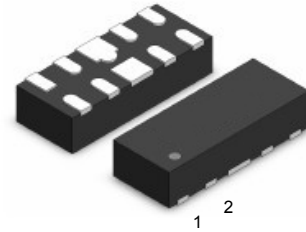


GSCLAMP3324PE

Ultra Low Capacitance ESD TVS Array

Features

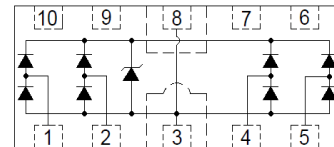
- DFN2510 package
- Protects up to 4-Lines operating at 3.3V
- R2R + Zener technology
- Low clamping voltage
- Low leakage current
- Ultra low capacitance (0.15pF typical I/O to I/O)
- ESD Protection for high-speed data lines to:
 - IEC 61000-4-2 ±8KV contact ±15KV air
- RoHS compliant



DFN2510

Applications

- USB 3.0/3.1
- HDMI 1.4/2.0, Display Port 1.3, eSATA
- Unified Display Interface (UDI)
- Digital Visual Interface (DVI)
- High speed serial interfaces



Schematic Diagram

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Junction Temperature	T_J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$
Lead Soldering Temperature	T_L	260 (10sec.)	$^{\circ}\text{C}$
Peak Pulse Current ($t_P = 8/20\mu\text{S}$)	I_{PP}	3	A
IEC 61000-4-2 Contact (ESD)	VESD	±8	kV
IEC 61000-4-2 Air (ESD)	VESD	±15	kV

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V_{RWM}		-	-	3.3	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	5	6	-	V
Reverse Leakage Current	I_R	$V_R=3.3\text{V}$	0.01	-	1	μA
Clamping Voltage (IEC 61000-4-5)	V_C	$I_{PP}=3\text{A}, T_P=8/20\mu\text{S}$	-	10	-	V
Trigger Voltage (IEC 61000-4-2)	V_T	$V_{ESD}=8\text{kV}$	-	135	-	V
Clamping Voltage (IEC 61000-4-2)	V_C	$V_{ESD}=8\text{kV}$	-	20	-	V
Junction Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}, I/O$ to I/O	-	0.15	-	pF
	C_J	$V_R=0\text{V}, f=1\text{MHz}, I/O$ to GND	-	0.35	-	pF

Typical Characteristic Curves

Fig.1 Pulse Waveform-ESD(IEC61000-4-2)

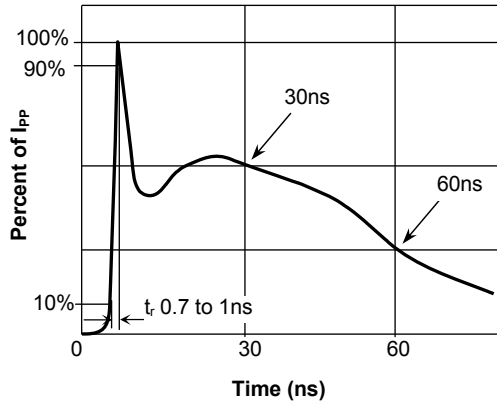


Fig.2 IEC61000-4-2 +8kV Contact ESD Clamping Waveform

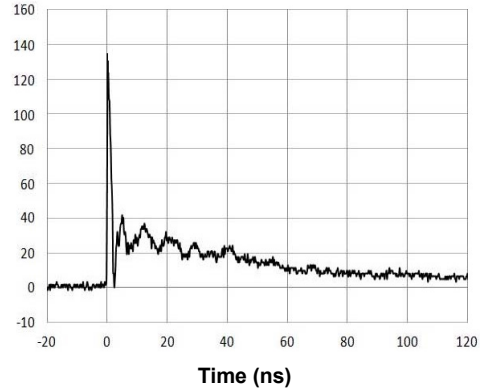


Fig.3 Eye Diagram - USB3.1 at 10Gbps per channel (with GSCLAMP3324PE)

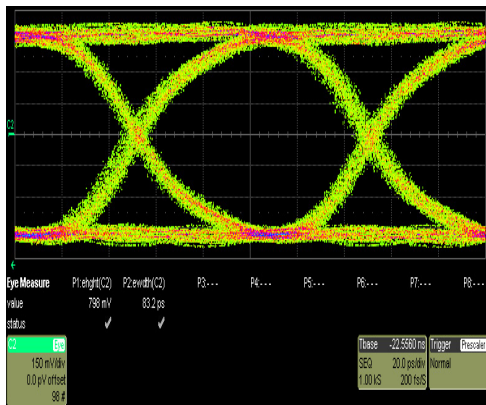
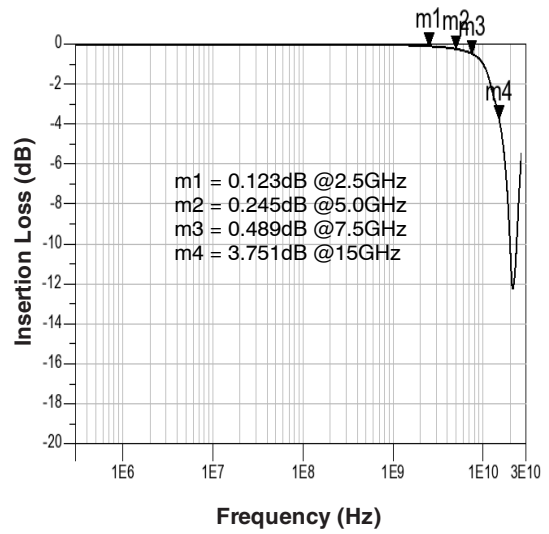
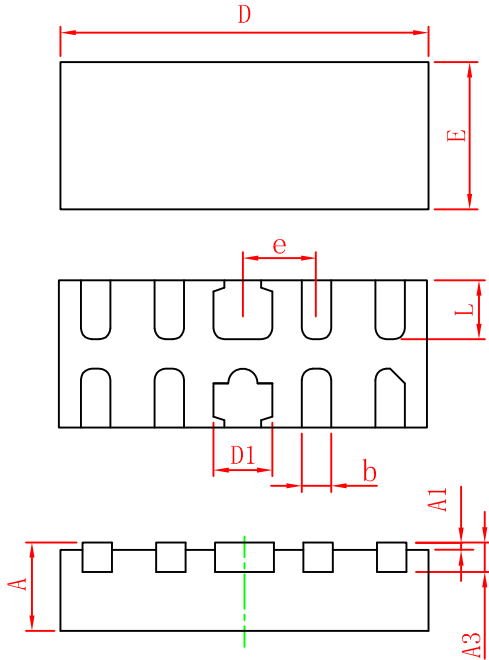


Fig.4 Insertion Loss S21 - I/O to I/O



Package Outline Dimensions

DFN2510



Symbol	Dimensions in millimeters		
	Min	Nom	Max
A	0.45	0.50	0.55
A1	-	0.02	0.05
A3	0.10	0.15	0.20
D	2.45	2.50	2.55
E	0.95	1.00	1.05
D1	0.35	0.40	0.45
b	0.15	0.20	0.25
e	0.50BSC		
L	0.35	0.40	0.45

Order Information

Device	Package	Carrier	Quantity	HSF Status
GSCLAMP3324PE	DFN2510	Tape & Reel (7")	3000pcs / Reel	RoHS Compliant