

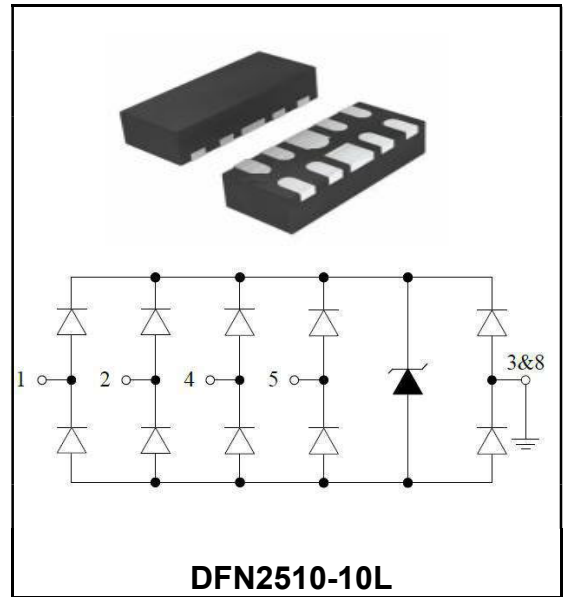
**4 Channel Ultra-low Capacitance
ESD Protection Diode**

Features

- ◆ Ultra-Low capacitance: 0.5pF (typ.)
- ◆ Reverse stand-off voltage: 3.3V
- ◆ IEC 61000-4-2 (ESD Air): ±30kV
- ◆ IEC 61000-4-2 (ESD Contact): ±30kV

Application

- ◆ USB2.0 & 3.0 & 3.1
- ◆ HDMI 1.3, 1.4 and 2.0
- ◆ Display Ports
- ◆ Serial ATA
- ◆ PCI Express
- ◆ Desktops, Servers and Notebooks
- ◆ Digital Visual Interfaces (DVI)
- ◆ MDDI Ports



Marking Code

ESD2510D3V3

3rEVZ

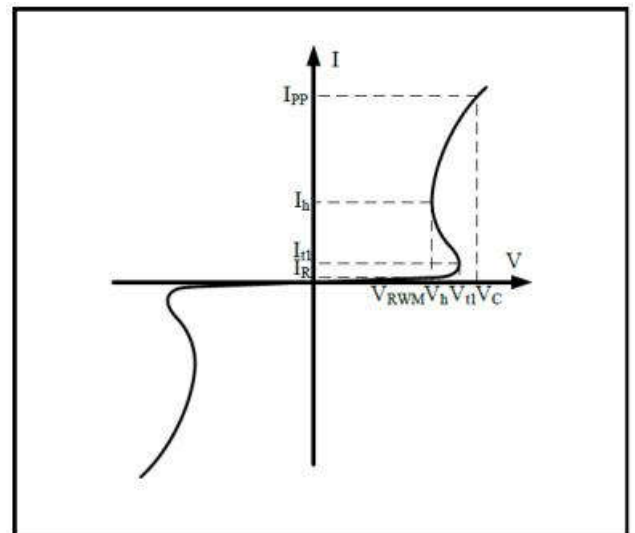
Limiting Values (TA = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
VESD	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	±30	kV
		IEC 61000-4-2; Air Discharge	-	±30	kV
IPPM	Rated Peak Pulse Current	tP = 8/20 μs	-	7	A
PPK	Peak Pulse Power	tP = 8/20 μs	-	56	W
TA	Operating Temperature Range	-	-40	125	°C
Tstg	Storage Temperature Range	-	-55	150	°C

Electrical Characteristics(TA = 25 °C unless otherwise specified)

Symbol	Test Conditions	Min	Typ.	Max	Unit
V_{RWM}	Pin-1,-2,-4,-5 to pin-3,-8,T=25°C	-3.3	-	3.3	V
I_R	$V_{RWM} = 3.3V$; TA = 25 °C	-	0.01	1	uA
V_h	$I_h = 100mA$	3.3	-	6.0	V
V_C	$I_{PP} = 7A$, $t_p=8/20us$	-	8.0	-	V
	$I_{PP} = 16A$, $t_p=10/100ns$	-	8.5	-	V
R_{DYN}	$t_p=10/100ns$	-	0.25	-	Ω
C_{ESD}	Pin-1,-2,-4,-5 to pin-3,-8, $V_R = 0V$, , f = 1 MHz	-	0.5	-	pF

