

Surface mount transient voltage suppressor power 200 watts

Stand-Off Voltage: 5.0V~220V

FEATURES

- ◆ For surface mounted applications in order to optimize board space.
- ◆ Low profile package.
- ◆ Glass passivated junction.
- ◆ Low inductance.
- ◆ Plastic package has Underwriters Laboratory Flammability.

MECHANICAL DATA

- ◆ Case: SOD-123FL
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 15mg / 0.00048oz

Maximum Ratings and Electrical characteristics

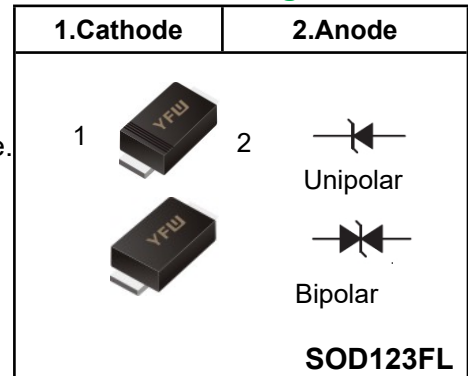
Ratings at 25 ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Peak Pulse Power Dissipation on TA=25°C (Note 1,2,5, Fig1) | P _{PPM} | 200 | W |
| Peak Forward Surge Current (Note 3) | I _{FSM} (UNI) | 20 | A |
| Peak Pulse Current on 10/1000 us waveform (Note 1) Fig 2 | I _{PPM} | see Table 1 | A |
| Steady State Power Dissipation (Note 4) | P _{M(AV)} | 1 | W |
| Operating Junction and Storage Range | T _J , T _{STG} | -55 to +150 | °C |
| Typical Thermal Resistance | R _{θJA} | 180 | °C |

NOTES

1. Non-repetitive current pulse per Fig 3 and derated above TA=25 per Fig 2
2. Mounted on 5mm² copper pads to each terminal
3. 8.3ms single half sinewave, or equivalent square wave duty cycle=4 pulses per minutes maximum
4. lead temperature at TL
5. Peak pulse powe. waveform is tp=10/1000us
6. A transient suppressor is selected according to the working peak reverse voltage(VRWM), Which Should be equal to or greater than the DC or continuous peak operating voltage level

