

# PS04LTVA1 ESD Suppressor

## PolySurg™ LTV Series



Surface Mount Device

### Description

The PolySurg™ PS04LTVA ESD Suppressors protect valuable high-speed data circuits with sensitive ICs from ESD damage without distorting data signals as a result of its ultra-low (0.05pF typical) capacitance.

### Features

- Low trigger voltage and clamping voltage delivers enhanced ESD protection of very sensitive ICs
- Ultra-low capacitance (0.05pF typ.) ideal for high speed data applications
- Provides ESD protection with fast response time (<1ns) allowing equipment to pass IEC 61000-4-2 level 4 test
- Single line, bidirectional device for placement flexibility
- Low profile 0402/1005 design for board space savings
- Low leakage current (<0.1nA typ.) reduces power consumption
- RoHS compliant, halogen free and lead free for global acceptance
- Tin-plated (Sn) version available
- Tested to meet automotive specifications (AEC-Q200)

Specifications	
Performance Characteristics	Value
Rated voltage	5Vdc typical, 12Vdc maximum
Clamping voltage <sup>1</sup>	25V typical
Trigger voltage <sup>2</sup>	150V typical
Capacitance @ 1MHz	0.05pF typical, 0.15pF maximum
Attenuation change (0-20GHz)	-0.2dB typical
Leakage current @ 12Vdc	<0.1nA typical
ESD Capability	
- IEC 61000-4-2 Direct Discharge	8kV typical
- IEC 61000-4-2 Air Discharge	15kV typical
ESD pulse withstand <sup>1</sup>	>1000 pulses typical

1. Per IEC61000-4-2, Level 4 waveform (8kV direct, 30A) measured 30nS after initiation of pulse.  
 2. Trigger measurement made using Transmission Line Pulse (TLP) method.  
 3. Minor shifting in characteristics may be observed over multiple ESD pulses at very rapid rate.

### Applications

- Satellite / digital radio
- Mobile phones
- GSM Modules
- HDTV Equipment
- AV Equipment
- DMB Modules
- Test and measurement equipment
- Portable game systems
- Personal media players
- Security equipment
- Broadband network equipment
- Other RF applications
- High speed data ports
  - USB 2.0/3.0
  - IEEE 1394
  - HDMI
  - DVI
  - High speed ethernet

### Packaging

- 10,000 pieces in paper tape on 7 inch diameter (178mm) reel.

### Ordering Information

Catalog Number	Description
PS04LTVA1	10,000 pieces in paper tape on 7 inch diameter (178mm) reel, tin plating

### Device Marking

PolySurg™ ESD Suppressors are marked on the tape and reel packages, not individually. Since the product is bi-directional and symmetrical, no orientation marking is required.

### Design Consideration

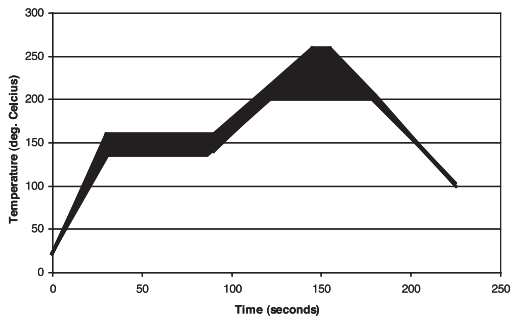
The location in the circuit for the LTV series has to be carefully determined. For better performance, the device should be placed as close to the signal input as possible and ahead of any other component. Due to the high current associated with an ESD event, it is recommended to use a "0-stub" pad design (pad directly on the signal/data line and second pad directly on common ground).

**Environmental Specifications:**

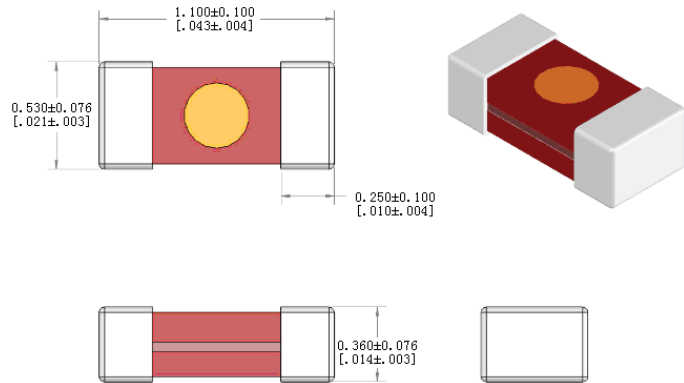
- High Temperature Exposure: MIL-STD-202 Method 108
- Temperature Cycling: 1000 Air to Air cycles -40°C to +125°C JESD22 Method JA-104
- Moisture Resistance Test: MIL-STD-202 Method 106G, 10 cycles
- Biased Humidity: MIL-STD-202 Method 103, 1,000hours +85°C, 85%RH
- Thermal Shock: MIL-STD-202, Method 107G Air-to-Air -55°C to +125°C, 10 cycles
- Vibration Test and Mechanical Shock Test: MIL-STD-202 Method 204 and Method 213
- Resistance to Solvent: MIL-STD-202 Method 215
- Operating and Storage Temperature Range: -55°C to +125°C

**Soldering Recommendations**

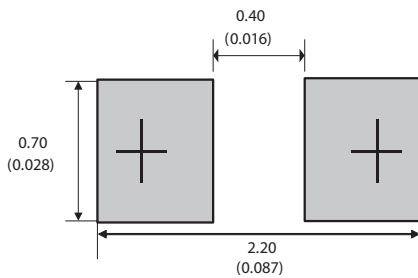
- Compatible with lead and lead-free solder reflow processes
- Peak reflow temperatures and durations:
  - IR Reflow = 260°C max for 10 sec. max
  - Wave Solder = 260°C max. for 10 sec. max
- Recommended IR Reflow Profile:



**Dimensions - mm (in)**



**Recommended Pad Layout - mm (in)**



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