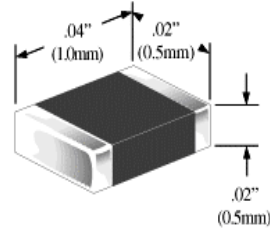


Transient Voltage Suppressors for ESD Protection

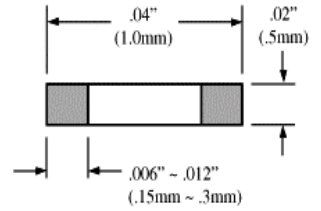
»Features

- 0402inch/ 1005mm foot print
- Ideal ESD protection for high frequency, low voltage applications.
- Exceeds testing requirements outlined in IEC 61000-4-2
- Ultra low capacitance (1.5pF typ.)
- Very low leakage current
- Fast response time
- Bi-directional
- MSL 3

0402



Quick View



Side View Detail

Package Dimension

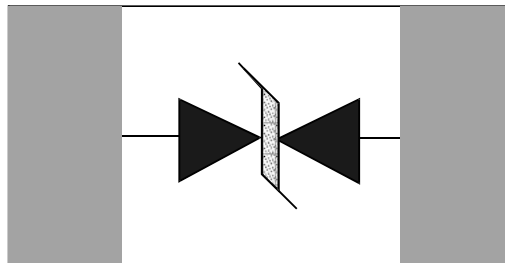
»Applications

- High Speed Data Ports (USB 2.0, IEEE 1394)
- Computers & Peripherals (Cell phone, PDA, HDTV, DVD players)

»Mechanical Data

- Surface mount
- RoHS Compliant

»Schematic & PIN Configuration



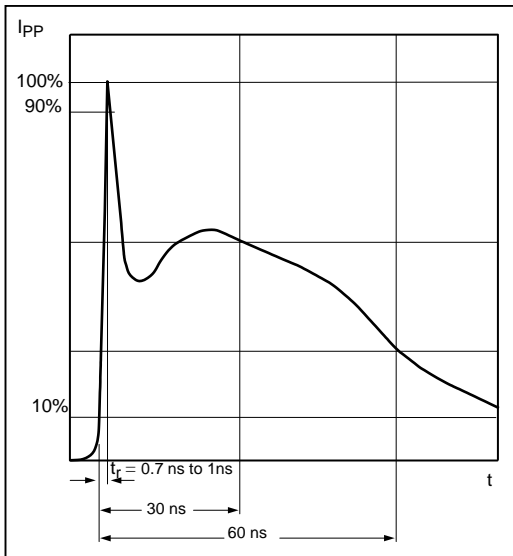
»Absolute Maximum Rating

| Rating | Symbol | Conditions | Value | Units |
|--|-----------|------------|----------------|-------|
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | V_{ESD} | | 8 15 | kV |
| Lead Soldering Temperature | T_L | | 260(10seconds) | °C |
| Operating Temperature | T_O | | -55 to + 125 | °C |
| Storage Temperature | T_{stg} | | -40 to + 125 | °C |

»Electrical Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max | Units |
|------------------------------|----------|---------------------------------------|------|---------|-----|-------|
| Continuous Operating Voltage | V_{DC} | | | | 24 | V |
| Trigger Voltage | V_T | IEC61000-4-2 8KV contact discharge | | 140 | | V |
| Leakage Current | I_L | VDC=5V,T=25 °C | | | 500 | nA |
| Clamping Voltage | V_C | IEC61000-4-2 8KV contact discharge | | 65 | 100 | V |
| Capacitance | C_p | Measured at 10MHz | | 1.5 | | pF |
| ESD Pulse Withstand | Pulses | IEC61000-4-2 8KV contact discharge | 1000 | | | |