Pinning



Characteristics at Ta = 25°C

Table 1

| Type | | Marking | | V _{RWM} | Breakdown Voltage | | Test Current | Reverse Leakage | Max. Clamp Voltage | Peak Pulse Current |
|---------|----------|---------|------|------------------|----------------------------------|------|----------------|-----------------------------------|----------------------------------|--------------------|
| | | | | | V _{BR} @ I _T | | | | | |
| | | | | | Min | Max | I _T | I _R @ V _{RWM} | V _C @ I _{PP} | I _{PP} |
| Uni | Bi | Uni | Bi | V | V | V | mA | µA | V | A |
| SMF5.0A | SMF5.0CA | AE | CAE | 5 | 6.4 | 7 | 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 | 6.5 | 7.22 | 7.98 | 10 | 75 | 11.2 | 17.9 |
| SMF7.0A | SMF7.0CA | AM | CAM | 7 | 7.78 | 8.6 | 10 | 50 | 12 | 16.7 |
| SMF7.5A | SMF7.5CA | AP | CAP | 7.5 | 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 | 8.5 | 9.44 | 10.4 | 1 | 10 | 14.4 | 13.9 |
| SMF9.0A | SMF9.0CA | AV | CAV | 9 | 10 | 11.1 | 1 | 5 | 15.4 | 13 |
| SMF10A | SMF10CA | AX | CAX | 10 | 11.1 | 12.3 | 1 | 2.5 | 17 | 11.8 |
| SMF11A | SMF11CA | AZ | CAZ | 11 | 12.2 | 13.5 | 1 | 2.5 | 18.2 | 11 |
| SMF12A | SMF12CA | BE | CBE | 12 | 13.3 | 14.7 | 1 | 2.5 | 19.9 | 10.1 |
| SMF13A | SMF13CA | BG | CBG | 13 | 14.4 | 15.9 | 1 | 1 | 21.5 | 9.3 |
| SMF14A | SMF14CA | BK | CBK | 14 | 15.6 | 17.2 | 1 | 1 | 23.2 | 8.6 |
| SMF15A | SMF15CA | BM | CBM | 15 | 16.7 | 18.5 | 1 | 1 | 24.4 | 8.2 |
| SMF16A | SMF16CA | BP | CBP | 16 | 17.8 | 19.7 | 1 | 1 | 26 | 7.7 |
| SMF17A | SMF17CA | BR | CBR | 17 | 18.9 | 20.9 | 1 | 1 | 27.6 | 7.2 |
| SMF18A | SMF18CA | BT | CBT | 18 | 20 | 22.1 | 1 | 1 | 29.2 | 6.8 |
| SMF20A | SMF20CA | BV | CBV | 20 | 22.2 | 24.5 | 1 | 1 | 32.4 | 6.2 |
| SMF22A | SMF22CA | BX | CBX | 22 | 24.4 | 26.9 | 1 | 1 | 35.5 | 5.6 |
| SMF24A | SMF24CA | BZ | CBZ | 24 | 26.7 | 29.5 | 1 | 1 | 38.9 | 5.1 |
| SMF26A | SMF26CA | CE | CCE | 26 | 28.9 | 31.9 | 1 | 1 | 42.1 | 4.8 |
| SMF28A | SMF28CA | CG | CCG | 28 | 31.1 | 34.4 | 1 | 1 | 45.4 | 4.4 |
| SMF30A | SMF30CA | CK | CCK | 30 | 33.3 | 36.8 | 1 | 1 | 48.4 | 4.1 |
| SMF33A | SMF33CA | CM | CCM | 33 | 36.7 | 40.6 | 1 | 1 | 53.3 | 3.8 |
| SMF36A | SMF36CA | CP | CCP | 36 | 40 | 44.2 | 1 | 1 | 58.1 | 3.4 |
| SMF40A | SMF40CA | CR | CCR | 40 | 44.4 | 49.1 | 1 | 1 | 64.5 | 3.1 |
| SMF43A | SMF43CA | CT | CCT | 43 | 47.8 | 52.8 | 1 | 1 | 69.4 | 2.9 |
| SMF45A | SMF45CA | CV | CCV | 45 | 50 | 55.3 | 1 | 1 | 72.7 | 2.8 |
| SMF48A | SMF48CA | CX | CCX | 48 | 53.3 | 58.9 | 1 | 1 | 77.4 | 2.6 |
| SMF51A | SMF51CA | CZ | CCZ | 51 | 56.7 | 62.7 | 1 | 1 | 82.4 | 2.4 |
| SMF54A | SMF54CA | DE | CDE | 54 | 60 | 66.3 | 1 | 1 | 87.1 | 2.3 |
| SMF58A | SMF58CA | DG | CDG | 58 | 64.4 | 71.2 | 1 | 1 | 93.6 | 2.1 |
| SMF60A | SMF60CA | DK | CDK | 60 | 66.7 | 73.7 | 1 | 1 | 96.8 | 1.8 |
| SMF64A | SMF64CA | DM | CDM | 64 | 71.1 | 78.6 | 1 | 1 | 103 | 1.7 |
| SMF70A | SMF70CA | DP | CDP | 70 | 77.8 | 86 | 1 | 1 | 113 | 1.5 |
| SMF75A | SMF75CA | DR | CDR | 75 | 83.3 | 92.1 | 1 | 1 | 121 | 1.4 |
| SMF78A | SMF78CA | DT | CDT | 78 | 86.7 | 95.8 | 1 | 1 | 126 | 1.4 |
| SMF85A | SMF85CA | DV | CDV | 85 | 94.4 | 104 | 1 | 1 | 137 | 1.3 |
| SMF90A | SMF90CA | DX | CDX | 90 | 100 | 111 | 1 | 1 | 146 | 1.2 |
| SMF100A | SMF100CA | DZ | CDZ | 100 | 111 | 123 | 1 | 1 | 162 | 1.1 |
| SMF110A | SMF110CA | EE | CEE | 110 | 122 | 135 | 1 | 1 | 177 | 1 |
| SMF120A | SMF120CA | EG | CEG | 120 | 133 | 147 | 1 | 1 | 193 | 0.9 |
| SMF130A | SMF130CA | EK | CEK | 130 | 144 | 159 | 1 | 1 | 209 | 0.8 |
| SMF150A | SMF150CA | EM | CEM | 150 | 167 | 185 | 1 | 1 | 243 | 0.7 |
| SMF160A | SMF160CA | EP | CEP | 160 | 178 | 197 | 1 | 1 | 259 | 0.7 |
| SMF170A | SMF170CA | ER | CER | 170 | 189 | 209 | 1 | 1 | 275 | 0.6 |
| SMF180A | SMF180CA | ET | CET | 180 | 201 | 222 | 1 | 1 | 292 | 0.5 |
| SMF200A | SMF200CA | EX | CEX | 200 | 224 | 247 | 1 | 1 | 324 | 0.5 |
| SMF220A | SMF220CA | E22 | GE22 | 220 | 246 | 272 | 1 | 1 | 356 | 0.5 |

