

Transient Voltage Suppressors Array for ESD Protection

Low Capacitance

ESD05V56T-4LC

Description

The ESD05V56T-4LC is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

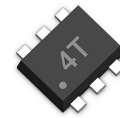
Feature

- u 100 Watts Peak Pulse Power per Line (tp=8/20µs)
- u Protects up to two I/O lines & power line
- u Low capacitance (<1.5pF) for high-speed interfaces
- u Working voltages : 5V
- u Ultra-small package requires less than 2.9mm² of PCB area
- u IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)

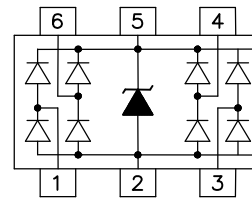
Applications

- u USB 2.0 High Speed
- u 10/100/1000 Ethernet Ports
- u High-Definition Multimedia Interface (HDMI)
- u Digital Visual Interface (DVI)
- u Monitors and Flat Panel Displays
- u Video Graphics Cards
- u IEEE 1394 Fire wire Ports High Speed

SOT-563



Functional Diagram



Mechanical Characteristics

- u JEDEC SOT-563 Package
- u Molding Compound Flammability Rating : UL 94V-0
- u Weight 3.0 Milligrams (Approximate)
- u Quantity Per Reel : 3,000pcs
- u Reel Size : 7 inch
- u Lead Finish : Lead Free

Mechanical Characteristics

| Symbol | Parameter | Value | Units |
|------------------|---------------------------------------|---|-------|
| PPP | Peak Pulse Power (tp=8/20µs waveform) | 100 | W |
| T _L | Lead Soldering Temperature | 260 (10sec) | °C |
| T _{STG} | Storage Temperature Range | -55 to +150 | °C |
| T _J | Operating Temperature Range | -55 to +150 | °C |
| | IEC61000-4-2 (ESD) | Air Discharge ±15 Contact Discharge ±8 | KV |
| | IEC61000-4-4 (EFT) | 40 | A |

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

| Part Number | Device Marking | V _{RWM} (V) (Max.) | V _B (V) (Min.) | I _T (mA) | V _C @1A (Max.) | V _C | | I _R (μA) (Max.) | C (pF) (Typ.) |
|---------------|----------------|-----------------------------|---------------------------|---------------------|---------------------------|----------------|------|----------------------------|---------------|
| | | | | | | (Max.) | (@A) | | |
| ESD05V56T-4LC | 4T | 5 | 6 | 1 | 9.8 | 23 | 5 | 1 | 1.5 |

