



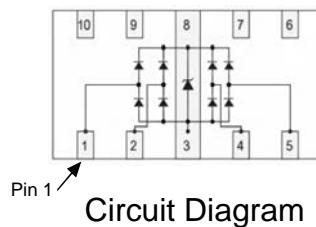
Description

CTLTVS5-4 arrays are ultra low capacitance ESD protection devices designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE(Cable Discharge Events), and EFT(electrical fasttransients)

The CTLTVS5-4 have a typical capacitance of only 0.30pF between I/O pins. This allows it to be used on circuits operating in excess of 3GHz without signal attenuation. They may be used to meet the ESD immunity requirements of IEC 61000-4-2, while the CTLTVS5-4 will protect four lines. The CTLTVS5-4 is in a 10-pin DFN2510-10L package. PCB layout by allowing the traces to run straight through the device. The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display PortTM, MDDI, and eSATA interfaces.



DFN2510-10L



Circuit Diagram

Features

- ★ Protects 4 I/O Lines
- ★ Low Working Voltage: 5 V
- ★ Low Clamping Voltage <1 ns
- ★ Low Capacitance: 0.55pF(I/O to I/O)
- ★ Response time is typically
- ★ EC61000-4-2(ESD)±15 kV(air),±8 kV(contact)
- ★ IEC61000-4-5(Surge)4 A (1/O to GND)
- ★ Pb-Free, RoHS compliant

Applications

- ★ High Definition Multi-Media Interface (HDMI)
- ★ Digital Visual Interface (DVI)
- ★ DisplayPortTM Interface
- ★ MDDI Ports
- ★ PCI Express
- ★ SATA and eSATA Interface
- ★ USB3.0 and USB2.0 up to 480Mb/s
- ★ IEEE1394 up to 3.2 Gb/s
- ★ Ethernet port:10/100/1000 Mb/s



Ordering Information

Product ID	Pack	Qty(PCS)
CTLTVS5-4	DFN2510-10L	3000

Absolute Ratings(Tamb = 25°C)

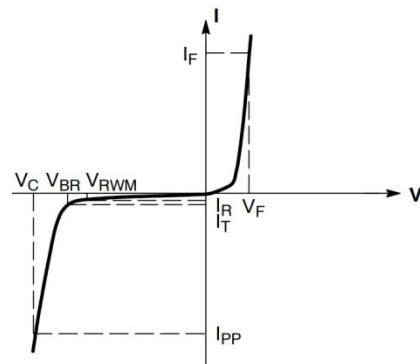
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{pk}	150	W
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V _{ESD}	±15 ±8	kV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

Electrical Characteristics (Ta= 25°C)

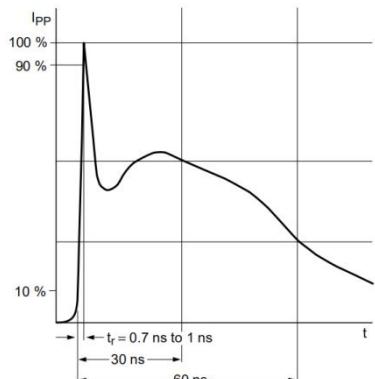
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}	--	--	5	V	
Breakdown Voltage	V _{BR}	6.0	--	--	V	I _T =1mA
Leakage Current I _{Leak}	I _R	--	--	1.0	uA	V _{RWM} =5V
Clamping Voltage (I/O-GND)	V _C	--	8.5	22	V	I _{PP} =4A, T _p =8/20μs
Junction Capacitance (I/O to GND)	C _J	--	0.5	0.7	pF	V _R =0V, f=1MHz
Junction Capacitance (I/O to I/O)	C _J	--	0.3	0.4	pF	V _R =0V, f=1MHz



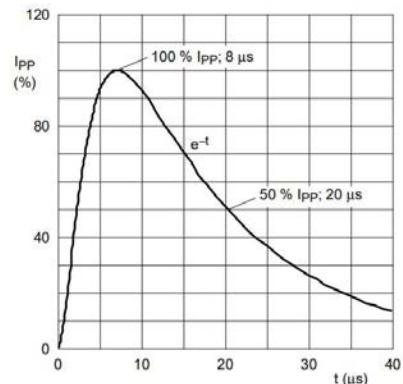
Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{pk}	Peak Power Dissipation
C	Max. Capacitance @ $V_R = 0$ and $f = 1.0$ MHz



Typical Characteristics



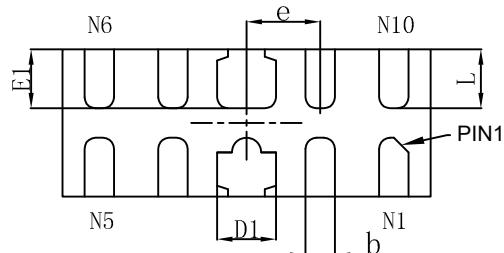
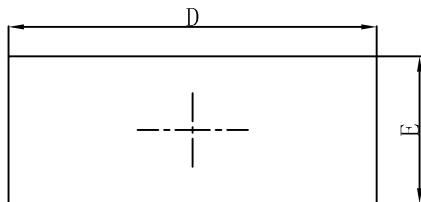
IEC61000-4-2 Waveform



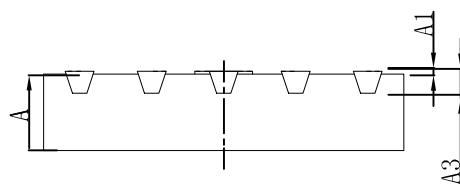
8/20 μ s Pulse Waveform



Outline And Dimensions



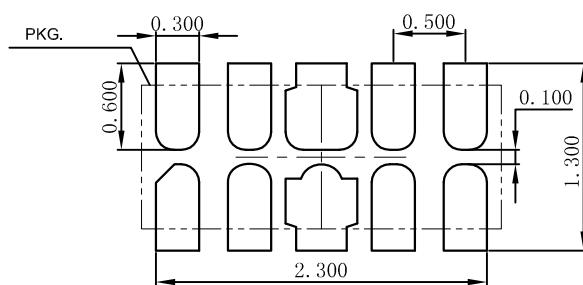
Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.017	0.022
A1	0.000	0.050	0.000	0.002
A3	0.152REF.		0.006REF.	
D	2.450	2.550	0.096	0.100
E	0.950	1.050	0.037	0.041
D1	0.350	0.450	0.014	0.018
E1	0.350	0.450	0.014	0.018
b	0.150	0.250	0.006	0.010
e	0.500TYP.		0.020TYP.	
L				

Soldering Footprint





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