»ESD Wave From



»Electrical Characteristics

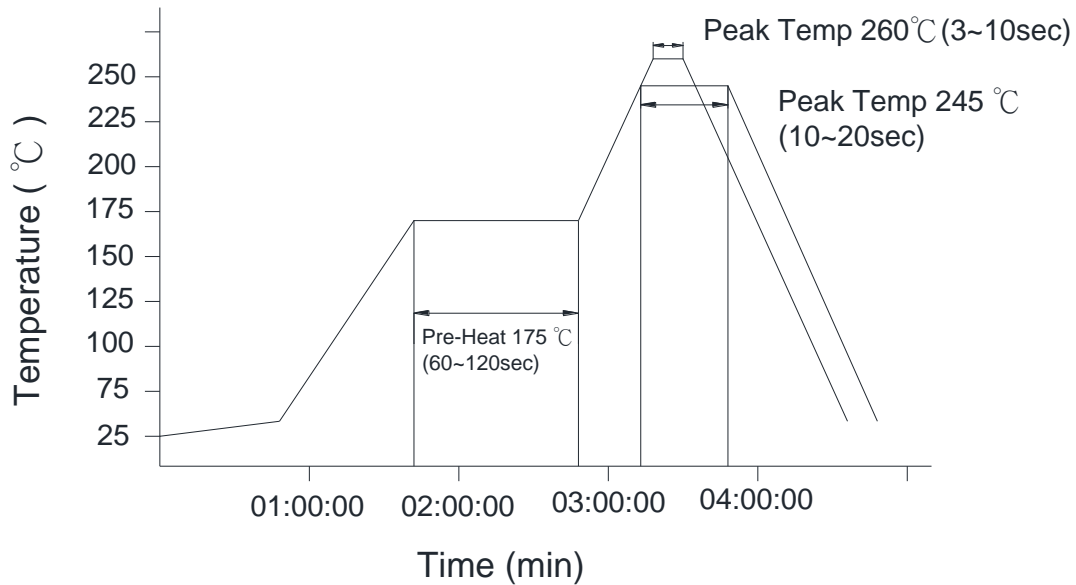
| SEVERITY LEVEL | AIR DIRCHARGE | DIRECT DISCHARGE |
|----------------|---------------|------------------|
| 1 | 2KV | 2KV |
| 2 | 4KV | 4KV |
| 3 | 8KV | 6KV |
| 4 | 15KV | 8KV |

IEC61000-4-2 compliant ESD current pulse waveform

»Environment Reliability Test

| Characteristic | Test Method and Description | | | |
|----------------------------------|--|--------|---------------------------|------------------------|
| High Temperature Storage | The specimen shall be subjected to $125 \pm 2^\circ\text{C}$ for 1000 ± 2 hours without load and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%. | | | |
| Temperature Cycle | The temperature cycle of specified temperature shall be repeated five times and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10% and mechanical damage shall be examined. | Step | Temperature | Period |
| | | 1 | $-40 \pm 3^\circ\text{C}$ | $30 \pm 3 \text{ min}$ |
| | | 2 | room temperature | 1 hour |
| | | 3 | $125 \pm 3^\circ\text{C}$ | $30 \pm 3 \text{ min}$ |
| 4 | room temperature | 1 hour | | |
| High Temperature Load | After being continuously applied the maximum allowable voltage at $85 \pm 2^\circ\text{C}$ for 1000 ± 2 hours, the specimen shall be stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%. | | | |
| Damp Heat Load/ Humidity Load | The specimen should be subjected to $40 \pm 2^\circ\text{C}$ and 90~95% RH, the maximum allowable voltage applied for 1000 ± 2 hours and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%. | | | |
| Low Temperature Storage | The specimen should be subjected to $-40 \pm 2^\circ\text{C}$ for 1000 ± 2 hours without load and then stored at room temperature and normal humidity for one or two hours. The change of varistor voltage shall be within 10%. | | | |

»Soldering Parameters



☆ IR reflow Pb free process suggestion profile

- (1) The solder recommend is Sn96.5/Ag3.5 and thickness recommend as shown in table 5.3
- (2) Ramp-up rate (217°C to peak) +3°C/second max.
- (3) Temp. maintain at 175±25°C 180 seconds max.
- (4) Temp. maintain above 217°C 60~150 seconds

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