GSE8L50C

Surface Mount TVS For ESD Protection Diode With Ultra-Low Capacitance

Product Description

The GSE8L50C is designed to protect voltage sensitive components that require ultra-low capacitance from ESD and transient voltage events. Excellent clamping capability, low capacitance, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

Because of its low capacitance, it issuited for use in high frequency designs such as USB 2.0 high speed and antenna in applications.

Features

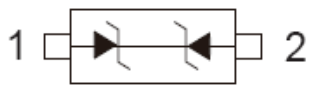
- Ultra Low Capacitance : 0.5 pF
- Low Clamping Voltage
- Small Body Outline Dimensions : 0.039” x 0.024” (1.00 mm x 0.60 mm)
- Low Body Height : 0.016” (0.4mm)
- Stand-off Voltage : 5V
- Low Leakage
- Response Time is Typically < 1.0 ns
- IEC61000-4-2 Level 4 ESD Protection
- Lead(Pb)-Free
- Device Meets MSL 1 Requirements

Applications

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Notebooks, Desktops, and Serves
- Portable Instrumentation
- Digital Cameras
- MP3/MP4/PMP Players

Packages & Pin Assignments

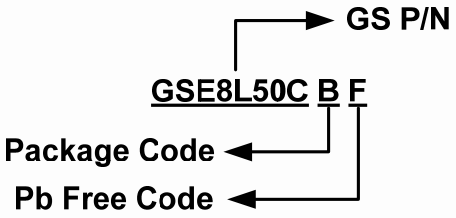
SOD-882



Marking Information

Part Number	Package	Part Marking
GSE8L50CBF	SOD-882	N

Ordering Information



Part Number	Package	Quantity
GSE8L50CBF	SOD-882	10000 PCS

Absolute Maximum Ratings

(T_A=25ºC Unless otherwise noted)

Symbol	Parameter	Typical	Unit
P_D	Total Power Dissipation on FR-5 Board	150	mW
V_{PP}	ESD per IEC61000-4-2 (Air)	±8	KV
V_{PP}	ESD per IEC61000-4-2 (Contact)	±8	KV
T_J	Operating Junction Temperature Range	-55 to +150	ºC
T_{STG}	Storage Temperature Range	-55 to +150	ºC
T_L	Lead Solder Temperature-Maximum (10 second Duration)	260	ºC

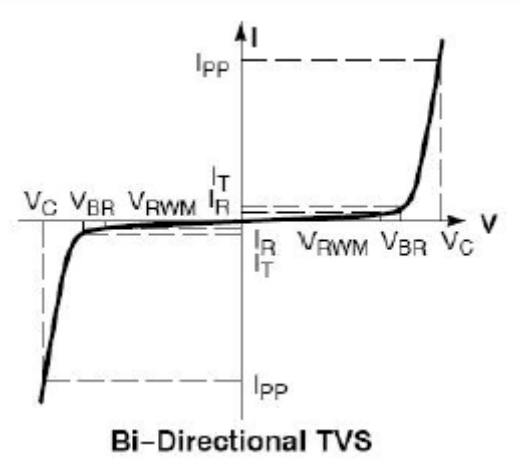
Note : Stresses exceeding Maximum Ratings may damage the device. Maximum Rating are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Electrical Characteristics

(T_A=25ºC Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{RWM}	Reverse Working Voltage				5	V
V_{BR}	Reverse Breakdown Voltage	I_T=1mA	5.4			V
I_R	Reverse Leakage Current	V_{RWM}=5V, t_p=8/20us			1.0	μA
V_C	Positive Clamping Voltage	I_{PP}=1A, t_p=8/20us			12.9	V
C_J	Junction Capacitance	V_R=0V, f=1MHz		0.5	0.9	pF

Electrical Parameter



Bi-Directional TVS

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}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{PK}	Peak Power Dissipation
C	Capacitance @ V_R=0V and f=1.0MHz

