

# Transient Voltage Suppressors for ESD Protection

## General Description

The LESD8D7.0CAT5G 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.

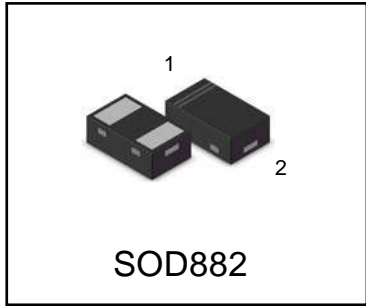
## Applications

- Cellular phones
- Portable devices
- Digital cameras
- Power supplies

## Features

- Small Body Outline Dimensions
- Low Body Height
- Peak Power up to 80 Watts @ 8 x 20  $\mu$ s Pulse
- Low Leakage
- Response Time is Typically < 1 ns
- IEC61000-4-2 Level 4 ESD Protection
- IEC61000-4-4 Level 4 EFT Protection
- 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.

LESD8D7.0CAT5G  
S-LESD8D7.0CAT5G



## ORDERING INFORMATION

Device	Marking	Package	Shipping
LESD8D7.0CAT5G	R2	SOD-882	10000/Tape & Reel
S-LESD8D7.0CAT5G	R2	SOD-882	10000/Tape & Reel

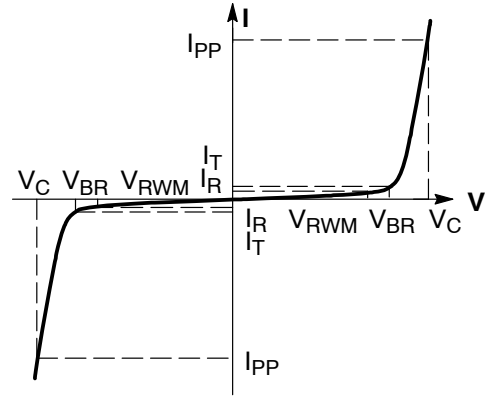
## Absolute Ratings (T<sub>amb</sub>=25°C )

Symbol	Parameter	Value	Units
P <sub>PP</sub>	Peak Pulse Power (t <sub>p</sub> = 8/20 $\mu$ s)	80	W
T <sub>L</sub>	Maximum lead temperature for soldering during 10s	260	°C
T <sub>stg</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>op</sub>	Operating Temperature Range	-40 to +125	°C
T <sub>j</sub>	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD) air discharge	$\pm 20$	KV
	IEC61000-4-2 (ESD) contact discharge	$\pm 15$	KV
	IEC61000-4-4 (EFT)	40	A

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## Electrical Parameter

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$I_T$	Test Current
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



## Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.  $V_F = 0.9V$  at  $I_F = 10mA$

Device	$V_{RWM}$ (V)	$I_R$ ( $\mu A$ ) @ $V_{RWM}$	$V_{BR}$ (V) @ $I_T$ (Note 1)		$I_T$	$V_C$ (V) @ $I_{PP}=3 A^*$	$V_C$ (V) @ Max $I_{PP}^*$	$I_{PP}$ (A)*	$P_{PK}$ (W)*	C (pF)	$R_{(dynamic)}$ ( $\Omega$ ) @ 16A(TLP)
	Max	Max	Min	Max	mA	Typ	Max	Max	Max	Typ	Typ
LESD8D7.0CAT5G	7.0	1.0	7.2	9.5	1.0	13	16	5	80	16	0.24

\*Surge current waveform per Figure 2.

- $V_{BR}$  is measured with a pluse test current  $I_T$  at an ambient temperature of 25°C.

