

F2TVS10A thru F2TVS190A

Surface Mount Transient Voltage Suppressors
 Peak Pulse Power 200W Stand-off Voltage 10V to 190V

Features

- Glass passivated junction
- Excellent clamping capability and fast response time
- 200W peak pulse power capability with a 10/1000us waveform
- Moisture sensitivity: level 1, per J-STD-020
- Solder dip 260 °C, 10s
- Low profile, typical thickness 1.0mm



eSGA
(SOD-123FL)

Applications

For use in sensitive electronics protection against voltage transients induced by lightning or inductive load switching. Key applications include protection of I/O interfaces, industrial and LED lighting applications, DC power buses, and other vulnerable circuits used in consumer electronics.



RoHS
COMPLIANT

Maximum Ratings and Thermal Characteristics

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

| PARAMETER | SYMBOL | Value | UNIT |
|---|----------------|----------------|--------------------|
| Peak Power Dissipation with a 10/1000us Waveform | P_{PPM} | Minimum 200 | W |
| Peak Pulse Current with a 10/1000us Waveform | I_{PPM} | See Next Table | A |
| Steady State Power Dissipation on Infinite Heatsink | $P_{M(AV)}$ | 1 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave | I_{FSM} | 30.0 | A |
| Maximum Instantaneous Forward Voltage at 25A | V_F | 3.5 | V |
| Thermal Resistance Junction to Ambient Air | R_{thja} | 90 | $^\circ\text{C/W}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -65 to +175 | $^\circ\text{C}$ |

Note:

- 1) The thermal resistance from junction to ambient, case or mounted on P.C.B with 5×5mm copper pads, 2 OZ, FR4 PCB

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Electrical Characteristics (T_A = 25 °C unless otherwise noted)

| Part Number | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | Max. Clamp Voltage | Peak Pulse |
|-------------|---------------------------|-------------------|------|--------------|-----------------|--------------------|------------|
| | VRWM | VBR @ IT | | IT | IR @ VRWM | Vc @ IPP | IPP |
| | | Min | Max | | | | |
| | V | V | V | mA | µA | V | A |
| F2TVS10A | 10 | 11.1 | 12.3 | 1 | 5 | 17 | 11.8 |
| F2TVS11A | 11 | 12.2 | 13.5 | 1 | 5 | 18.2 | 11 |
| F2TVS12A | 12 | 13.3 | 14.7 | 1 | 5 | 19.9 | 10.1 |
| F2TVS13A | 13 | 14.4 | 15.9 | 1 | 5 | 21.5 | 9.3 |
| F2TVS14A | 14 | 15.6 | 17.2 | 1 | 5 | 23.2 | 8.62 |
| F2TVS15A | 15 | 16.7 | 18.5 | 1 | 5 | 24.4 | 8.2 |
| F2TVS16A | 16 | 17.8 | 19.7 | 1 | 5 | 26 | 7.69 |
| F2TVS17A | 17 | 18.9 | 20.9 | 1 | 5 | 27.6 | 7.25 |
| F2TVS18A | 18 | 20 | 22.1 | 1 | 5 | 29.2 | 6.85 |
| F2TVS19A | 19 | 21.1 | 23.3 | 1 | 5 | 30.6 | 6.54 |
| F2TVS20A | 20 | 22.2 | 24.5 | 1 | 5 | 32.4 | 6.17 |
| F2TVS22A | 22 | 24.4 | 26.9 | 1 | 5 | 35.5 | 5.63 |
| F2TVS24A | 24 | 26.7 | 29.5 | 1 | 5 | 38.9 | 5.14 |
| F2TVS26A | 26 | 28.9 | 31.9 | 1 | 5 | 42.1 | 4.75 |
| F2TVS28A | 28 | 31.1 | 34.4 | 1 | 5 | 45.4 | 4.41 |
| F2TVS30A | 30 | 33.3 | 36.8 | 1 | 5 | 48.4 | 4.13 |
| F2TVS33A | 33 | 36.7 | 40.6 | 1 | 5 | 53.3 | 3.75 |
| F2TVS36A | 36 | 40 | 44.2 | 1 | 5 | 58.1 | 3.44 |
| F2TVS40A | 40 | 44.4 | 49.1 | 1 | 5 | 64.5 | 3.1 |
| F2TVS43A | 43 | 47.8 | 52.8 | 1 | 5 | 69.4 | 2.88 |
| F2TVS45A | 45 | 50 | 55.3 | 1 | 5 | 72.7 | 2.75 |
| F2TVS48A | 48 | 53.3 | 58.9 | 1 | 5 | 77.4 | 2.58 |
| F2TVS51A | 51 | 56.7 | 62.7 | 1 | 5 | 82.4 | 2.43 |
| F2TVS54A | 54 | 60 | 66.3 | 1 | 5 | 87.1 | 2.3 |
| F2TVS58A | 58 | 64.4 | 71.2 | 1 | 5 | 93.6 | 2.14 |
| F2TVS60A | 60 | 66.7 | 73.7 | 1 | 5 | 96.8 | 2.07 |
| F2TVS64A | 64 | 71.1 | 78.6 | 1 | 5 | 103 | 1.94 |
| F2TVS70A | 70 | 77.8 | 86 | 1 | 5 | 113 | 1.77 |
| F2TVS75A | 75 | 83.3 | 92.1 | 1 | 5 | 121 | 1.65 |