Characteristic Curves

Fig1. 8/20μs Pulse Waveform

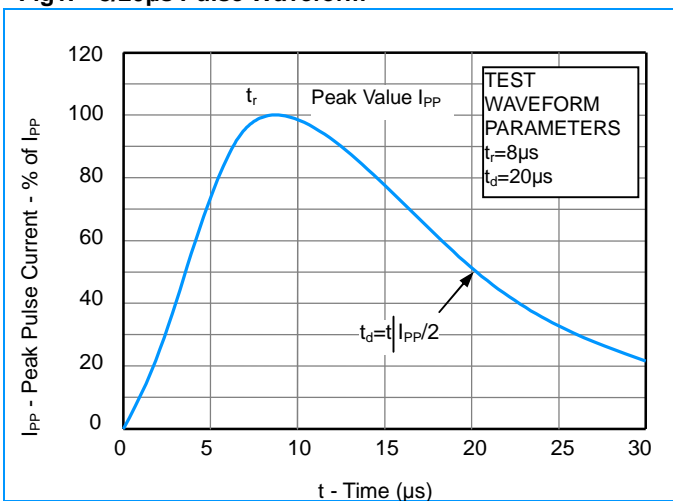


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

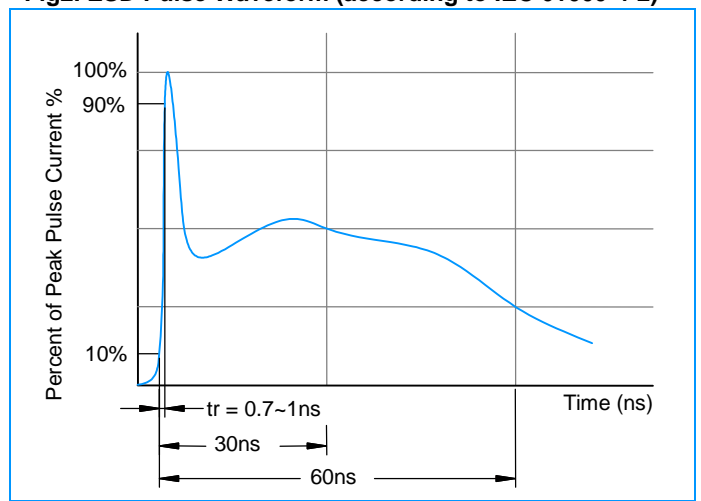


Fig4. ESD Clamping (+8KV Contac per IEC61000-4-2)

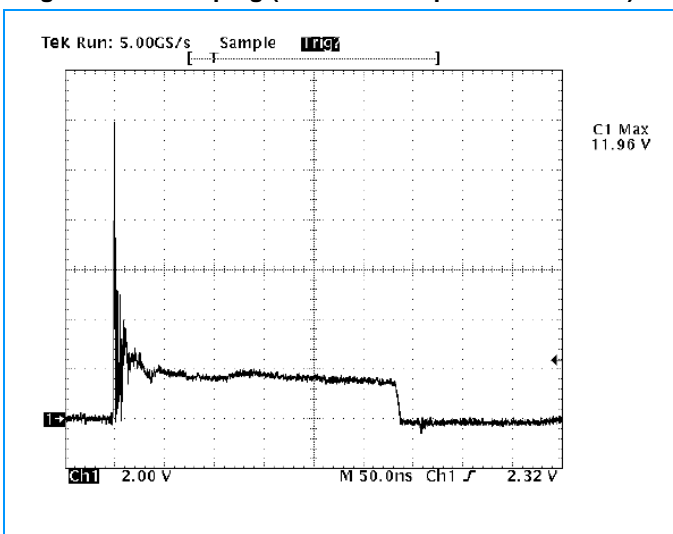
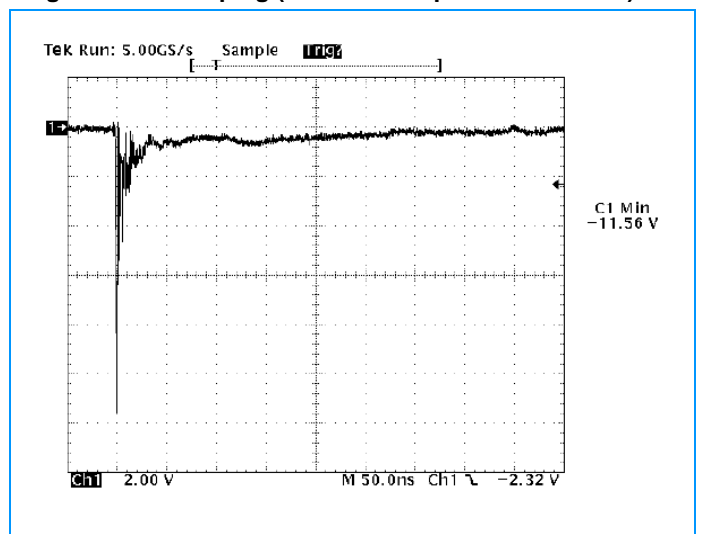


Fig5. ESD Clamping (-8KV Contac per IEC61000-4-2)