Typical Performance Characteristics

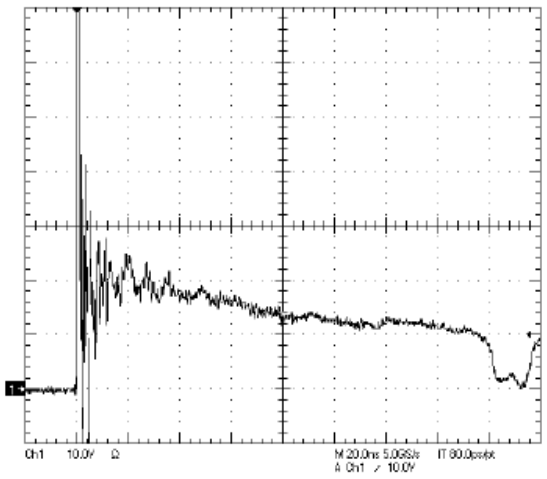


Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000-4-2

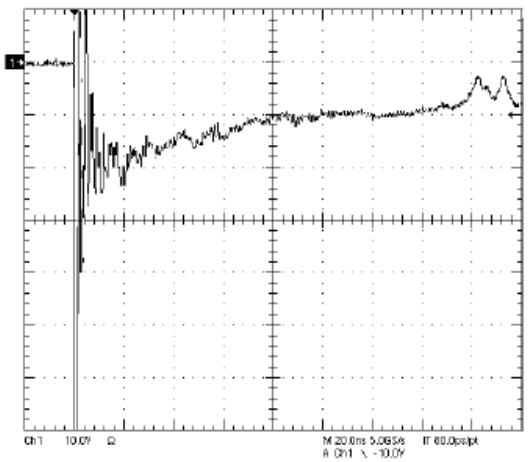


Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000-4-2

Typical Performance Characteristics (Continue)

IEC 61000-4-2 Spec.

Level	Test Voltage (kV)	First Peak Current (A)	Current at 30 ns (A)	Current at 60 ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8

