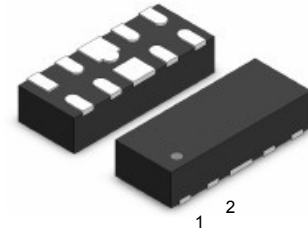


## Features

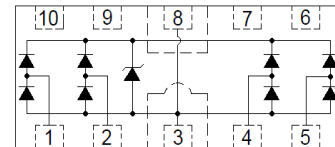
- DFN2510 package
- Protects up to 4-Lines operating at 3.3V
- R2R + Zener technology
- Low clamping voltage
- Low leakage current
- Ultra low capacitance (0.15pF typical I/O to I/O)
- ESD Protection for high-speed data lines to:
  - IEC 61000-4-2 ±8KV contact ±15KV air
- RoHS compliant



**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<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Junction Temperature	T <sub>J</sub>	-55 to +125	°C
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C
Lead Soldering Temperature	T <sub>L</sub>	260 (10sec.)	°C
Peak Pulse Current ( t <sub>p</sub> = 8/20µS )	I <sub>PP</sub>	3	A
IEC 61000-4-2 Contact (ESD)	VESD	±8	kV
IEC 61000-4-2 Air (ESD)	VESD	±15	kV

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V <sub>RWM</sub>		-	-	3.3	V
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>T</sub> =1mA	5	6	-	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>R</sub> =3.3V	0.01	-	1	µA
Clamping Voltage (IEC 61000-4-5)	V <sub>C</sub>	I <sub>PP</sub> =3A, T <sub>P</sub> =8/20µS	-	10	-	V
Trigger Voltage (IEC 61000-4-2)	V <sub>T</sub>	V <sub>ESD</sub> =8kV	-	135	-	V
Clamping Voltage (IEC 61000-4-2)	V <sub>C</sub>	V <sub>ESD</sub> =8kV	-	20	-	V
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> =0V, f=1MHz, I/O to I/O	-	0.15	-	pF
	C <sub>J</sub>	V <sub>R</sub> =0V, f=1MHz, I/O to GND	-	0.35	-	pF



### Typical Characteristic Curves

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

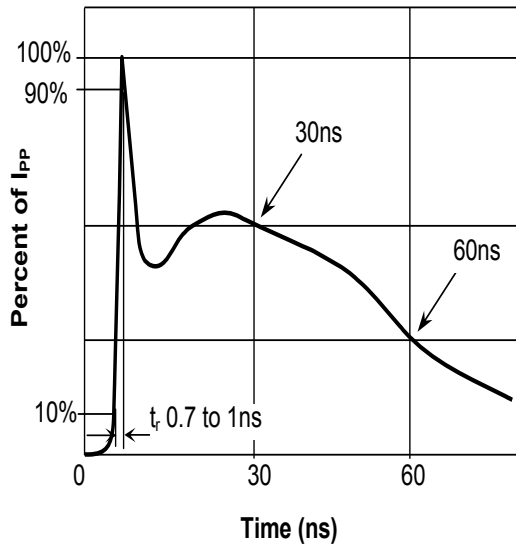


Fig.2 IEC61000-4-2 +8kV Contact ESD Clamping Waveform

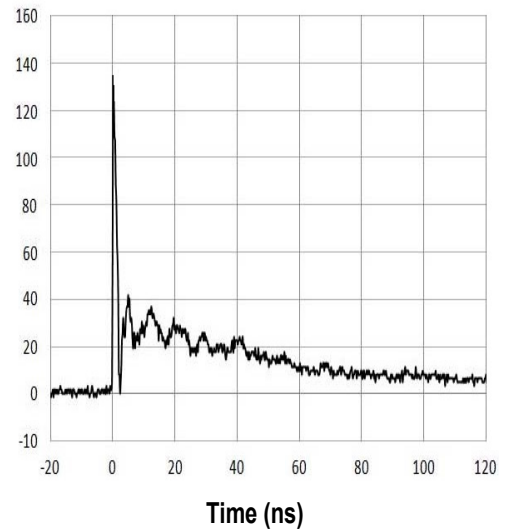


Fig.3 Eye Diagram - USB3.1 at 10Gbps per channel (with SP3324PE)