Fig.1 Peak Pulse Power Rating Curve



Fig.2 Forward Current Derating Curve

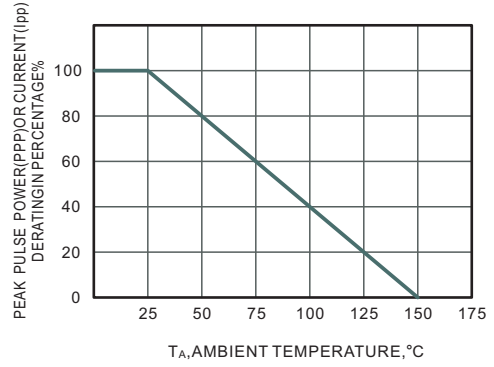


Fig.3 Pulse Waveform

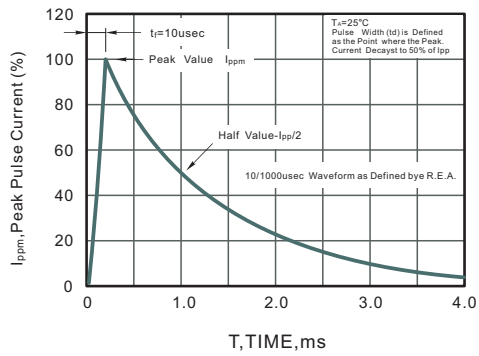
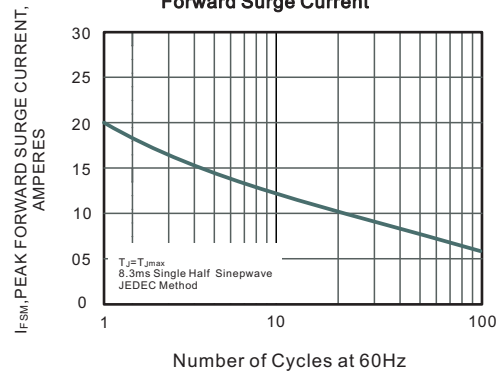
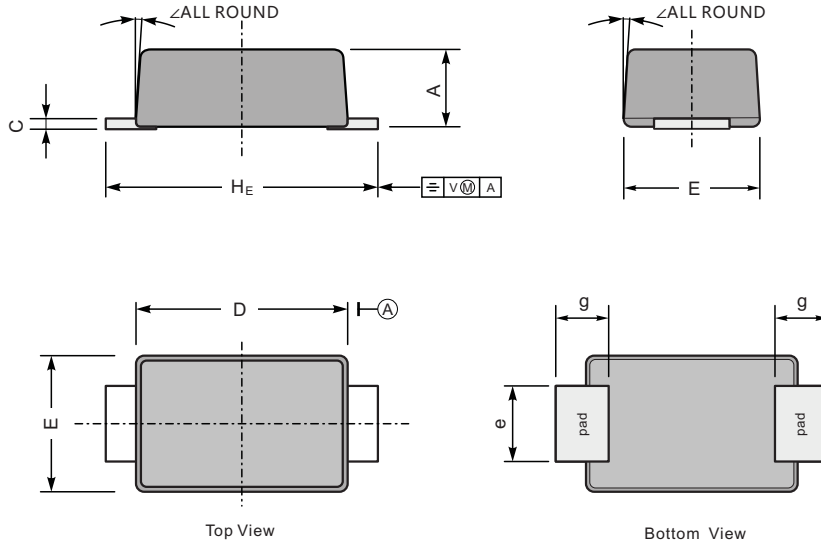


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



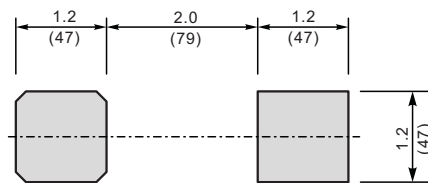
Package Outline SOD-123FL

Plastic surface mounted package; 2 leads



| UNIT | | A | C | D | E | e | g | H _E | \angle |
|------|-----|-----|------|-----|-----|-----|-----|----------------|----------|
| mm | max | 1.3 | 0.20 | 2.9 | 1.9 | 1.1 | 0.9 | 3.8 | 7° |
| | min | 0.9 | 0.12 | 2.6 | 1.7 | 0.8 | 0.7 | 3.5 | |
| mil | max | 43 | 7.9 | 114 | 75 | 43 | 35 | 150 | |
| | min | 35 | 4.7 | 102 | 67 | 31 | 28 | 138 | |

The recommended mounting pad size



Unit: $\frac{\text{mm}}{\text{(mil)}}$

Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|-----------|---------------------|------------------|-------------------|
| SOD-123FL | Tape/Reel, 13" reel | 10000 | EIA-481-1 |
| | Tape/Reel, 7" reel | 3000 | EIA-481-1 |

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