

SuperTVS –200W Transient Voltage Suppressor

1. Features

- IEC61000-4-2 ESD 30KV Air,30KV contact compliance
- SOD-123F surface mount package
- Protects one I/O line
- Peak power dissipation of 1000W under 8/20 waveform
- Low leakage current
- Working voltage: 5V~220V
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant.
- Solder reflow temperature: Pure Tin-Sn,260-270°C

2. Application

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

3. Maximum Ratings

Ratings at 25° ambient temperature unless otherwise specified

| Rating | Symbol | Value | Units |
|--|----------------------------------|------------|-------|
| Peak pulse power dissipation at 10/1000us waveform | P _{PP} | 200 | W |
| Peak pulse current of at 10/1000us waveform | I _{PPM} | See Table | A |
| Steady state power dissipation at TA=50°C | P _{M(AV)} | 1.0 | W |
| Peak pulse power at 8/20us waveform | P _{PP} | 1000 | W |
| ESD voltage (Contact discharge) | V _{ESD} | ±30 | kV |
| ESD voltage (Air discharge) | | ±30 | |
| Storage & operating temperature range | T _{STG} ,T _J | -65 to 150 | °C |

SMF SERIES

Rev-1.1

4. Electrical Characteristics (TA=25°C)

| Part Number | Part Number | Marking | | Reverse Stand off Voltage V_R (Volts) | Breakdown Voltage V_{BR} (Volts) @ I_T | | Test Current I_T (mA) | Maximum Clamping Voltage V_C @ I_{PP} (V) | Maximum Peak Pulse Current I_{PP} (A) | Maximum Reverse Leakage I_R @ V_R (μ A) | ROHS2.0 |
|-------------|-------------|---------|----|---|--|------|-------------------------|---|---|--|---------|
| | | | | | MIN | MAX | | | | | |
| SMF5.0A | SMF5.0CA | AE | WE | 5 | 6.4 | 7 | 10 | 9.2 | 21.7 | 200 | y |
| SMF6.0A | SMF6.0CA | AG | WG | 6 | 6.67 | 7.37 | 10 | 10.3 | 19.4 | 200 | y |
| SMF6.5A | SMF6.5CA | AK | WK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 17.9 | 150 | y |
| SMF7.0A | SMF7.0CA | AM | WM | 7 | 7.78 | 8.6 | 10 | 12 | 16.7 | 75 | y |
| SMF7.5A | SMF7.5CA | AP | WP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 15.5 | 50 | y |
| SMF8.0A | SMF8.0CA | AR | WR | 8 | 8.89 | 9.83 | 1 | 13.6 | 14.7 | 25 | y |
| SMF8.5A | SMF8.5CA | AT | WT | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 13.9 | 20 | y |
| SMF9.0A | SMF9.0CA | AV | WV | 9 | 10 | 11.1 | 1 | 15.4 | 13 | 10 | y |
| SMF10A | SMF10CA | AX | WX | 10 | 11.1 | 12.3 | 1 | 17 | 11.8 | 5 | y |
| SMF11A | SMF11CA | AZ | WZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 11 | 1 | y |
| SMF12A | SMF12CA | BE | XE | 12 | 13.3 | 14.7 | 1 | 19.9 | 10.1 | 1 | y |
| SMF13A | SMF13CA | BG | XG | 13 | 14.4 | 15.9 | 1 | 21.5 | 9.3 | 1 | y |
| SMF14A | SMF14CA | BK | XK | 14 | 15.6 | 17.2 | 1 | 23.2 | 8.62 | 1 | y |
| SMF15A | SMF15CA | BM | XM | 15 | 16.7 | 18.5 | 1 | 24.4 | 8.2 | 1 | y |
| SMF16A | SMF16CA | BP | XP | 16 | 17.8 | 19.7 | 1 | 26 | 7.69 | 1 | y |
| SMF17A | SMF17CA | BR | XR | 17 | 18.9 | 20.9 | 1 | 27.6 | 7.25 | 1 | y |
| SMF18A | SMF18CA | BT | XT | 18 | 20 | 22.1 | 1 | 29.2 | 6.85 | 1 | y |
| SMF20A | SMF20CA | BV | XV | 20 | 22.2 | 24.5 | 1 | 32.4 | 6.17 | 1 | y |
| SMF22A | SMF22CA | BX | XX | 22 | 24.4 | 26.9 | 1 | 35.5 | 5.63 | 1 | y |
| SMF24A | SMF24CA | BZ | XZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 5.14 | 1 | y |
| SMF26A | SMF26CA | CE | YE | 26 | 28.9 | 31.9 | 1 | 42.1 | 4.75 | 1 | y |
| SMF28A | SMF28CA | CG | YG | 28 | 31.1 | 34.4 | 1 | 45.4 | 4.41 | 1 | y |
| SMF30A | SMF30CA | CK | YK | 30 | 33.3 | 36.8 | 1 | 48.4 | 4.13 | 1 | y |
| SMF33A | SMF33CA | CM | YM | 33 | 36.7 | 40.6 | 1 | 53.3 | 3.75 | 1 | y |
| SMF36A | SMF36CA | CP | YP | 36 | 40 | 44.2 | 1 | 58.1 | 3.44 | 1 | y |
| SMF40A | SMF40CA | CR | YR | 40 | 44.4 | 49.1 | 1 | 64.5 | 3.1 | 1 | y |
| SMF43A | SMF43CA | CT | YT | 43 | 47.8 | 52.8 | 1 | 69.4 | 2.88 | 1 | y |
| SMF45A | SMF45CA | CV | YV | 45 | 50 | 55.3 | 1 | 72.7 | 2.75 | 1 | y |
| SMF48A | SMF48CA | CX | YX | 48 | 53.3 | 58.9 | 1 | 77.4 | 2.58 | 1 | y |
| SMF51A | SMF51CA | CZ | YZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 2.43 | 1 | y |

