

**Features**

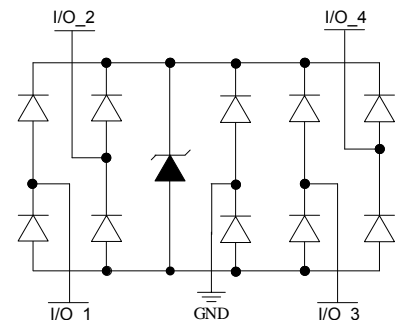
- Bidirectional configurations
- Low clamping voltage
- Low leakage current
- Low capacitance
- Protection high-speed data lines to:
  - IEC 61000-4-2 ±8kV contact ±17kV air
  - IEC 61000-4-4 (EFT) 40A (5/50ns)
  - Cable Discharge Event (CDE)



**Pin Assignment**



**DFN2510**



**Schematic Diagram**

**Applications**

- USB2.0/3.0/3.1
- HDMI2.0/2.1
- S-ATA
- PCI Express, MDDI ports,
- DVI

**Absolute Maximum Ratings** (T<sub>A</sub>=25°C unless otherwise specified)

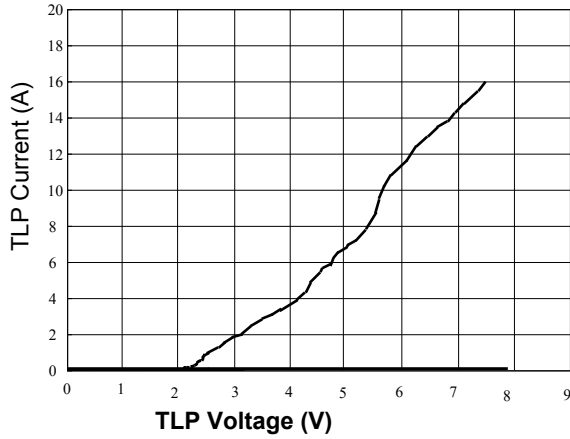
Parameter	Symbol	Value	Unit
ESD Contact/Air Discharge (IEC-61000-4-2)	V <sub>ESD</sub>	±8/±17	kV
Peak Pulse Current ( t <sub>p</sub> = 8/20µS )	I <sub>PP</sub>	6	A
Junction Temperature	T <sub>J</sub>	-55 to +125	°C
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C

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

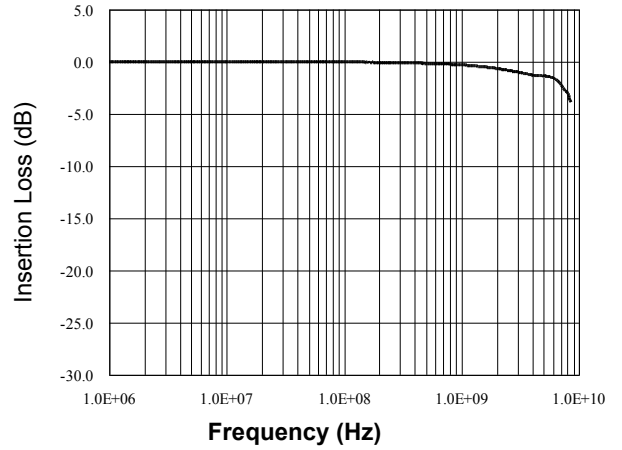
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse stand-off Voltage	V <sub>RWM</sub>	-	-	-	3.3	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>R</sub> =3.3V	-	0.1	1.0	µA
Trigger Voltage	V <sub>t1</sub>	I <sub>t1</sub> =1mA	6	-	9	V
Holding Voltage	V <sub>h</sub>	I <sub>h</sub> =50mA	2.0	-	3.0	V
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> =6A, t <sub>p</sub> =8/20µs	-	5.0	-	V
	V <sub>C</sub>	I <sub>PP</sub> =8A, t <sub>p</sub> =100ns <sup>1</sup>	-	5.2	-	V
	V <sub>C</sub>	I <sub>PP</sub> =16A, t <sub>p</sub> =100ns <sup>1</sup>	-	7.5	-	V
Dynamic Resistance (Contact, I/O to GND)	R <sub>dyn</sub>	IEC61000-4-2 0-6KV	-	0.25	-	Ω
Junction Capacitance (I/O to GND)	C <sub>J</sub>	V <sub>R</sub> =0V, f=1MHz	-	0.18	0.3	pF
Junction Capacitance (I/O to I/O)	C <sub>J</sub>	V <sub>R</sub> =0V, f=1MHz	-	0.1	0.2	pF

Notes: (1) Measurements performed using a 100ns Transmission Line Pulse (TLP) system.

