

Ultra Low Capacitance ESD Protection Array

DESCRIPTION

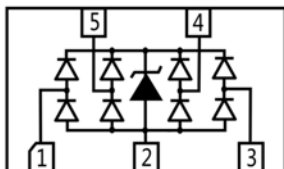
GESD0504HDL is an ultra-low capacitance ESD Protection Array designed to protection for high-speed data interfaces. With typical capacitance of 0.2pF (I/O to I/O) only, GESD0504HDL is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ($\pm 8\text{KV}$ contact, $\pm 15\text{KV}$ air discharge), IEC61000-4-4 (electrical fast transient-EFT) (40A, 5/50ns), very fast charged device model (CDM) ESD and cable discharge event (CDE) etc.

GESD0504HDL uses ultra-small DFN2010-5L package. Each GESD0504HDL device can protect four high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make GESD0504HDL ideal for high-speed data ports and high-frequency lines (e.g., HDMI & DVI) applications. The low clamping voltage of the GESD0504HDL guarantees a minimum stress on the protected IC.

ORDERING INFORMATION

- ✧ Device: GESD0504HDL
- ✧ Package: DFN2010-5L
- ✧ Marking: 54L
- ✧ Material: Halogen free and RoHS compliant
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000pcs

CIRCUIT DIAGRAM



FEATURES

- ✧ Transient protection for high-speed data lines
IEC 61000-4-2(ESD) $\pm 20\text{KV}$ (Contact)
 $\pm 25\text{KV}$ (Air)
- IEC 61000-4-4(EFT) 40A(5/50ns)
Cable Discharge Event (CDE)
- ✧ Package optimized for high-speed lines
- ✧ Ultra-small package (2.0mm*1.0mm*0.5mm)
- ✧ Protects four data lines
- ✧ Low capacitance: 0.2pF (I/O to I/O)
- ✧ Low leakage current
- ✧ Low clamping voltage

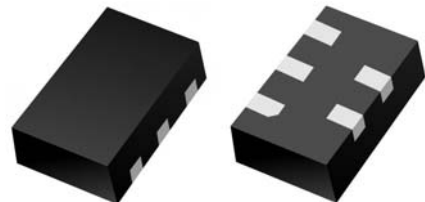
MACHANICAL DATA

- ✧ DFN2010-5L package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed:
260°C/10s
- ✧ Reel size: 7 inch

APPLICATIONS

- ✧ Serial ATA
- ✧ PCI Express
- ✧ Desktops, Servers and Notebooks
- ✧ MDDI Ports
- ✧ USB 2.0/3.0 Power and Data Line Protection
- ✧ High Definition Multi-Media Interface (HDMI)
- ✧ Digital Visual Interface (DVI)