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Rev-1.1

| Part Number | Part Number | Marking | | Reverse Stand off Voltage V_R (Volts) | Breakdown Voltage V_{BR} (Volts) @ I_R | | Test Current I_R (mA) | Maximum Clamping Voltage V_C @ I_{PP} (V) | Maximum Peak Pulse Current I_{PP} (A) | Maximum Reverse Leakage I_R @ V_R (μ A) | ROHS2.0 |
|-------------|-------------|---------|----|---|--|------|-------------------------|---|---|--|---------|
| | | | | | MIN | MAX | | | | | |
| Uni | Bi | Uni | Bi | | | | | | | | |
| SMF54A | SMF54CA | RE | ZE | 54 | 60 | 66.3 | 1 | 87.1 | 2.3 | 1 | y |
| SMF58A | SMF58CA | RG | ZG | 58 | 64.4 | 71.2 | 1 | 93.6 | 2.14 | 1 | y |
| SMF60A | SMF60CA | RK | ZK | 60 | 66.7 | 73.7 | 1 | 96.8 | 2.07 | 1 | y |
| SMF64A | SMF64CA | RM | ZM | 64 | 71.1 | 78.6 | 1 | 103 | 1.94 | 1 | y |
| SMF70A | SMF70CA | RP | ZP | 70 | 77.8 | 86 | 1 | 113 | 1.77 | 1 | y |
| SMF75A | SMF75CA | RR | ZR | 75 | 83.3 | 92.1 | 1 | 121 | 1.65 | 1 | y |
| SMF78A | SMF78CA | RT | ZT | 78 | 86.7 | 95.8 | 1 | 126 | 1.59 | 1 | y |
| SMF85A | SMF85CA | RV | ZV | 85 | 94.4 | 104 | 1 | 137 | 1.46 | 1 | y |
| SMF90A | SMF90CA | RX | ZX | 90 | 100 | 111 | 1 | 146 | 1.37 | 1 | y |
| SMF100A | SMF100CA | RZ | ZZ | 100 | 111 | 123 | 1 | 162 | 1.23 | 1 | y |
| SMF110A | SMF110CA | SE | VE | 110 | 122 | 135 | 1 | 177 | 1.13 | 1 | y |
| SMF120A | SMF120CA | SG | VG | 120 | 133 | 147 | 1 | 193 | 1.04 | 1 | y |
| SMF130A | SMF130CA | SK | VK | 130 | 144 | 159 | 1 | 209 | 0.96 | 1 | y |
| SMF150A | SMF150CA | SM | VM | 150 | 167 | 185 | 1 | 243 | 0.82 | 1 | y |
| SMF160A | SMF160CA | SP | VP | 160 | 178 | 197 | 1 | 259 | 0.77 | 1 | y |
| SMF170A | SMF170CA | SR | VR | 170 | 189 | 209 | 1 | 275 | 0.73 | 1 | y |