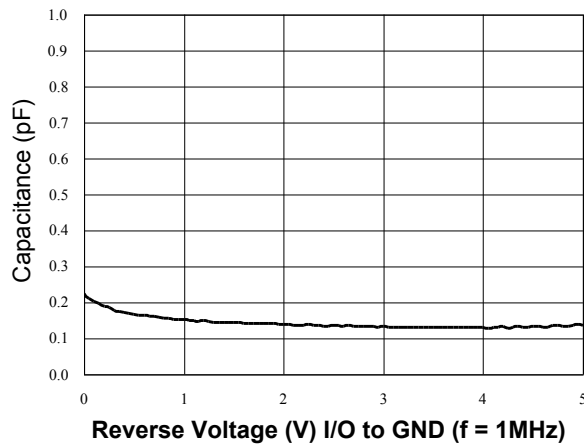
**Typical Characteristic Curves**



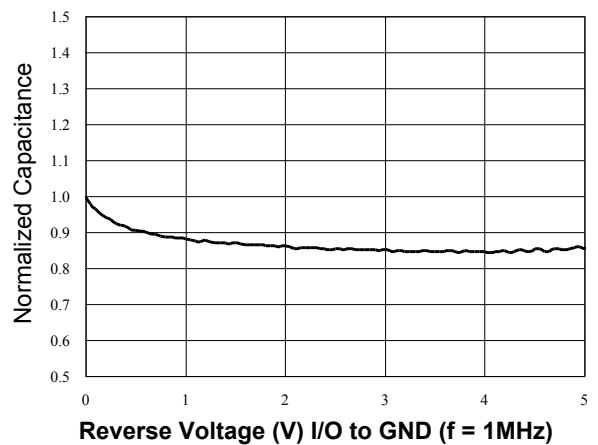
**Figure 1. TLP I/O to GND**



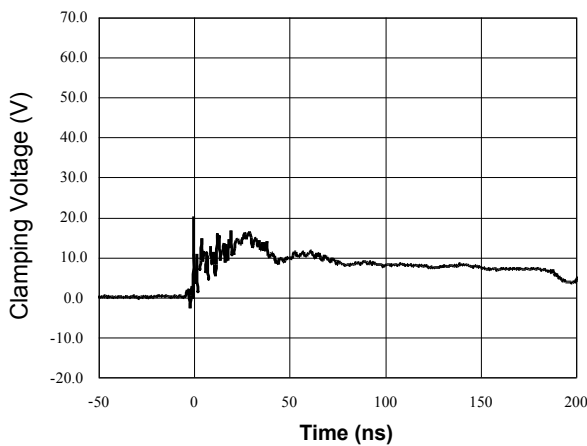
**Figure 2. Insertion Loss I/O to Ground**



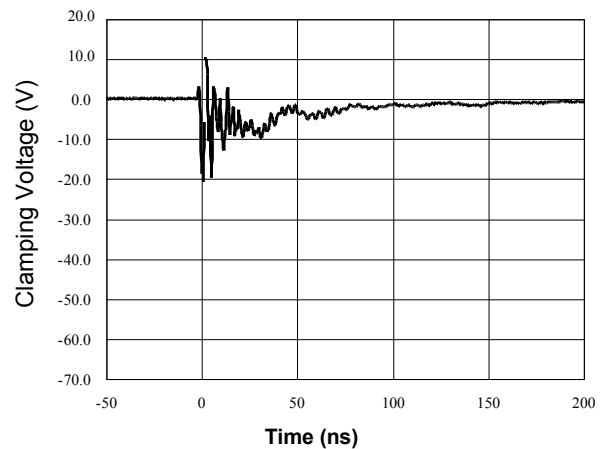
**Figure 3. Capacitance vs. Reverse Voltage**



**Figure 4. Normalized Capacitance vs. Reverse Voltage**



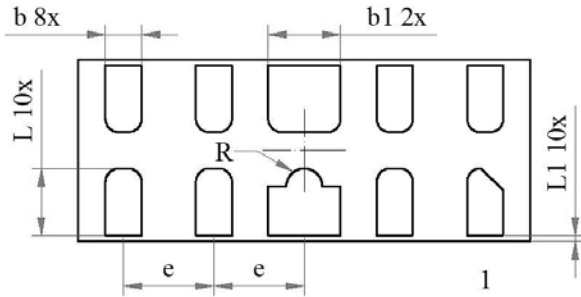
**Figure 5. ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)**



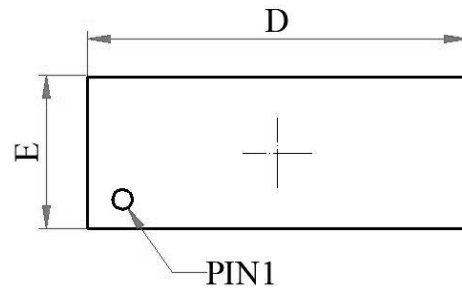
**Figure 6. ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)**

**Package Outline Dimensions**

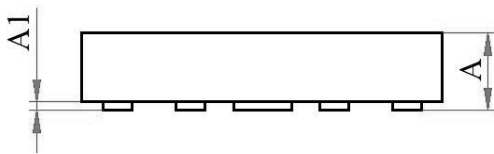
**DFN2510**



Bottom View



Top View



Side View

Symbol	Dimension In Millimeters			Dimension In Inches		
	Normal	Min	Max	Normal	Min	Max
A	--	0.450	0.550	--	0.018	0.026
A1	0.050	0.025	0.075	0.002	0.001	0.003
D	2.500	2.450	2.550	0.098	0.096	0.100
E	1.000	0.950	1.050	0.039	0.037	0.041
b	0.200	0.150	0.250	0.008	0.006	0.010
b1	0.400	0.350	0.450	0.016	0.014	0.018
L	0.370	0.320	0.420	0.015	0.013	0.017
L1	0.030	0.000	0.060	0.001	0.000	0.002
R	0.100 REF			0.004 REF		
e	0.500 BSC			0.020 BSC		