PACKAGE OUTLINE



ABSOLUTE MAXIMUM RATING

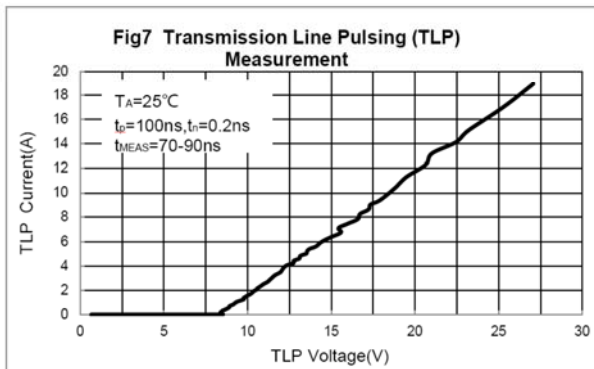
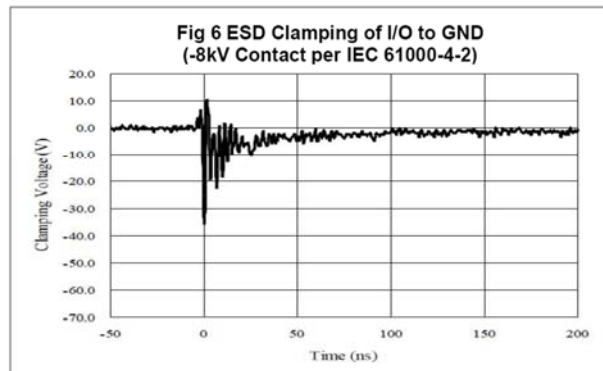
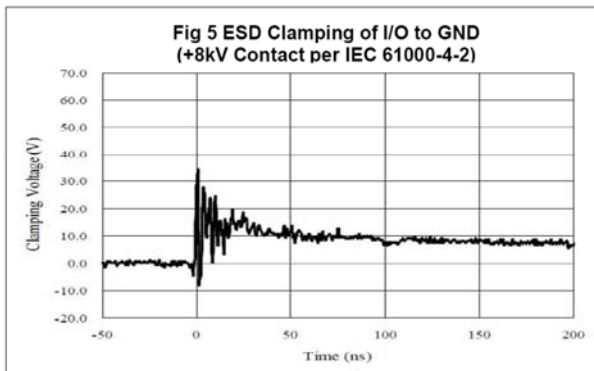
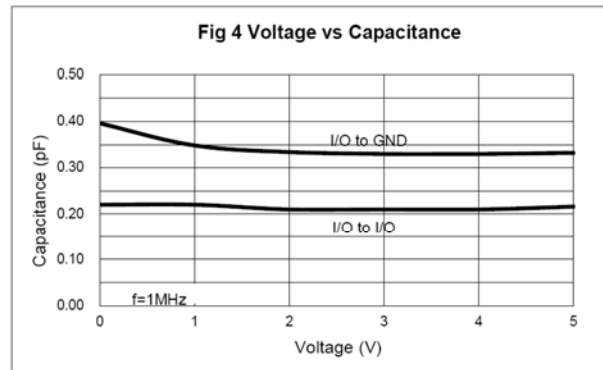
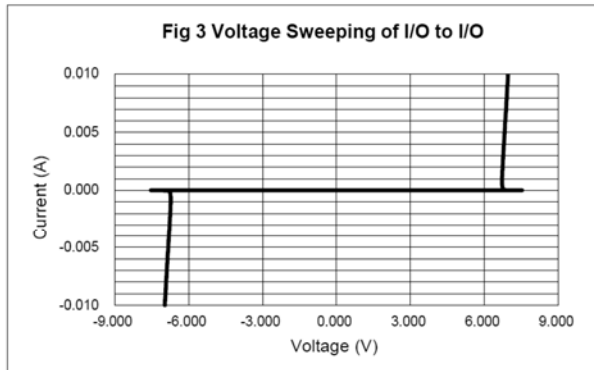
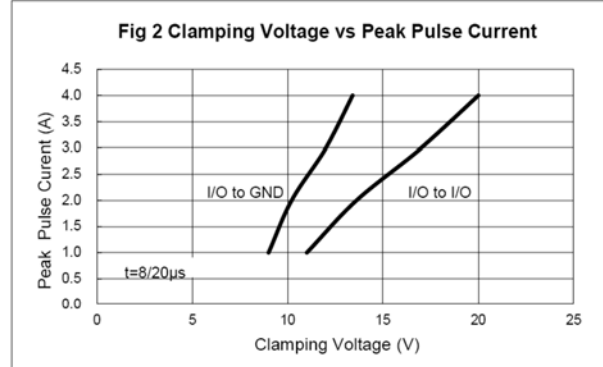
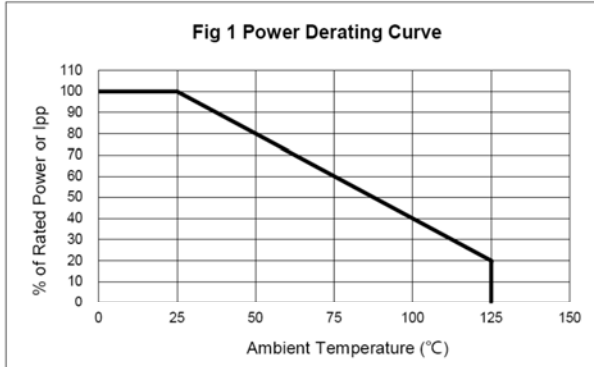
Symbol	Parameter	Value	Units
P _{PP}	Peak Pulse Power (8/20μs)	60	W
V _{ESD}	ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	±20 ±25	kV
T _{OPT}	Operating Temperature	-55/+125	°C
T _{STG}	Storage Temperature	-55/+150	°C

