

4-Line Ultra Low Capacitance TVS Diode Array

Features

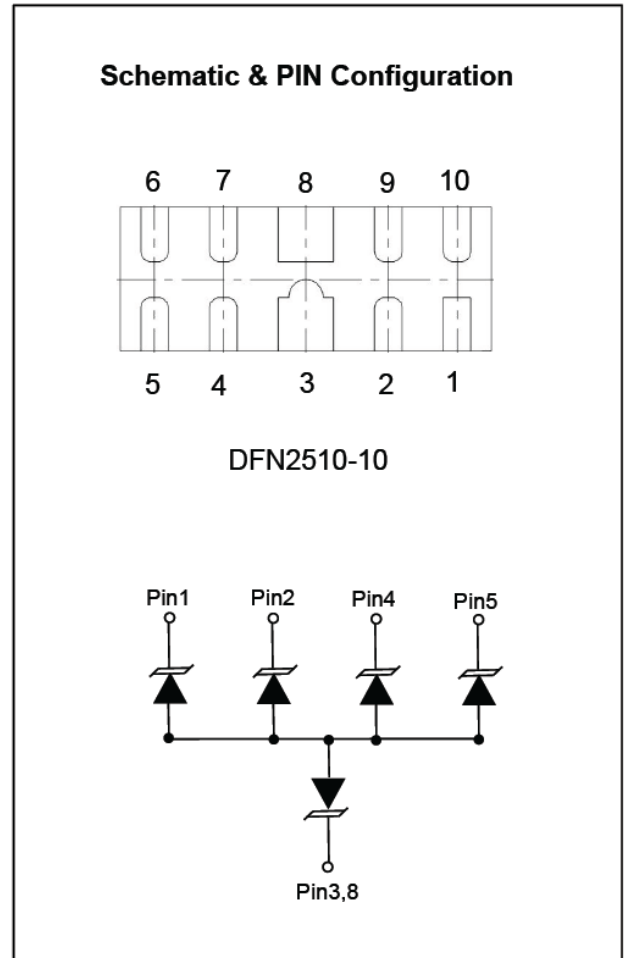
- IEC 61000-4-2 (ESD) $\pm 17\text{kV}$ (air), $\pm 15\text{kV}$ (contact)
- IEC 61000-4-5 (Lightning) 2.5A (8/20 μs)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- Ultra low capacitance
- Low leakage current
- Operating voltage: 5V
- Low clamping voltage

Applications

- HDMI 1.4 / HDMI 2.0 Interfaces
- USB 3.0 / USB 3.1 Interfaces
- Portable Instrumentation
- Video Graphics Cards
- Notebooks, Desktops, and Servers
- Industrial Controls

Mechanical Characteristics

- Package: DFN2510-10 (2.5 \times 1.0mm)
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Right
- RoHS Compliant

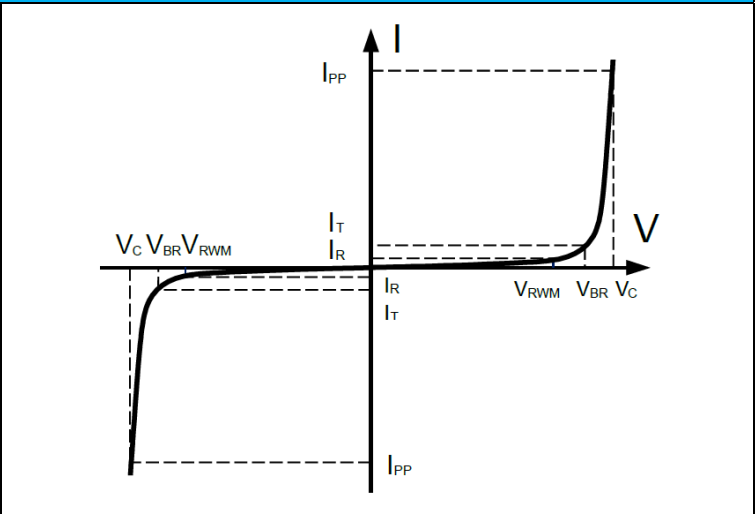


Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	75	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	2.5	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 17	KV
ESD per IEC 61000-4-2 (Contact)		± 15	KV
Operating Temperature Range	T_J	-55 to + 150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to + 150	$^\circ\text{C}$

Electrical Parameters ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Standoff Voltage	V_{RWM}				5	V
Reverse breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$,	6			V
Reverse leakage current	I_R	$V_{RWM} = 5\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ ($t_p = 8/20\mu\text{s}$)			18	V
Clamping Voltage	V_C	$I_{PP} = 2.5\text{A}$ ($t_p = 8/20\mu\text{s}$)			30	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		0.2		pF