Notes: For bi-directional type having V_R of 10 volts and less, the I_R limit is double.

5. Ratings and Characteristic Curves (TA =25°C unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

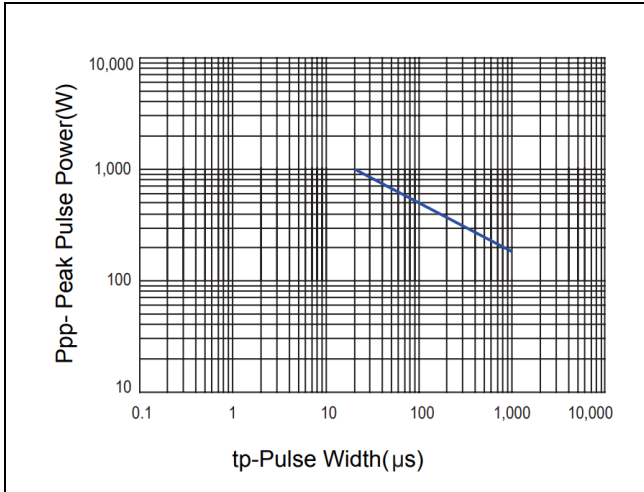


Figure 2. 10/1000 us Pulse Waveform

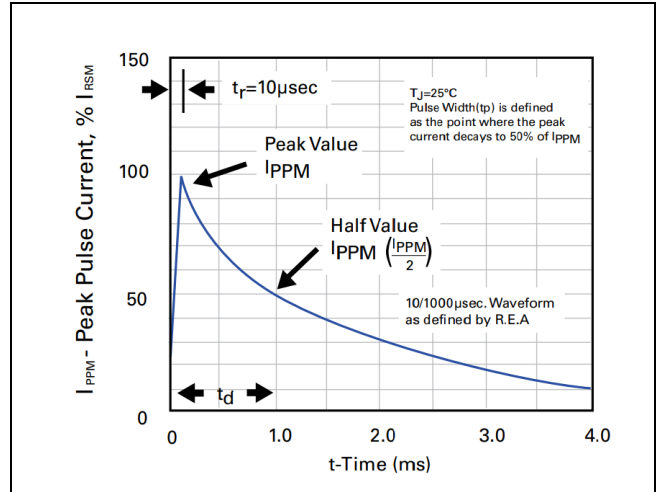


Figure 3. Capacitance vs. Reverse Voltage

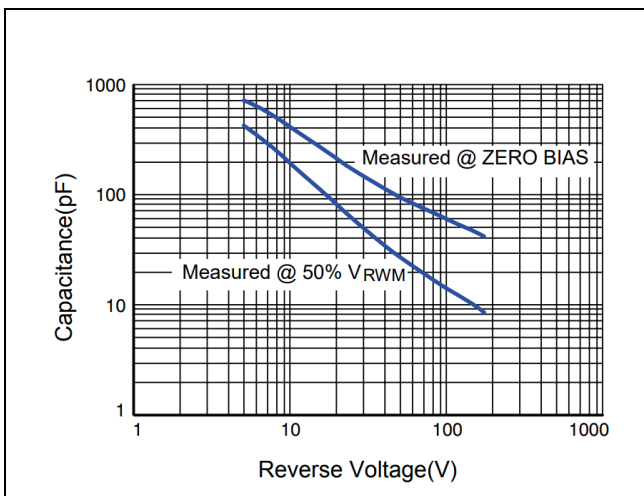
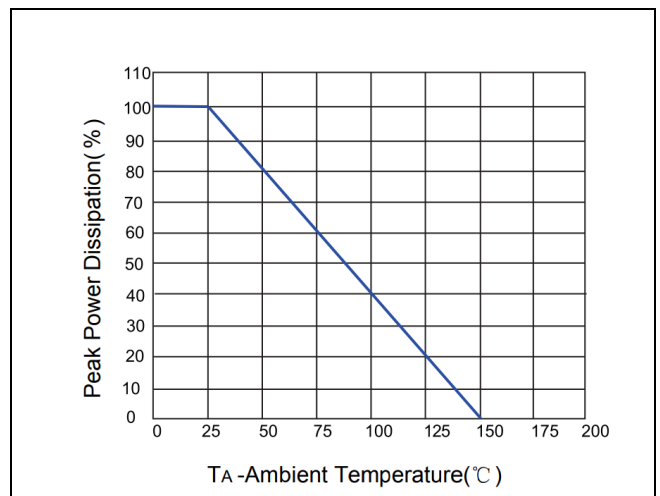
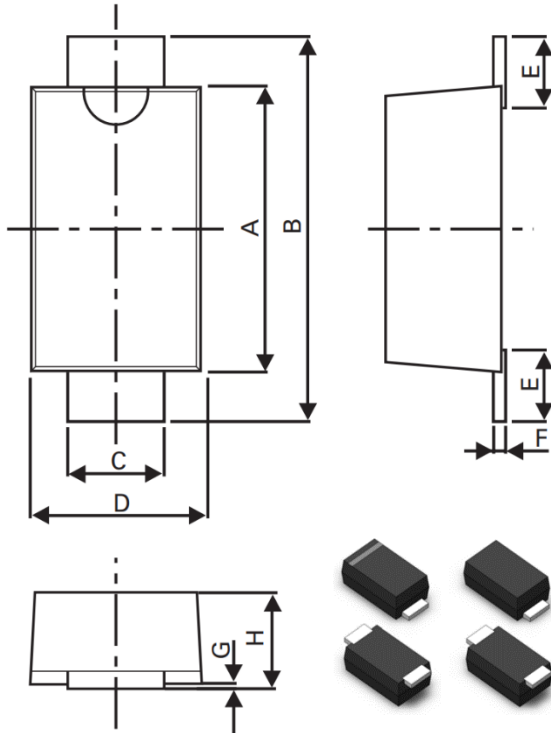


Figure 4. Power Derating curve



6. Dimension (SOD-123F)



| Dimensions | Millimeters | | Inches | |
|------------|-------------|------|--------|--------|
| | Min | Max | Min | Max |
| A | 2.5 | 3.05 | 0.0984 | 0.1201 |
| B | 3.35 | 4.05 | 0.1319 | 0.1594 |
| C | 0.7 | 1.2 | 0.0275 | 0.0472 |
| D | 1.5 | 2 | 0.0591 | 0.0787 |
| E | 0.35 | 0.95 | 0.0138 | 0.0374 |
| F | 0.05 | 0.26 | 0.002 | 0.0102 |
| G | 0 | 0.2 | 0 | 0.0079 |
| H | 0.70 | 1.35 | 0.0276 | 0.0531 |

7. Packaging

| Part number | Component Package | Quantity | Packaging Option | Packaging Specification |
|-------------|-------------------|----------|--------------------------------|-------------------------|
| SMFXXX | SOD-123F | 3000 | Tape & Reel – 8mm tape/7" reel | EIA RS-481 |

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