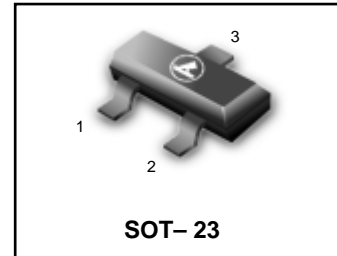


Dual Transient Voltage Suppressors Array for ESD Protection

General Description

The LGSOT04CLT1G is a dual monolithic voltage suppressor designed to protect components which are connected to data and transmission lines against ESD. It clamps the voltage just above the logic level supply for positive transients, and to a diode drop below ground for negative transients. It can also work as bidirectional suppressor by connecting only pin1 and 2.

LGSOT04CLT1G

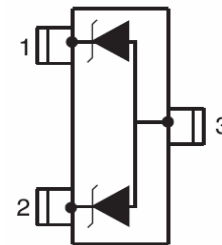


Applications

- Computers
- Printers
- Communication systems

Features

- 2 Unidirectional Transil functions
- Low leakage current: $I_R \max < 20 \mu A$ at V_{RM}
- 300W peak pulse power(8/20 μs)
- Transient protection for data lines as per
IEC61000-4-2(ESD) 15KV(air) 8KV(contact)
IEC61000-4-5(Lightning) see I_{PPM} below

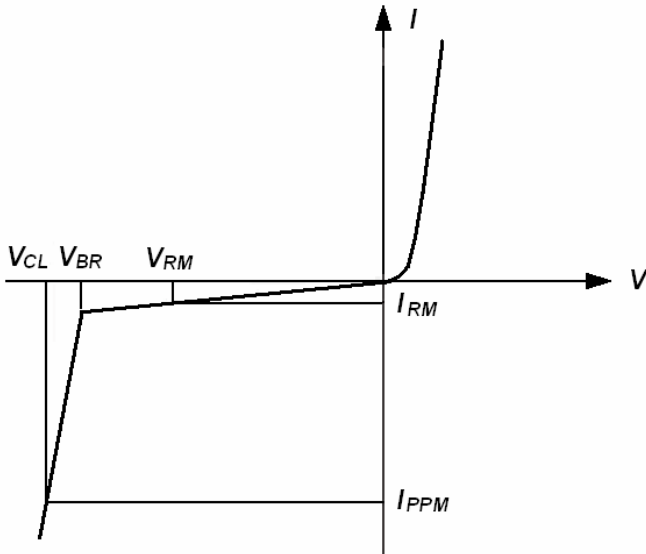


ORDERING INFORMATION

| Device | Package | Shipping |
|--------------|---------|------------------|
| LGSOT04CLT1G | SOT-23 | 3000/Tape & Reel |

| Absolute Ratings ($T_{amb}=25^{\circ}C$) | | | |
|--|---|-------------|-------------|
| Symbol | Parameter | Value | Units |
| P_{PP} | Peak Pulse Power ($t_p = 8/20\mu s$) | 300 | W |
| T_L | Maximum lead temperature for soldering during 10s | 260 | $^{\circ}C$ |
| T_{stg} | Storage Temperature Range | -55 to +15 | $^{\circ}C$ |
| T_{op} | Operating Temperature Range | -40 to +125 | $^{\circ}C$ |
| T_j | Maximum junction temperature | 150 | $^{\circ}C$ |
| V_{PP} | Electrostatic discharge | | |
| | IEC61000-4-2 air discharge | 15 | kv |
| | IEC61000-4-2 contact discharge | 8 | |

LGSOT04CLT1G



Electrical Parameter

| Symbol | Parameter |
|-----------|--------------------|
| V_{RM} | Stand-off voltage |
| V_{BR} | Breakdown voltage |
| V_{CL} | Clamping voltage |
| I_{RM} | Leakage current |
| I_{PPM} | Peak pulse current |