Typical Performance Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

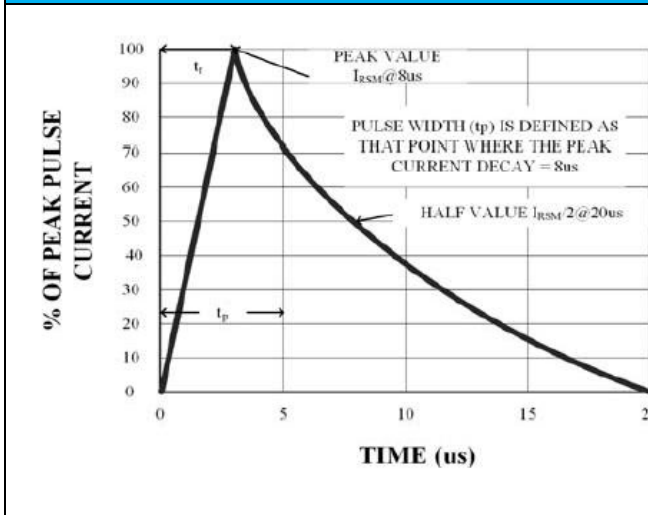


Figure 1. 8 X 20 μs Pulse Waveform

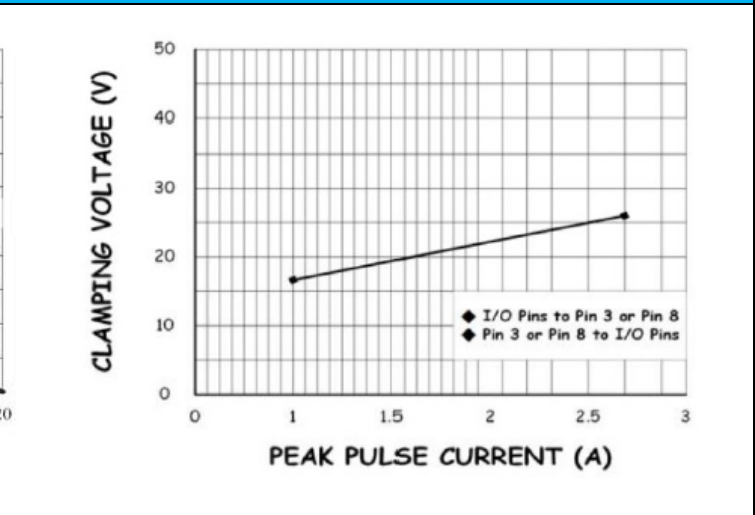
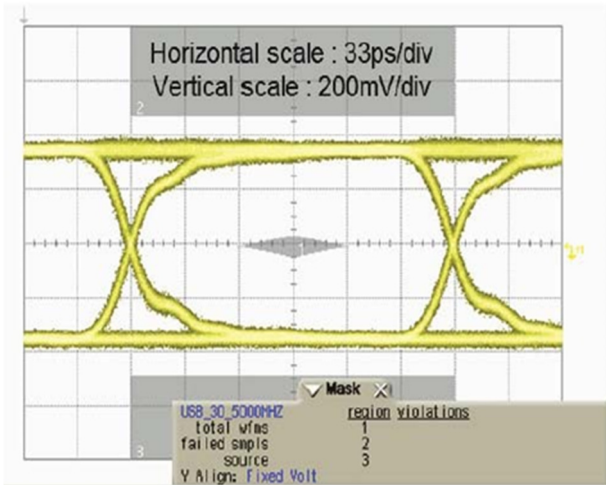


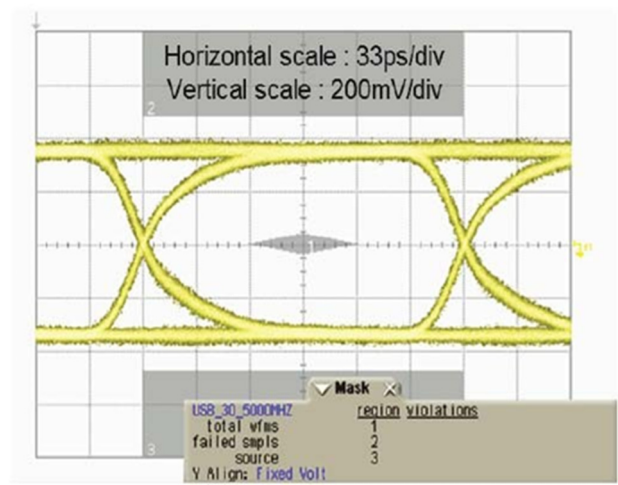
Figure 2. Clamping Voltage vs. Peak Pulse Current

