

1. Description

ESD0522P uses ultra-small DFN1610-6L package. Each GESD0522P device can protect two high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness makes GESD0522P ideal for high-speed data ports and high-frequency lines (e.g., HDMI &DVI) applications. The low clamping voltage of the ESD0522P guarantees a minimum stress on the protected IC.

2. Features

- Transient protection for high-speed data lines
IEC 61000-4-2(ESD) $\pm 15\text{KV}$ (Air)
 $\pm 8\text{KV}$ (Contact)
IEC 61000-4-4(EFT)40A(5/50ns)
Cable Discharge Event(CDE)
- Package optimized for high-speed lines
- Protects two I/O lines
- Ultra Low capacitance:0.2pf (typical between I/O channel)
- Low operating and clamping voltages

3. Applications

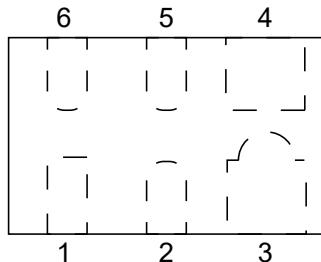
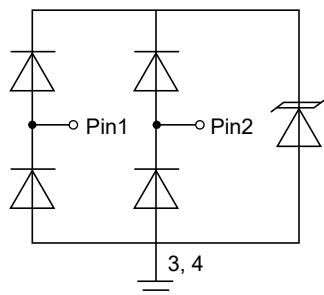
- High Definition Multi-Media Interface (HDMI)
- USB 1.1/2.0/3.0/OTG
- IEEE 1394 Firewire Ports
- Projection TV Monitors and Flat Panel Displays
- Notebook Computers
- Set Top Box

4. Mechanical Data

- DFN1610-6L package
- Flammability Rating: UL 94V-0
- Terminal: Matte tin plated.
- Packaging: Tape and Reel
- High temperature soldering guaranteed:260 °C/10s
- Reel size: 7 inch



5. Pinning information



Pin	Identification
1-2	Input Lines
5-6	Output Lines (No Internal Connection)
3-4	Ground

DFN1610-6L

6. Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Peak Pulse Power (8/20 μ s)	P_{PP}	60	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 8	kV
Junction Temperature	T_{OPT}	-55 to 125	°C
Storage Temperature	T_{STG}	-55 to 150	°C



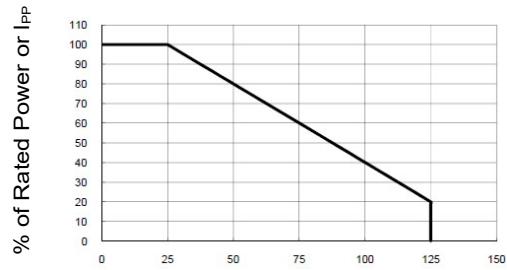
7. Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_{RWM}	Any I/O pin to GND			5	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$, Any I/O pin to GND	6			V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$, Any I/O pin to GND			100	nA
Diode Forward Voltage	I_{FP}	$I_F=15\text{mA}$, Any I/O pin to GND			1.2	V
Clamping Voltage	V_C	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$, Any I/O pin to GND			10	V
		$I_{PP}=4\text{A}$, $t_p=8/20\mu\text{s}$, Any I/O pin to GND			15	V
Capacitance	C_{ESD}	$V_R=0\text{V}$, $f=1\text{MHz}$, Between I/O and GND		0.4	0.6	pF
		$V_R=0\text{V}$, $f=1\text{MHz}$, Between I/O and I/O		0.2	0.3	pF

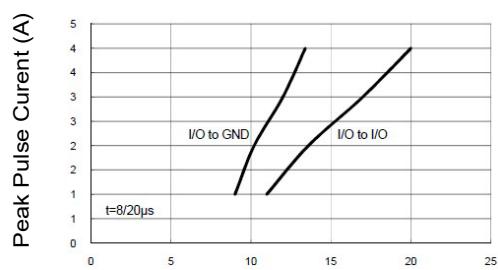
Notes: I/O pins are pin 1 and 2, GND pins are pin 3 and 4.