Electrical Characteristics

| Part Numbers | Rated Stand-off Voltage | Maximum Leakage Current | Minimum Breakdown Voltage | Maximum Clamping Voltage | | Maximum Pulse Peak Current | Maximum Capacitance |
|--------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------|----------------------------|---------------------|
| | | @ V_{RM} | | 1mA | 1A ¹⁾ | | |
| | V_{RM} | I_{RM} | V_{BR} | V_{CL} | | I_{PPM} | C |
| | V | μA | V | V | V | A | pF |
| LGSOT04CLT1G | 4.0 | 20.0 | 5.0 | 8.5 | 10.5 | 17 | 300 |
| LGSOT05CLT1G | 5.0 | 20.0 | 6.0 | 9.8 | 12.5 | 17 | 220 |
| LGSOT08CLT1G | 8.0 | 5.0 | 8.5 | 13.4 | 15.0 | 15 | 190 |
| LGSOT12CLT1G | 12.0 | 1.0 | 13.3 | 19.0 | 28.0 | 12 | 90 |
| LGSOT15CLT1G | 15.0 | 1.0 | 16.7 | 24 | 39.0 | 10 | 60 |

1).8/20 waveform used. (see fig2.)

Typical Characteristics

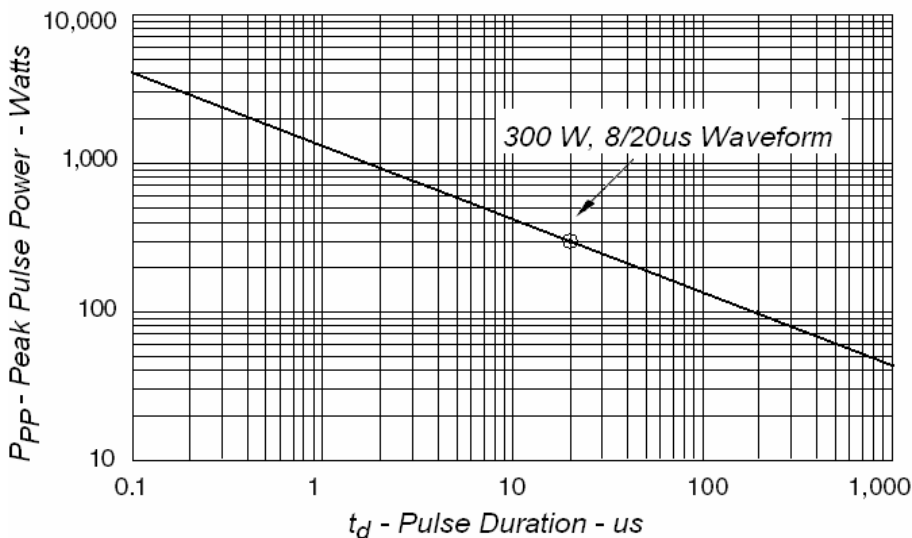


Fig1. Peak Pulse Power VS Pulse Time

LGSOT04CLT1G

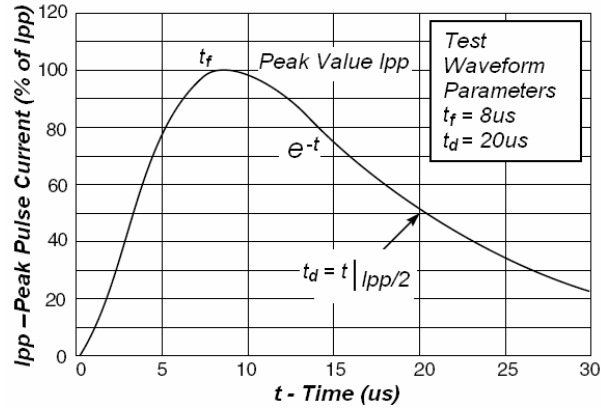


Fig2. Pulse Waveform

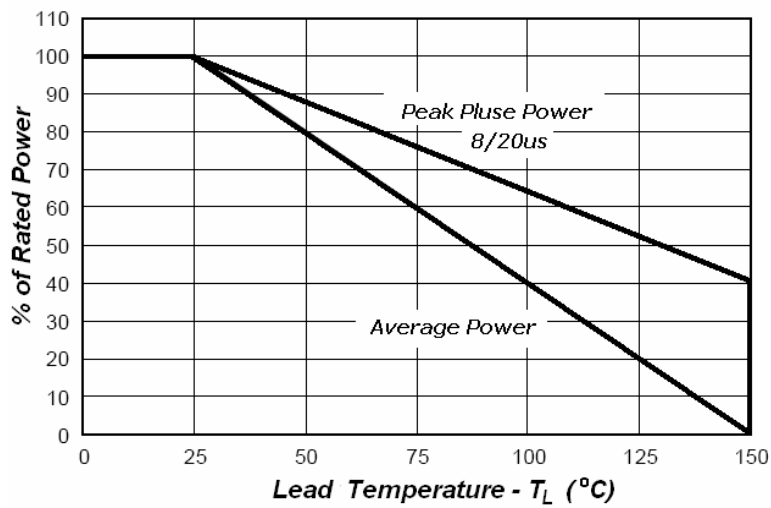


Fig3. Power Derating

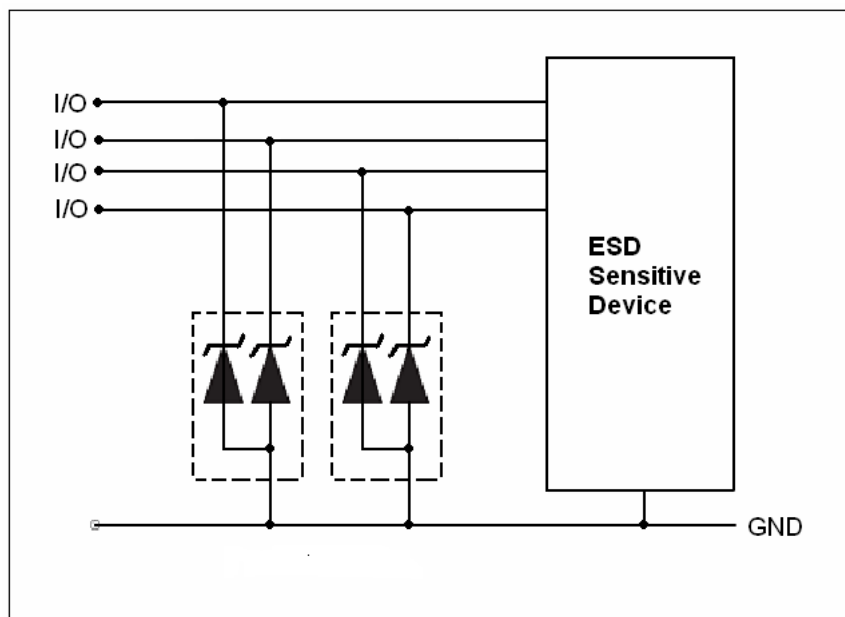
LGSOT04CLT1G

Application Note

Electrostatic discharge (ESD) is a major cause of failure in electronic systems. Transient Voltage Suppressors (TVS) are an ideal choice for ESD protection. They are capable of clamping the incoming transient to a low enough level such that damage to the protected semiconductor is prevented.

Surface mount TVS arrays offer the best choice for minimal lead inductance. They serve as parallel protection elements, connected between the signal line to ground. As the transient rises above the operating voltage of the device, the TVS array becomes a low impedance path diverting the transient current to ground. The LGSOT04CLT1G array is the ideal board level protection of ESD sensitive semiconductor components.

The tiny SOT23 package allows design flexibility in the design of high density boards where the space saving is at a premium. This enables to shorten the routing and contributes to hardening against ESD.



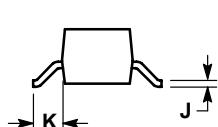
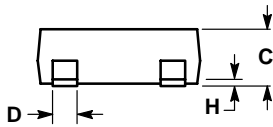
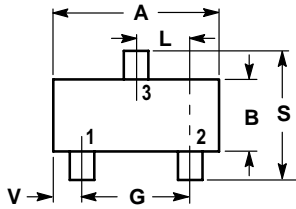
2 * LGSOTXXXLT1G