Symbol	Parameter
V_{RWM}	Reverse Working Voltage
I_R	Reverse Leakage Current
V_{t1}	Triggering Voltage @ I_{t1}
I_{t1}	Test Current for Triggering Voltage
V_h	Holding Voltage
I_h	Holding Current
V_C	Clamping Voltage
I_{PP}	Peak Pulse Current
C_{ESD}	Parasitic Capacitance
f	Small Signal Frequency



Typical Characteristics

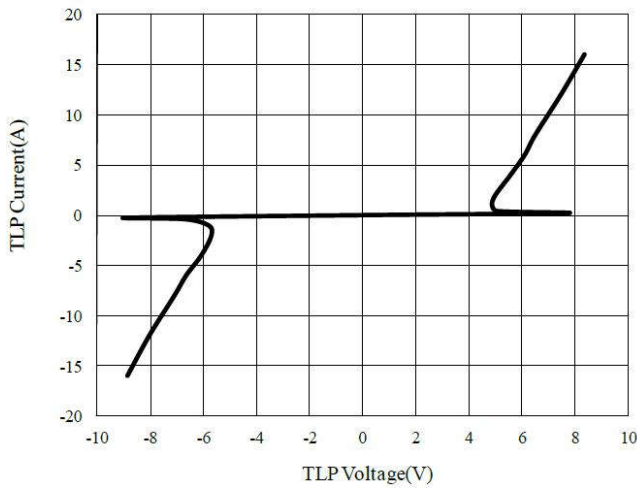


Fig.1 TLP Testing of I/O to GND

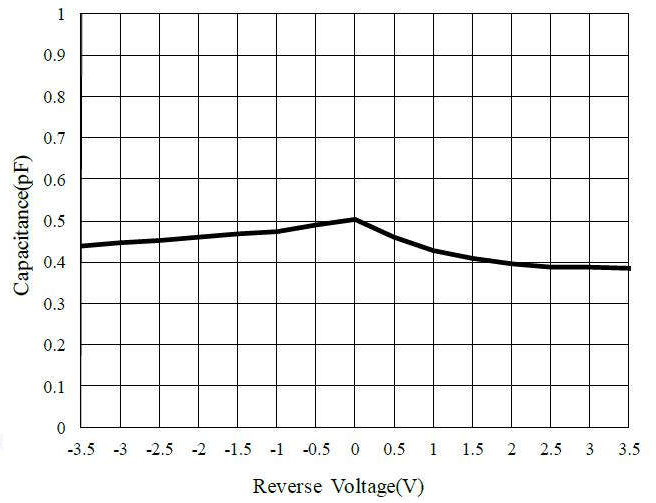


Fig.2 Capacitance vs. Voltage of I/O to GND

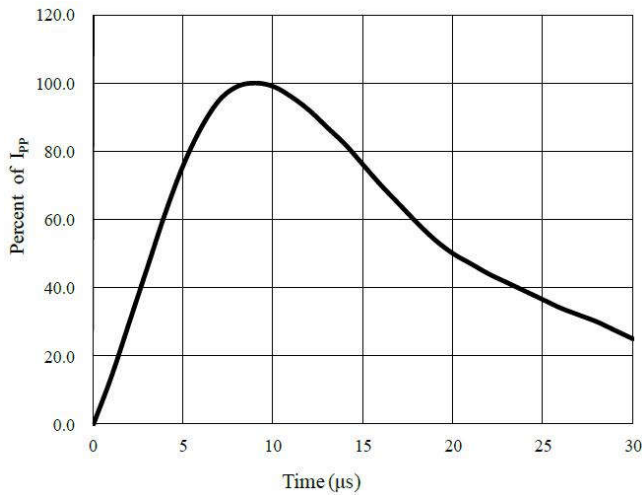


Fig.3 Pulse Waveform

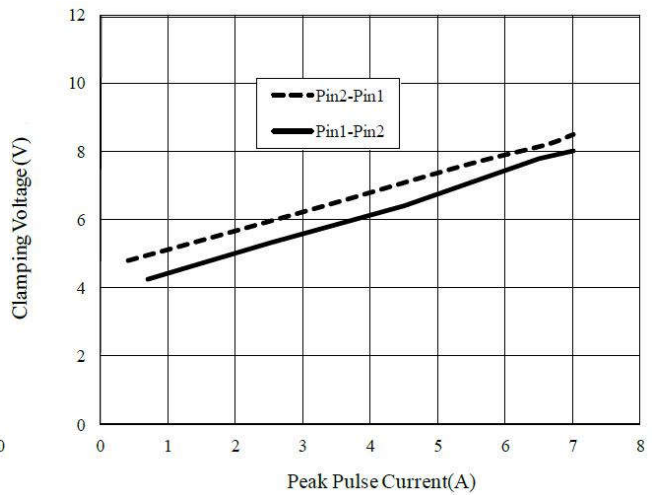
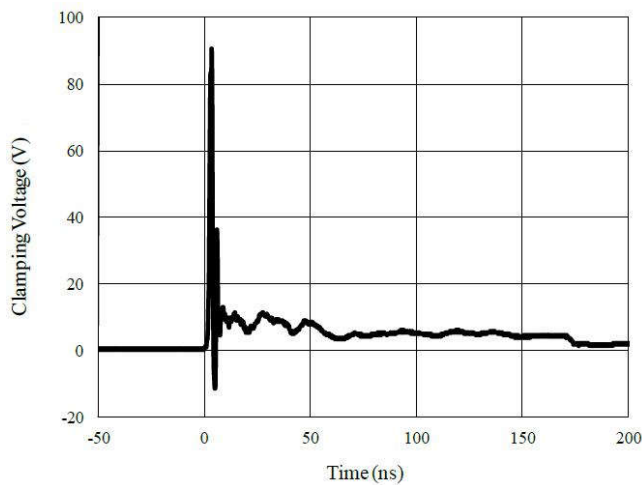
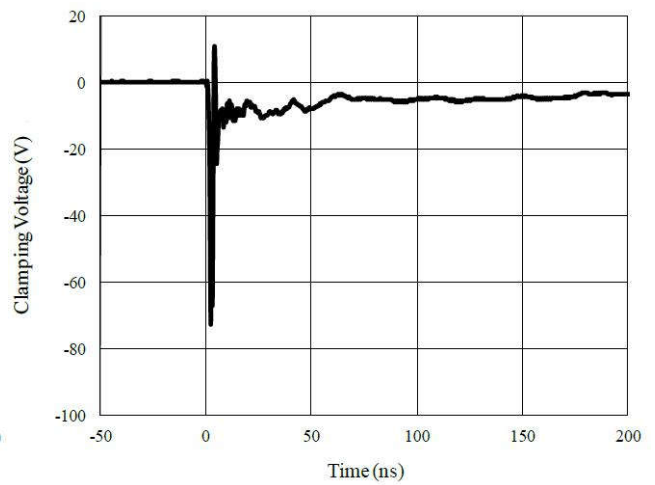


