

Description

The XE10NLC5VU TVS diode is designed to protect high speed data interfaces. It has been specifically designed protect sensitive electronic components which are connected to data and transmission lines from overvoltage caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and CDE (Cable Discharge Events).

The XE10NLC5VU incorporates eight low capacitance steering diodes and a TVS diode in a single package. It is in a DFN2510-10L package and will protect four high-speed lines. The typical capacitance between I/O pins is only 0.3pF which allows it to be used on circuits operating in excess of 3 GHz without signal attenuation. It may be used to provide ESD protection up to ± 30 kV (Contact and air discharge) according to IEC61000-4-2 , and withstand peak pulse current up to 40A(5/50ns) according to IEC61000-4-4 ,5A (8/20 us) according to IEC61000-4-5.

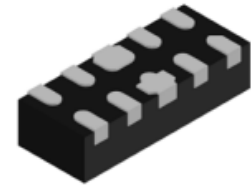
Features

- ◆ Working voltage: 5V
- ◆ Protect four I/O lines
- ◆ 100 Watts peak pulse power ($t_p=8/20\mu s$)
- ◆ Transient protection for data lines to IEC 61000-4-2 (ESD) ± 30 kV (air), ± 30 kV (contact)
- IEC 61000-4-4 (EFT)40A (8/20 μs)
- IEC 61000-4-5 (Surge)5A (8/20 μs)
- ◆ Low capacitance
- ◆ Low clamping voltage
- ◆ Low leakage current
- ◆ Solid-state silicon-avalanche technology

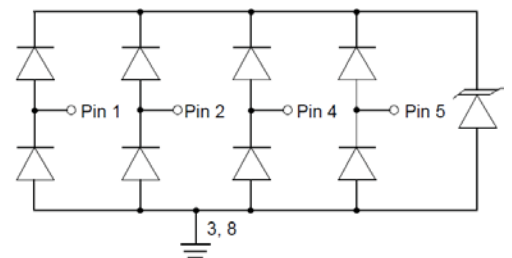
Applications

- ◆ High Definition Multi-Media Interface(HDMI)
- ◆ Unified Display Interface(UDI)
- ◆ Digital Visual Interface (DVI)
- ◆ MDDI Ports
- ◆ PCI Express
- ◆ Serial ATA

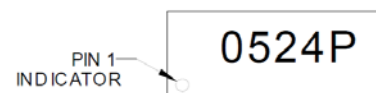
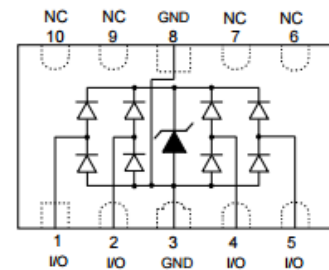
<http://www.xihangsemi.com>



DFN2510-10L



Circuit Diagram



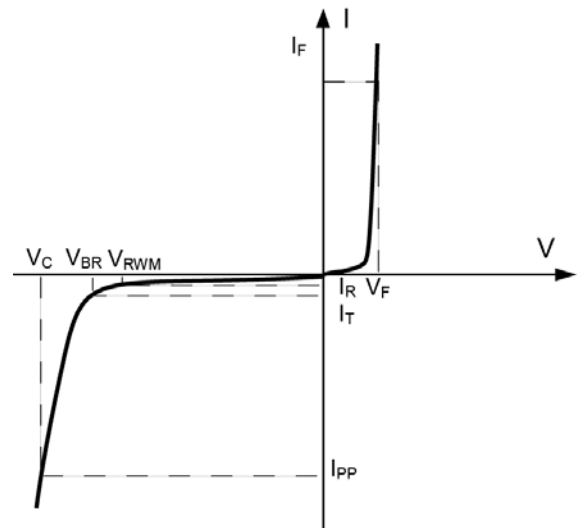
Marking

Order Information

Device	Package	Shipping
XE10NLC5VU	DFN2510-10L	4000/Tape&Reel

Definitions of electrical characteristics

Symbol	Parameter
V_{RWM}	Reverse Stand-off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_F	Forward Current
V_F	Forward Voltage @ I_F
C_j	Junction Capacitance
I_{PP}	Peak Pulse Current