LGSOT04CLT1G

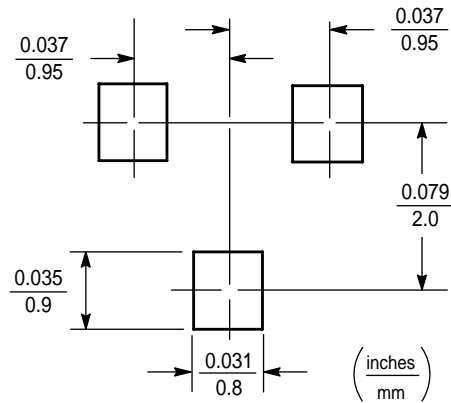
SOT-23

NOTES:

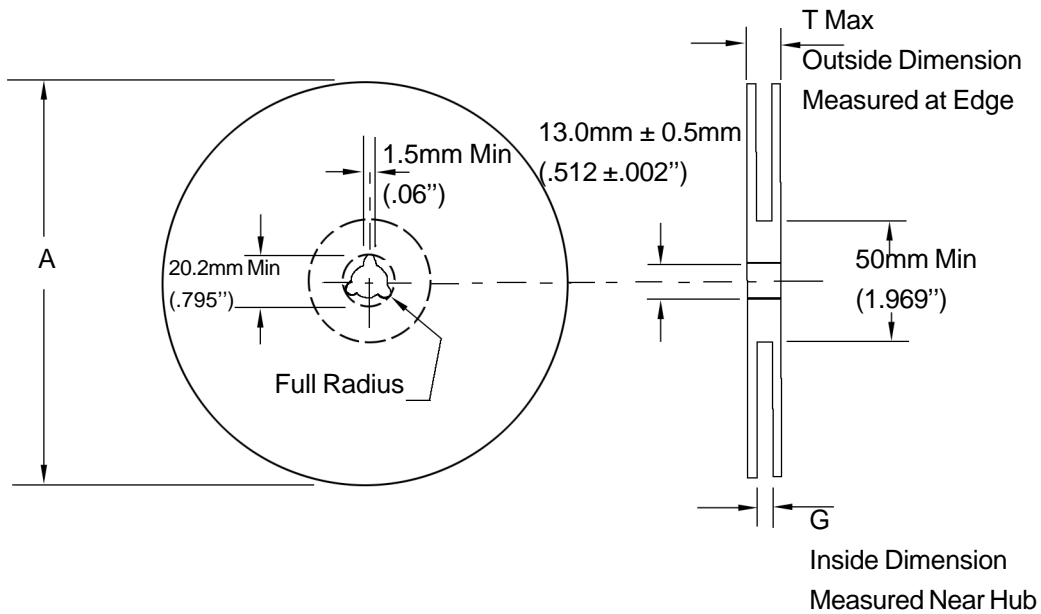
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



| DIM | INCHES | | MILLIMETERS | |
|-----|--------|--------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.1102 | 0.1197 | 2.80 | 3.04 |
| B | 0.0472 | 0.0551 | 1.20 | 1.40 |
| C | 0.0350 | 0.0440 | 0.89 | 1.11 |
| D | 0.0150 | 0.0200 | 0.37 | 0.50 |
| G | 0.0701 | 0.0807 | 1.78 | 2.04 |
| H | 0.0005 | 0.0040 | 0.013 | 0.100 |
| J | 0.0034 | 0.0070 | 0.085 | 0.177 |
| K | 0.0140 | 0.0285 | 0.35 | 0.69 |
| L | 0.0350 | 0.0401 | 0.89 | 1.02 |
| S | 0.0830 | 0.1039 | 2.10 | 2.64 |
| V | 0.0177 | 0.0236 | 0.45 | 0.60 |



EMBOSSED TAPE AND REEL DATA FOR DISCRETES



| Size | A Max | G | T Max |
|------|--------------------|--|------------------|
| 8 mm | 330mm (12.992") | 8.4mm+1.5mm, -0.0 (.33"+.059", -0.00) | 14.4mm (.56") |

Reel Dimensions

Metric Dimensions Govern — English are in parentheses for reference only

Storage Conditions

Temperature: 5 to 40 Deg.C (20 to 30 Deg. C is preferred)

Humidity: 30 to 80 RH (40 to 60 is preferred)

Recommended Period: One year after manufacturing

(This recommended period is for the soldering condition only. The characteristics and reliabilities of the products are not restricted to this limitation)

Shipment Specification