ELECTRICAL CHARACTERISTICS (T_{amb}=25°C)

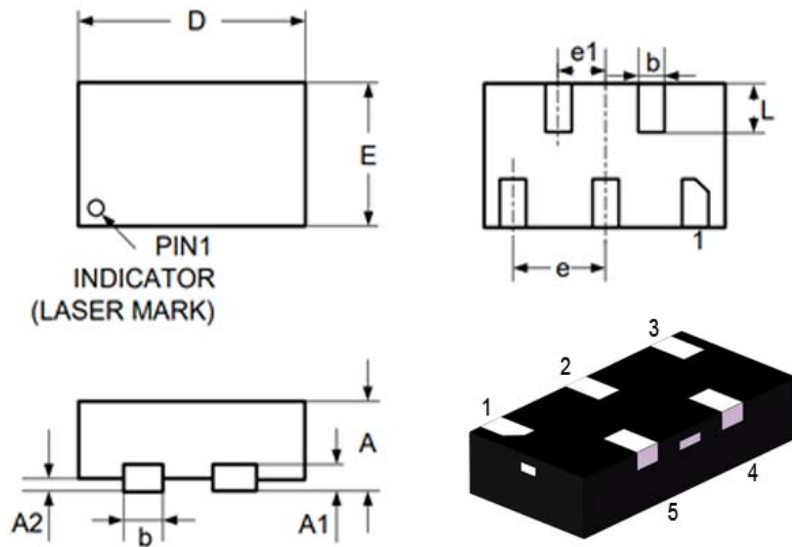
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA Any I/O pin to GND	6.0		9.0	V
I _R	Reverse Leakage Current	V _{RWM} = 5V Any I/O pin to GND			1.0	μA
V _C	Clamping Voltage	I _{PP} = 1A, t _p = 8/20μs Any I/O pin to GND			10	V
V _C	Clamping Voltage	I _{PP} = 4A, t _p = 8/20μs Any I/O pin to GND			15	V
V _{CTLP}	TLP Clamping Voltage	I _{PP} = 8A IEC61000-4-2 Level 2 equivalent (±4kV Contact, ±8kV Air) Between I/O and GND		16		V
		I _{PP} = 16A IEC61000-4-2 Level 4 equivalent (±8kV Contact, ±16kV Air) Between I/O and GND		23		V
C _{ESD}	Parasitic Capacitance	V _R = 0V, f = 1MHz Between I/O and GND		0.4	0.5	pF
C _{ESD}	Parasitic Capacitance	V _R = 0V, f = 1MHz Between I/O and I/O		0.2	0.3	pF

Note: I/O are pin 1,3,4,5, GND is pin2.

ELECTRICAL CHARACTERISTICS CURVE



DFN2010-5L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions (mm)		
	Min.	Nom.	Max.
D	1.95	2.00	2.05
E	0.95	1.00	1.05
L	0.25	0.30	0.35
b	0.15	0.20	0.25
e	0.80 BSC		
e1	0.40 BSC		
A	0.45	0.50	0.55
A1	0.15 REF		
A2	0.00	-	0.005