Eye Diagram at 5Gbps and 10Gbps

High Speed Test : 5Gbps

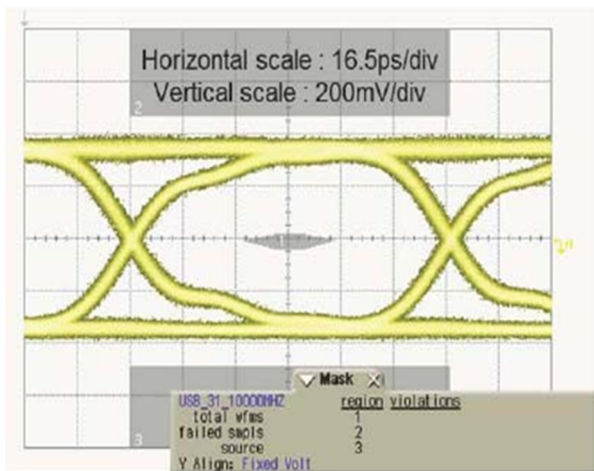


Eye Diagram -- USB 3.0 mask at 5.0Gbps.
Without Component

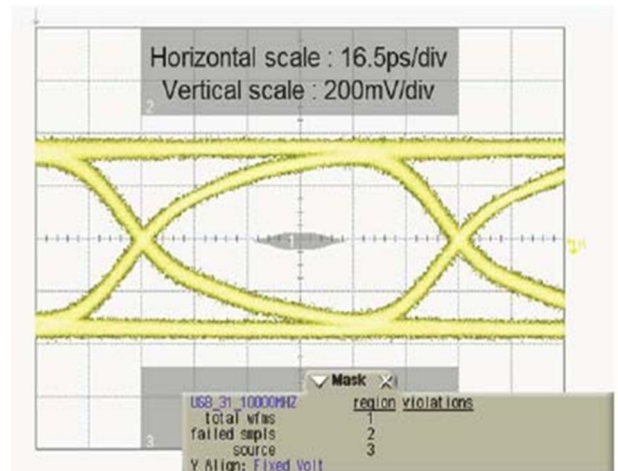


Eye Diagram -- USB 3.0 mask at 5.0Gbps.
With Component

High Speed Test : 10Gbps



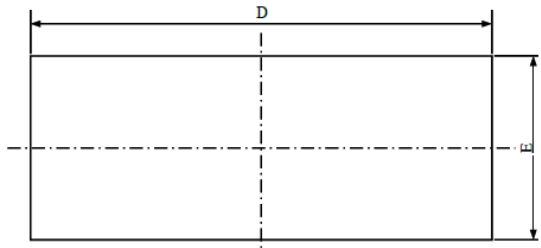
Eye Diagram -- USB 3.1 mask at 10.0Gbps.
Without Component



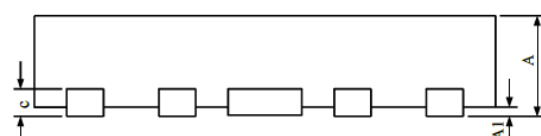
Eye Diagram -- USB 3.1 mask at 10.0Gbps.
With Component

DFN2510-10L Package Outline Drawing

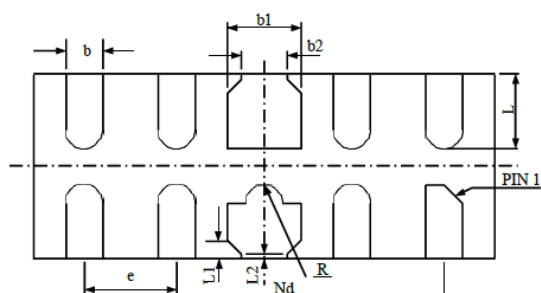
Symbol	DIMENSIONS					
	(mm)			(inch)		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.450	0.550	0.600	0.018	0.021	0.024
A1	0.000	0.020	0.050	0.000	0.001	0.002
b	0.150	0.200	0.250	0.006	0.008	0.010
b1	0.350	0.400	0.450	0.014	0.016	0.018
b2	0.200	0.250	0.300	0.008	0.010	0.012
c	0.100	0.150	0.200	0.004	0.006	0.008
D	2.450	2.500	2.550	0.098	0.100	0.102
e	0.50 BSC			0.020 BSC		
Nd	2.00 BSC			0.080 BSC		
E	0.950	1.000	1.050	0.038	0.040	0.042
L	0.350	0.400	0.450	0.014	0.016	0.018
L1	0.075 REF			0.003 REF		
L2	0.050 REF			0.002 REF		
R	0.050	0.100	0.150	0.002	0.004	0.006



Top View



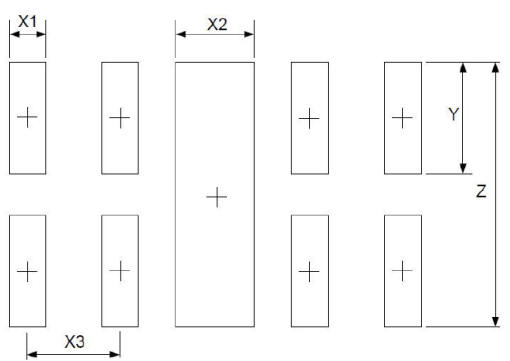
Side View



Bottom View

Suggested PAD Layout

Symbol	DFN2510-10	
	(mm)	(inch)
X1	0.200	0.008
X2	0.400	0.016
X3	0.500	0.020
Y	0.600	0.024
Z	1.400	0.056



Marking Code

Part Number	Marking Code	
STCDN050UL	UL14	

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCDN050UL	DFN2510-10	3,000	7	Tape and reel