8.Typical characteristic



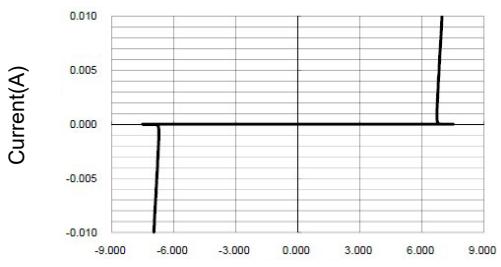
Ambient Temperature (°C)



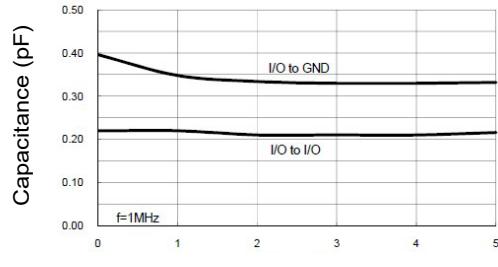
Clamping Voltage (V)

Figure 1: Power Derating Curve

Figure 2: Clamping Voltage vs Peak Pulse Current



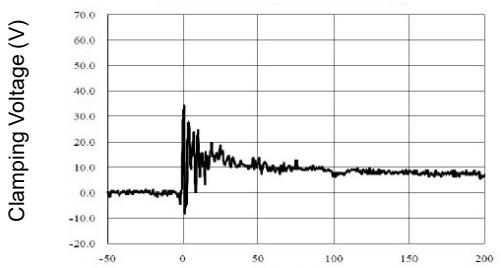
Voltage (V)



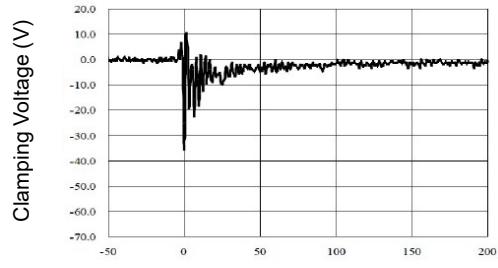
Voltage (V)

Figure 3: Voltage Sweeping of I/O to I/O

Figure 4: CVoltage vs Capacitance



Time (ns)

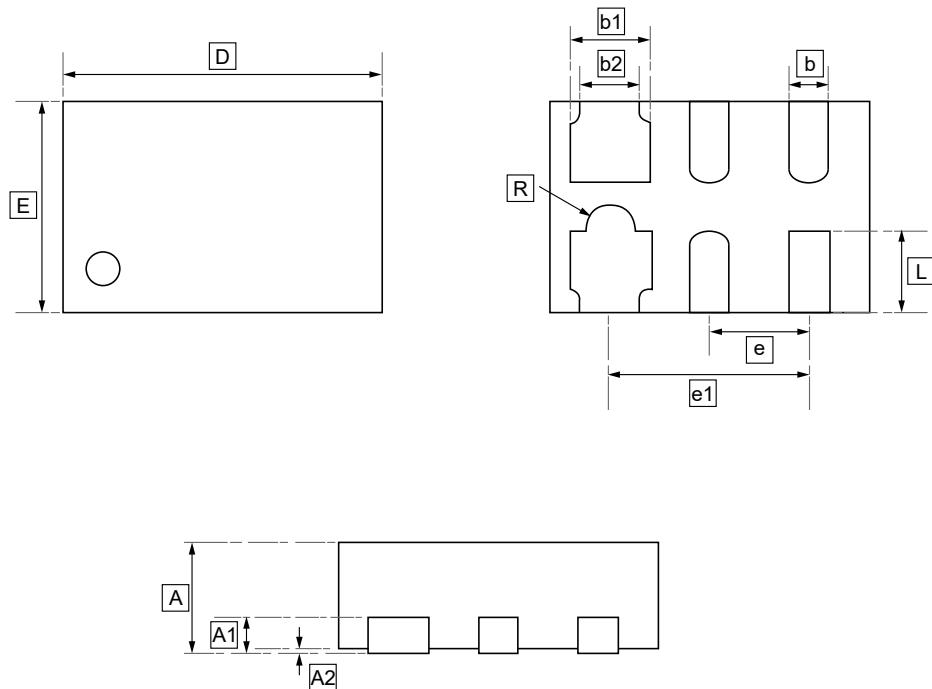
Figure 5: ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)

Time (ns)

Figure 6: ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)



9.DFN1006 Package Outline Dimensions

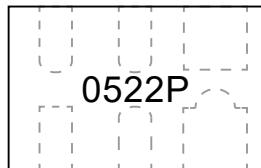


DIMENSIONS (mm are the original dimensions)

Symbol	D	E	L	b	b1	b2	e	e1	R	A	A1	A2
Min	1.55	0.95	0.33	0.15	0.35	0.25	0.50	1.00	0.125	0.45	0.152	-
Max	1.65	1.05	0.43	0.25	0.45	0.35	BSC	BSC	BSC	0.55	REF	0.05



10.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW ESD0522P	DFN1610-6L	3000	Tape and reel



11. Disclaimer

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