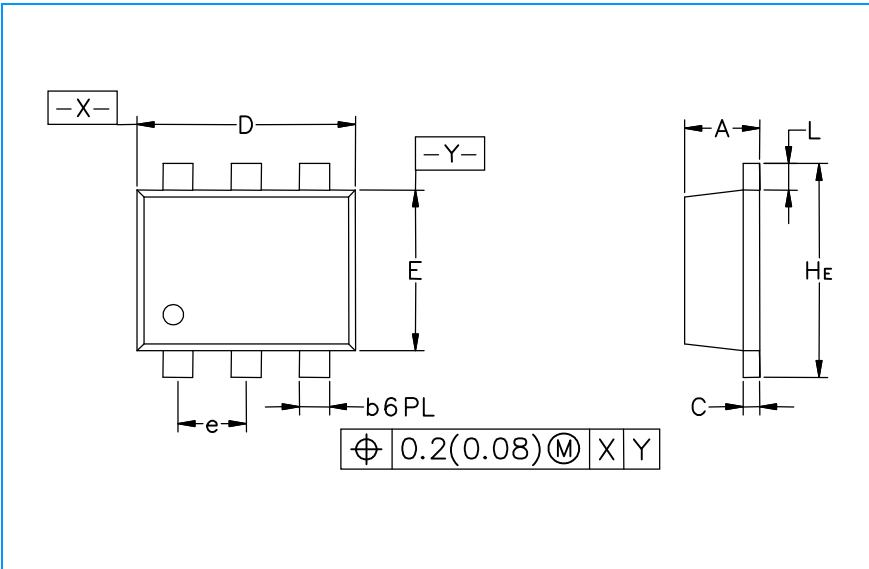


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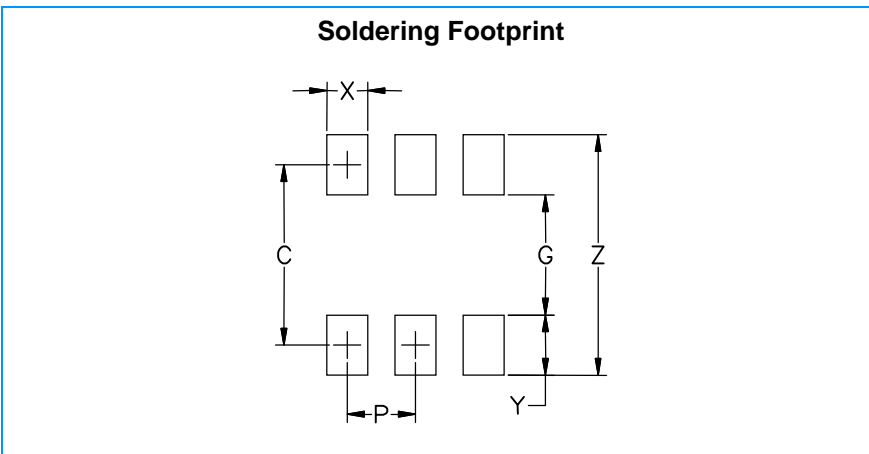
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SOT-563 Package Outline & Dimensions



| Symbol | Inches | | | Millimeters | | |
|----------------|----------|-------|-------|-------------|------|------|
| | Min. | Nom. | Max. | Min. | Nom. | Max. |
| A | 0.020 | 0.021 | 0.023 | 0.50 | 0.55 | 0.60 |
| b | 0.007 | 0.009 | 0.011 | 0.17 | 0.22 | 0.27 |
| C | 0.003 | 0.005 | 0.007 | 0.08 | 0.12 | 0.18 |
| D | 0.059 | 0.062 | 0.066 | 1.50 | 1.60 | 1.70 |
| E | 0.043 | 0.047 | 0.051 | 1.10 | 1.20 | 1.30 |
| e | 0.02 BSC | | | 0.5 BSC | | |
| L | 0.004 | 0.008 | 0.012 | 0.10 | 0.20 | 0.30 |
| H _E | 0.059 | 0.062 | 0.067 | 1.50 | 1.60 | 1.70 |

Soldering Footprint



| Symbol | Inches | Millimeters |
|--------|--------|-------------|
| C | 0.0531 | 1.35 |
| G | 0.0354 | 0.90 |
| P | 0.0197 | 0.50 |
| X | 0.0118 | 0.30 |
| Y | 0.0177 | 0.45 |
| Z | 0.0709 | 1.80 |