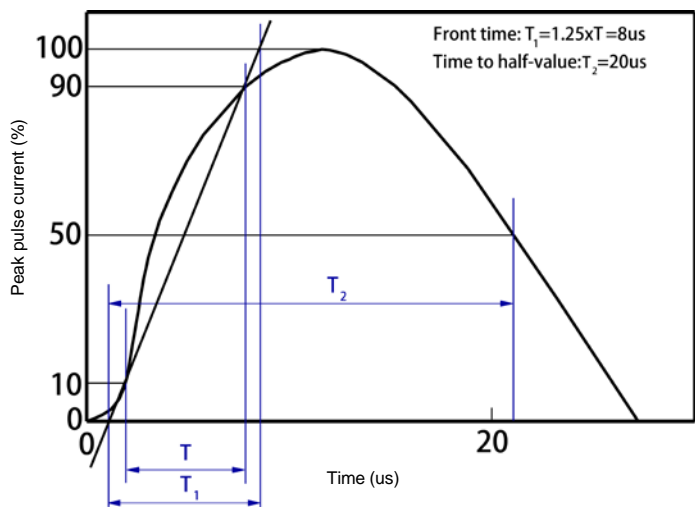
Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{PK}	100	W
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge		± 30	kV
Lead Soldering Temperature	T_L	260 (10 sec)	$^{\circ}C$
Operating Temperature	T_{OP}	-55 to +125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

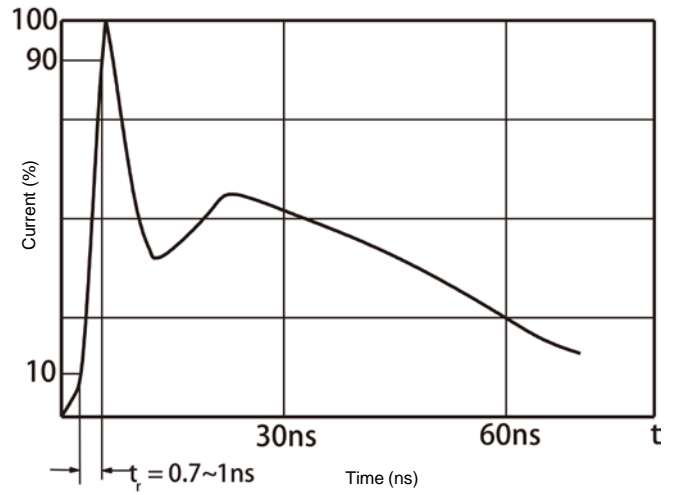
Electrical Characteristics (Ta=25 $^{\circ}C$, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	6.0			V
Reverse Leakage Current	I_R	$V_{RWM}=5V$			1.0	μA
Forward voltage	V_F	$I_T=10mA$		0.8	1.0	V
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu s$			5	A
Clamping Voltage (I/O pin to Ground)	V_C	$I_{PP}=1A$ $t_p = 8/20\mu s$		9.5	11	V
		$I_{PP}=5A$ $t_p = 8/20\mu s$		12.5	15	V
Junction Capacitance	$C_{I/O-GND}$	$V_R=0V$ $f = 1MHz$, $V_{DD}=$ floated, any I/O to GND		0.65	0.8	pF
	$C_{I/O-I/O}$	$V_R=0V$ $f = 1MHz$, any I/O to I/O		0.3	0.5	pF