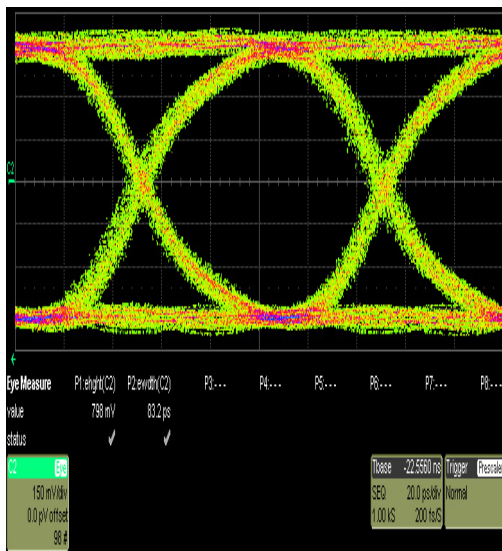
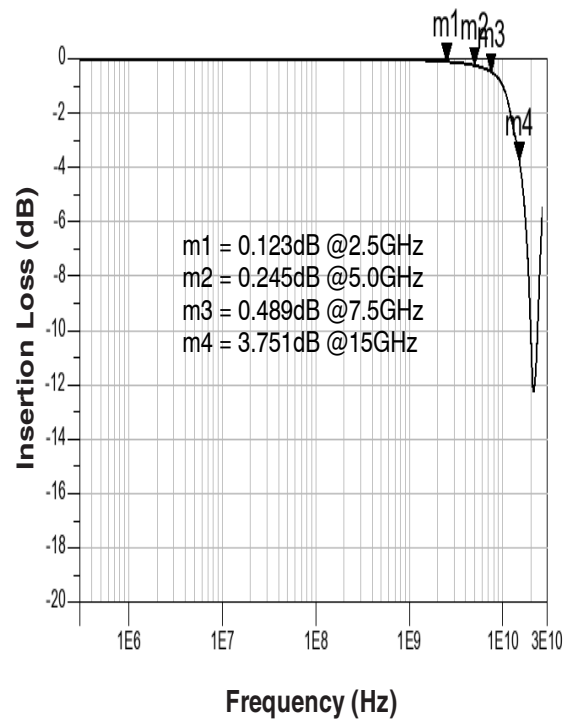


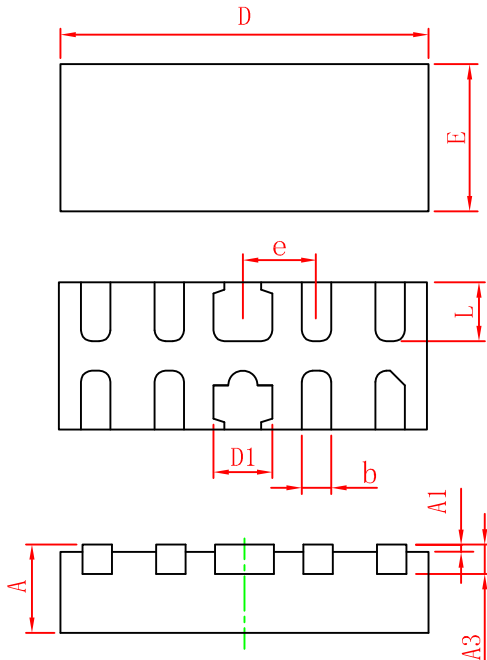
Fig.4 Insertion Loss S21 - I/O to I/O





### 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
SP3324PE	DFN2510	Tape & Reel (7")	3000pcs / Reel	RoHS Compliant