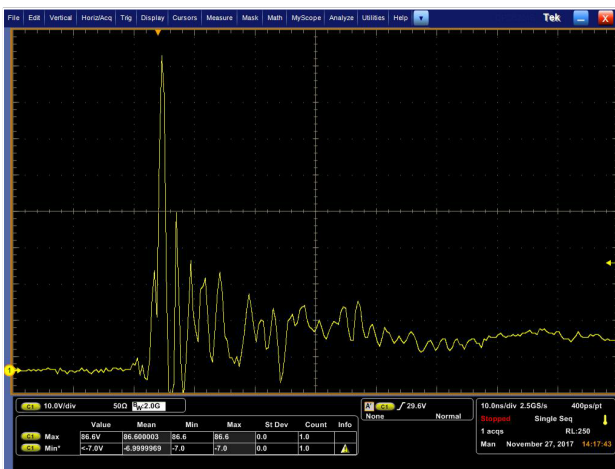


Figure1. ESD Clamping Voltage Screenshot Positive 8 kV Contact per IEC61000-4-2

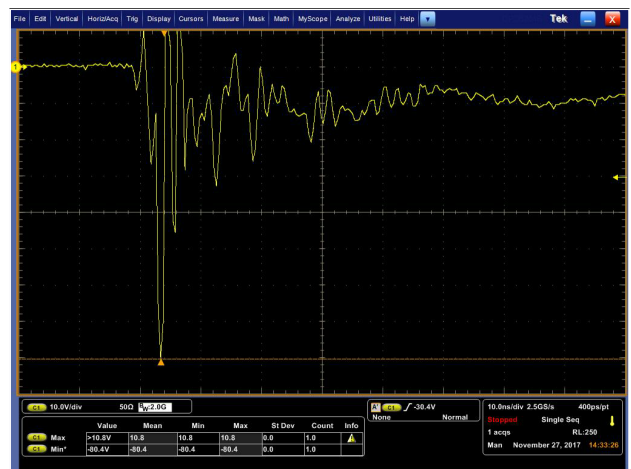
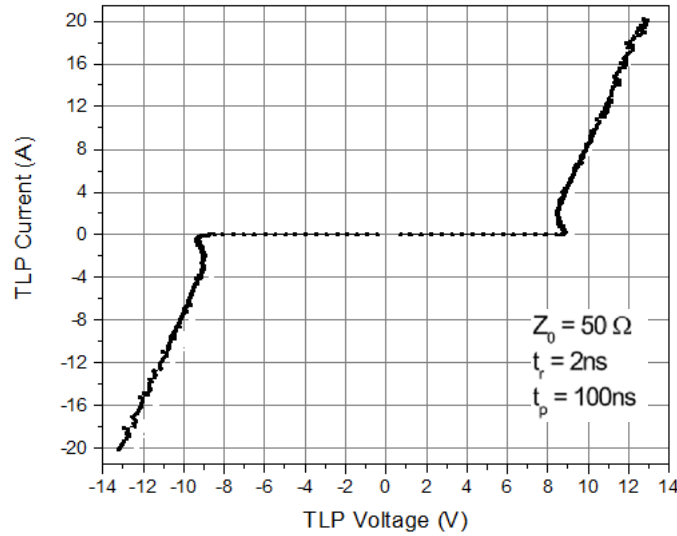
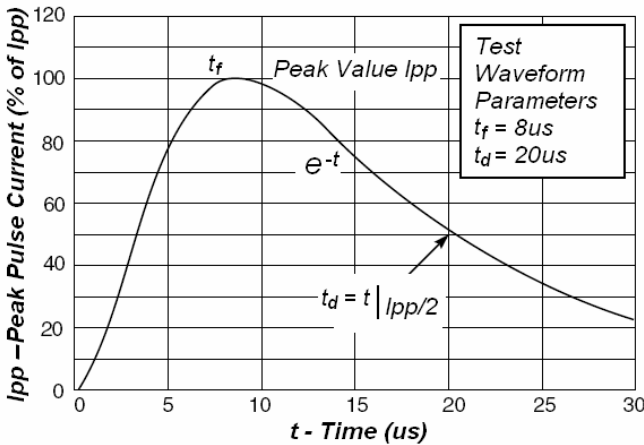