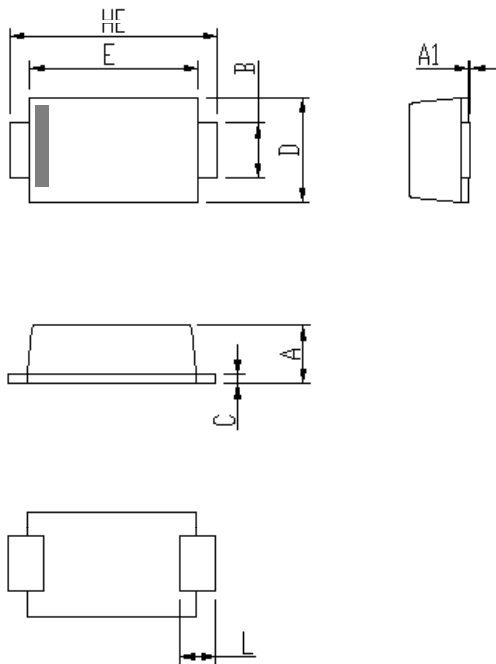
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|-------------|---------------------------|-------------------|------|--------------|-----------------|--------------------|------------|
| | VRWM | VBR @ IT | | IT | IR @ VRWM | Vc @ IPP | IPP |
| | | Min | Max | | | | |
| F2TVS78A | 78 | 86.7 | 95.8 | 1 | 5 | 126 | 1.59 |
| F2TVS80A | 80 | 88.8 | 97.6 | 1 | 5 | 129 | 1.55 |
| F2TVS85A | 85 | 94.4 | 104 | 1 | 5 | 137 | 1.46 |
| F2TVS90A | 90 | 100 | 111 | 1 | 5 | 146 | 1.37 |
| F2TVS100A | 100 | 111 | 123 | 1 | 5 | 162 | 1.23 |
| F2TVS110A | 110 | 122 | 135 | 1 | 5 | 177 | 1.13 |
| F2TVS120A | 120 | 133 | 147 | 1 | 5 | 193 | 1.04 |
| F2TVS130A | 130 | 144 | 159 | 1 | 5 | 209 | 0.96 |
| F2TVS140A | 140 | 155 | 171 | 1 | 5 | 224 | 0.89 |
| F2TVS150A | 150 | 167 | 185 | 1 | 5 | 243 | 0.82 |
| F2TVS160A | 160 | 178 | 197 | 1 | 5 | 259 | 0.77 |
| F2TVS170A | 170 | 189 | 209 | 1 | 5 | 275 | 0.73 |
| F2TVS180A | 180 | 201 | 222 | 1 | 5 | 292 | 0.69 |
| F2TVS190A | 190 | 211 | 232 | 1 | 5 | 324 | 0.62 |

Package Outline Dimensions (in millimeters)



eSGA (SOD-123FL)

| DIM | Unit: mm | | Unit: inch | |
|-----|----------|------|------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.9 | 1.08 | 0.035 | 0.043 |
| A1 | 0 | 0.1 | 0.000 | 0.004 |
| B | 0.85 | 1.05 | 0.033 | 0.041 |
| C | 0.1 | 0.25 | 0.004 | 0.010 |
| D | 1.7 | 2 | 0.067 | 0.079 |
| E | 2.9 | 3.1 | 0.114 | 0.122 |
| L | 0.43 | 0.83 | 0.017 | 0.033 |
| HE | 3.5 | 3.9 | 0.138 | 0.154 |

Soldering footprint

