------|--------------|
| SOD-123FL | 0.044 (1.10) | 0.040 (1.00) | 0.079 (2.00) |