Fig.4 Clamping Voltage vs. Peak Pulse Current

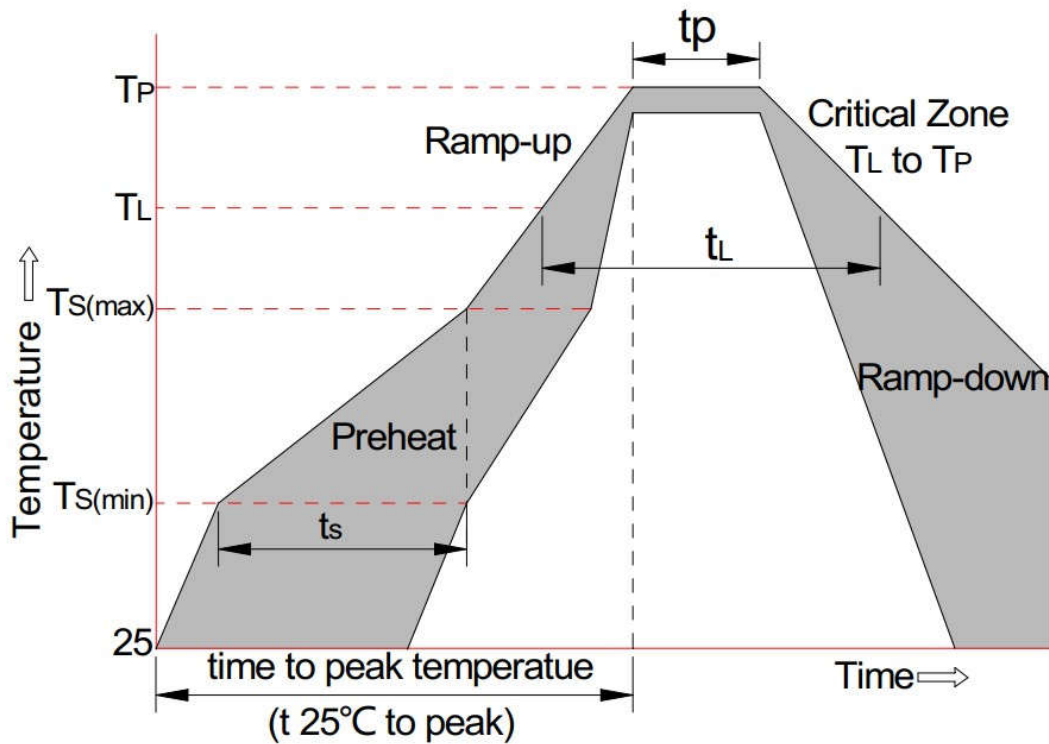


**Fig.5 ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)**



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

Soldering Parameters



Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min (Ts(min))	+150°C
	-Temperature Max(Ts(max))	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (TL) to peak)		3°C/sec. Max
Ts(max) to TL - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(TL)(Liquid us)	+217°C
	-Temperature(tL)	60-150 secs.
Peak Temp (Tp)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp (TP)		8 min. Max
Do not exceed		+260°C

Ordering information

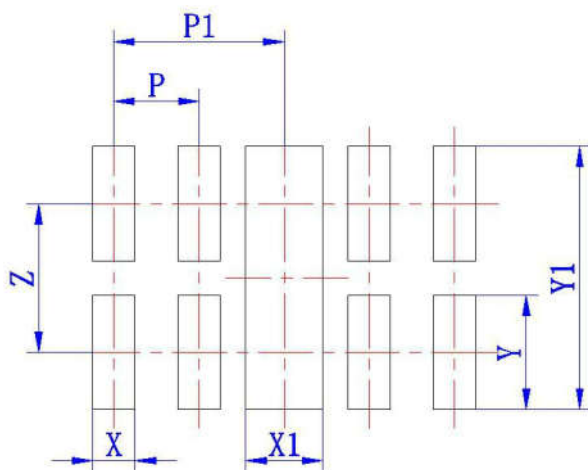
Package	Packing Description	Packing Quantity
DFN2510-10L	Tape/Reel,7"reel	3000PCS/Reel 120000PCS/Carton

Package Dimensions

DFN2510-10L

Dim.	Millimeter(mm)		Inches	
	Min.	Max.	Min.	Max.
A	0.5	0.6	0.02	0.024
A1	-	0.05	-	0.002
D	2.4	2.6	0.095	0.102
E	0.9	1.1	0.035	0.043
e	Typ0.5		Typ0.02	
N	Typ2.0		Typ0.08	
b	0.15	0.25	0.006	0.010
b1	0.35	0.45	0.014	0.018
b2	0.35	0.45	0.014	0.018
C	Typ0.127		Typ0.005	
L	0.35	0.45	0.014	0.018

The recommended mounting pad size



Dim.	Millimeter(mm)
	TYP
X	0.30
X1	0.45
Y	0.67
Y1	1.55
Z	0.87
P	0.50
P1	1.00

Disclaimer

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