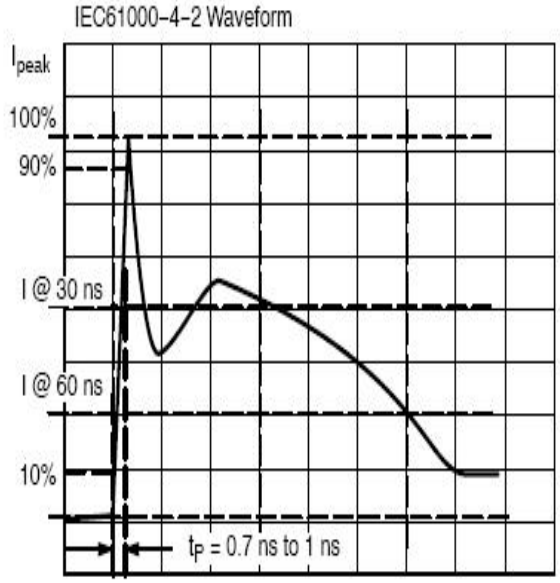


Figure 3. IEC61000-4-2 Spec

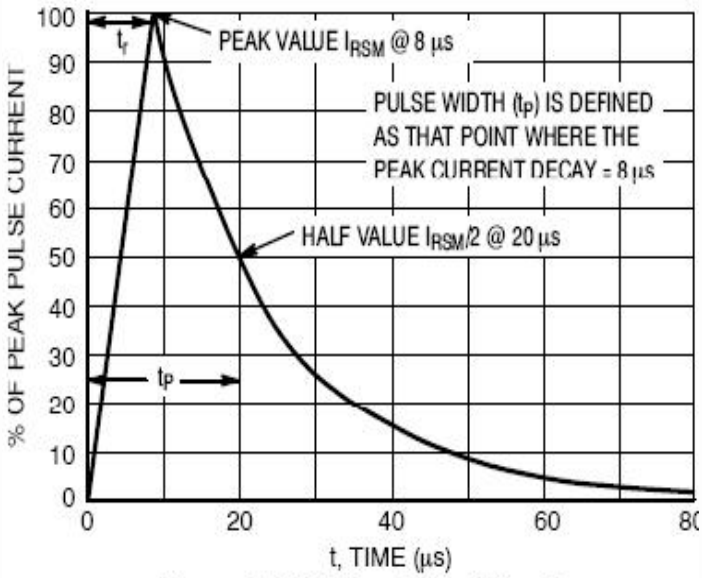
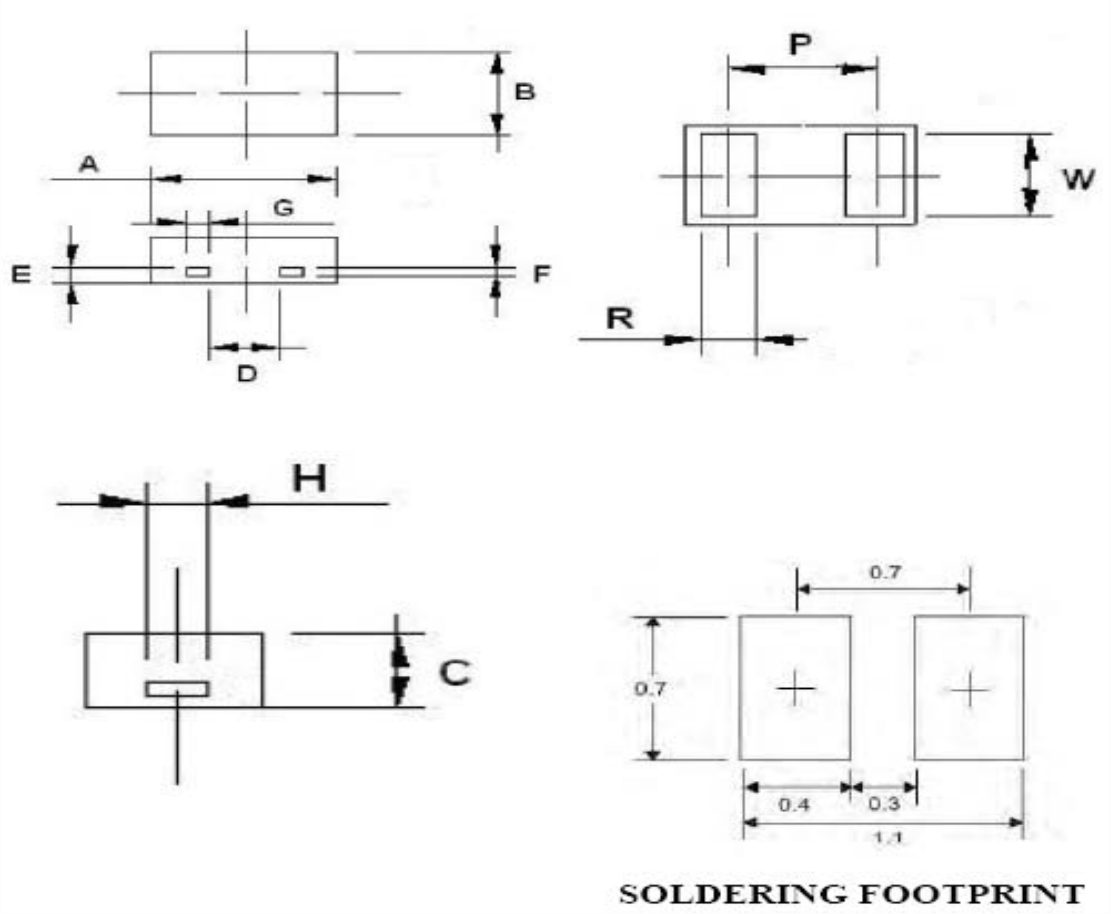


Figure 4. 8 X 20 µs Pulse Waveform

Package Dimension

SOD-882



SOLDERING FOOTPRINT

Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.95	1.05	0.037	0.041
B	0.55	0.65	0.022	0.026
C	0.465	0.50	0.018	0.020
D	0.39 (TYP)		0.015 (TYP)	
E	0.127 (TYP)		0.005 (TYP)	
F	0.064 (TYP)		0.003 (TYP)	
G	0.12 (TYP)		0.005 (TYP)	
H	0.20 (TYP)		0.008 (TYP)	
P	0.64 (TYP)		0.025 (TYP)	
R	0.25 (TYP)		0.010 (TYP)	
W	0.49 (TYP)		0.019 (TYP)	

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