

Transient Voltage Suppressors for ESD Protection

General Description

The LGSOT04LT1G is a transient 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.

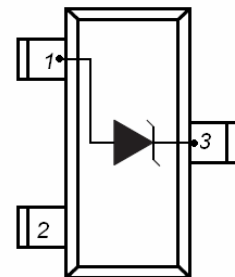
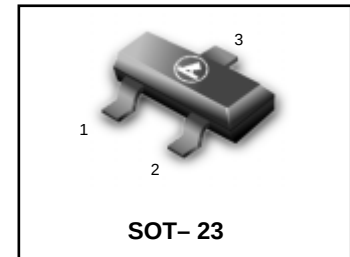
Applications

- Computers
- Printers
- Communication systems

Features

- 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
- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

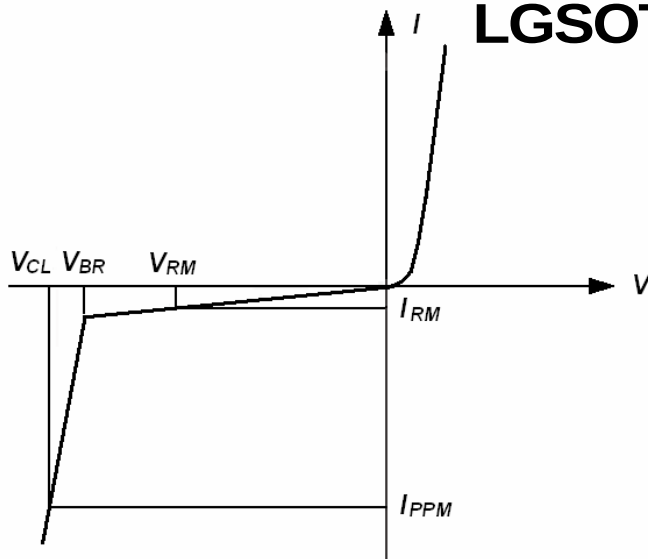
LGSOT04LT1G
S-LGSOT04LT1G



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 +150	$^{\circ}C$
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	

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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⁾	5A ¹⁾	tp=8/20us	0v, 1MHz
		V_{RM}	I_{RM}	V_{BR}	V_{CL}	I_{PPM}	C
		V	μA	V	V	A	pF
LGSOT04LT1G	4.0	20.0	5.0	8.5	10.5	17	300
LGSOT05LT1G	5.0	20.0	6.0	9.8	12.5	17	220
LGSOT08LT1G	8.0	5.0	8.5	13.4	15.0	15	190
LGSOT12LT1G	12.0	1.0	13.3	19.0	28.0	12	150