Figure 2. ESD Clamping Voltage Screenshot Negative 8 kV Contact per IEC61000-4-2

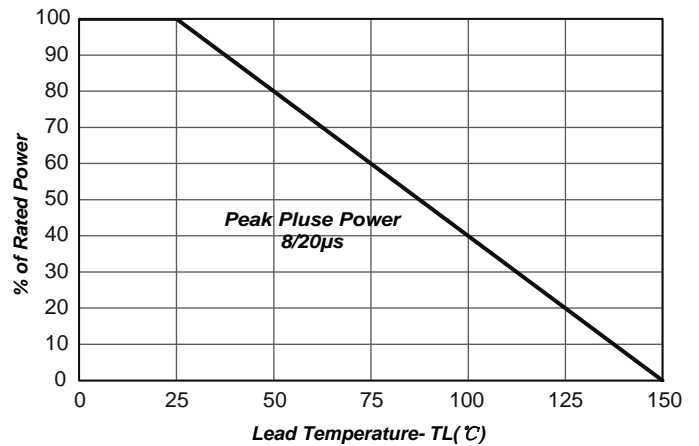
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**Fig3.TLP Measurement**



**Fig4. Pulse Waveform**



**Fig5.Power Derating Curve**

## Application Note

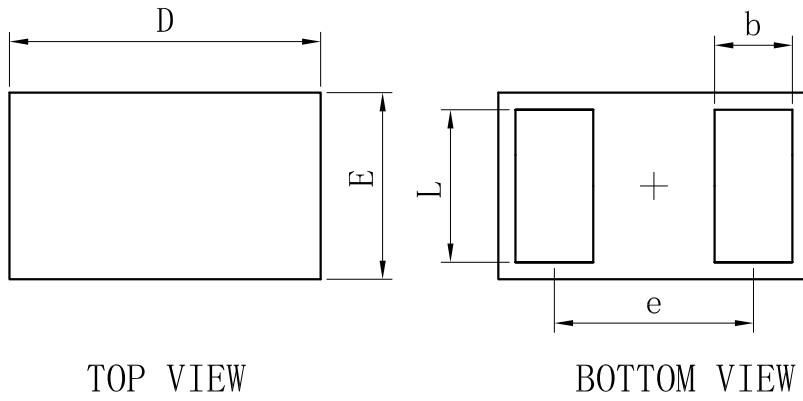
Electrostatic discharge (ESD) is a major cause of failure in electronic systems. Transient Voltage Suppressors (TVS) are an ideal choice for ESD protection. They are capable of clamping the incoming transient to a low enough level such that damage to the protected semiconductor is prevented.

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 LESD8D7.0CAT5G is the ideal board level protection of ESD sensitive semiconductor components.

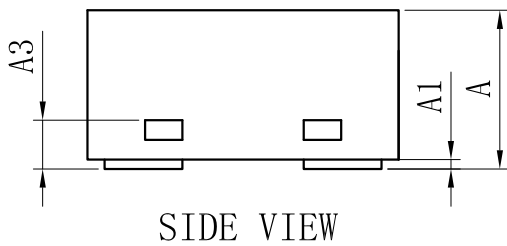
The tiny SOD882 package allows design flexibility in the design of high density boards where the space saving is at a premium. This enables to shorten the routing and contributes to hardening against ESD.

# LESD8D7.0CAT5G/S-LESD8D7.0CAT5G

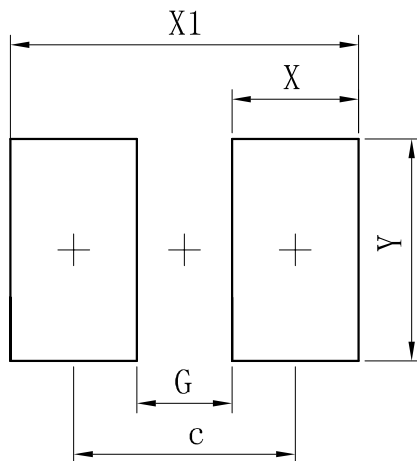
## Package Outline Dimension



SOD882			
Dim	Min	Typ	Max
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	-	0.64	-
L	0.44	0.49	0.54
b	0.20	0.25	0.30
A	0.43	0.48	0.53
A1	0	-	0.05
A3	0.127REF.		
All Dimensions in mm			



## Suggested Pad layout



Dimensions	(mm)
c	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70

**DISCLAIMER**

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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