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

Typical Characteristics

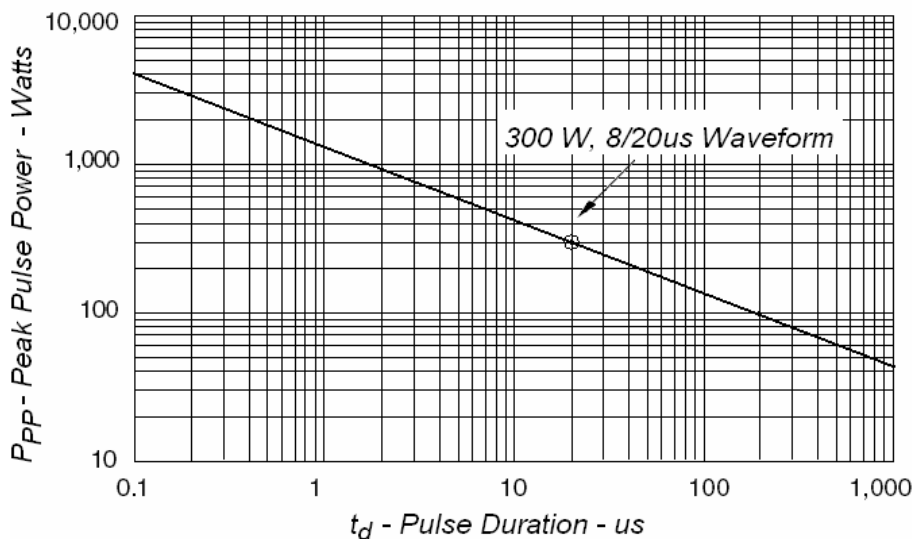


Fig1. Peak Pulse Power VS Pulse Time

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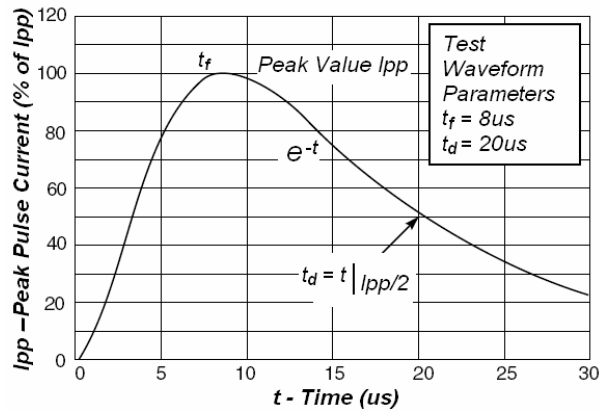


Fig2. Pulse Waveform

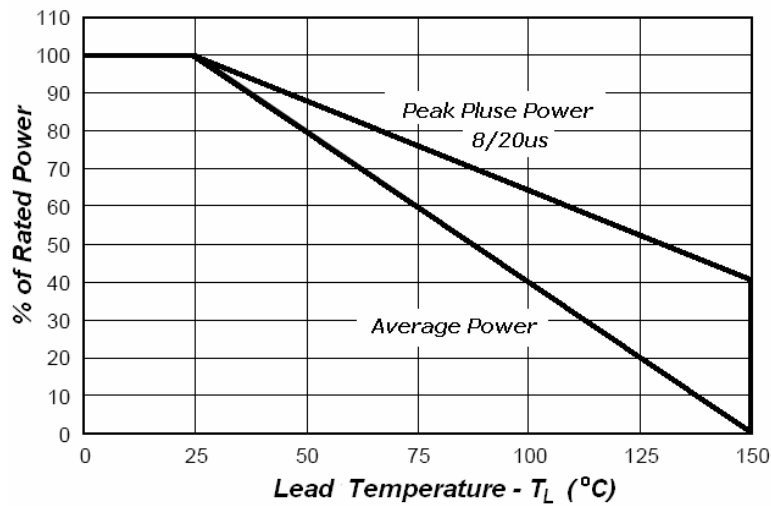


Fig3. Power Derating

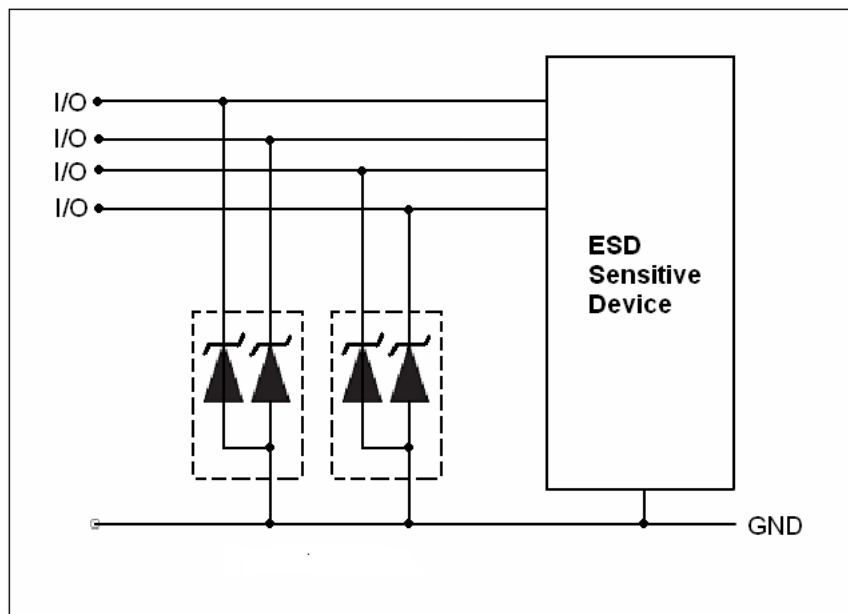
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Application Note

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 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 becomes a low impedance path diverting the transient current to ground. The LGSOT04LT1G 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.



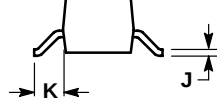
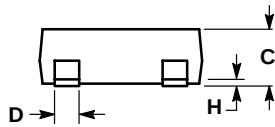
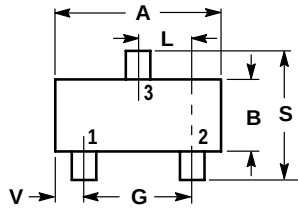
2 * LGSOTXXXLT1G

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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