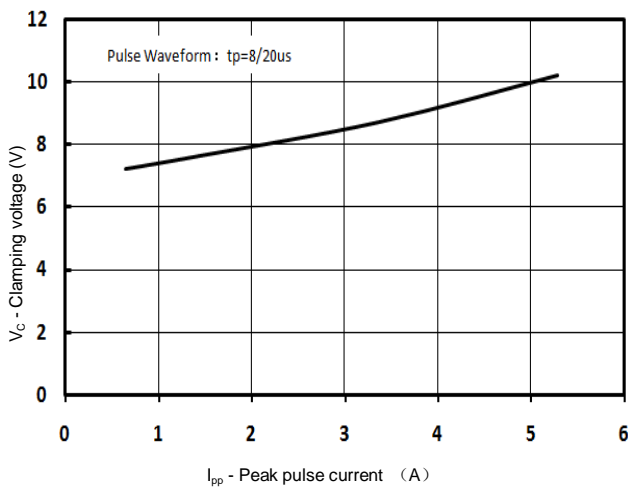
Typical Characteristics (Ta=25°C, unless otherwise noted)



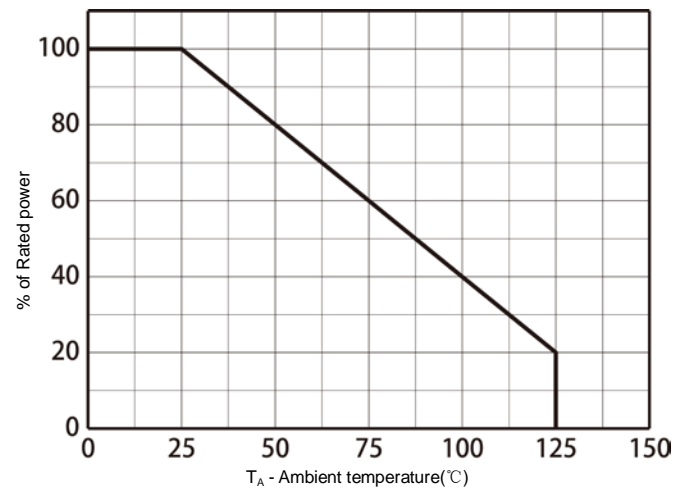
8/20 us waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

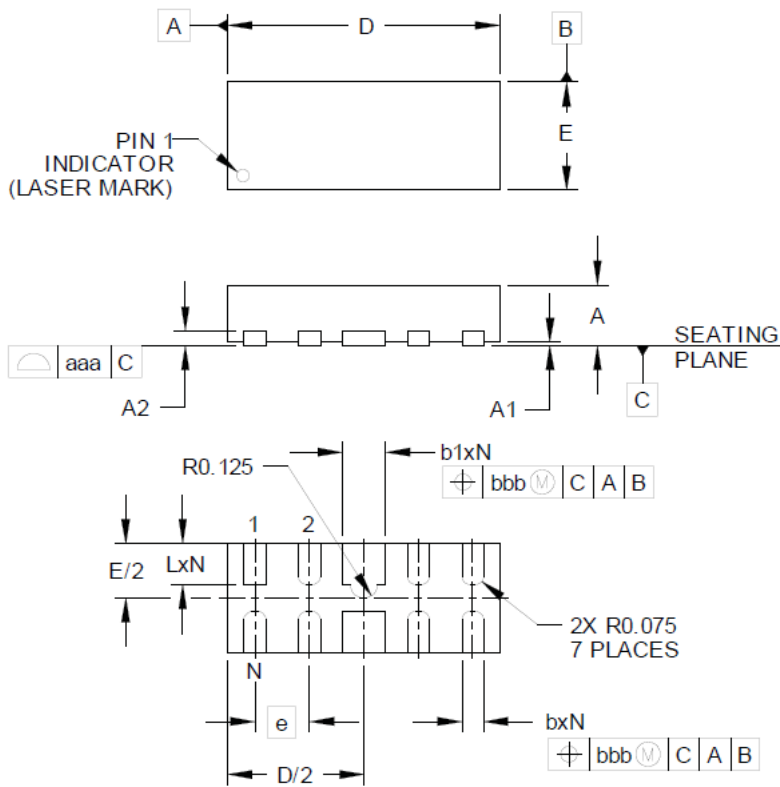


Clamping Voltage vs. Peak pulse current



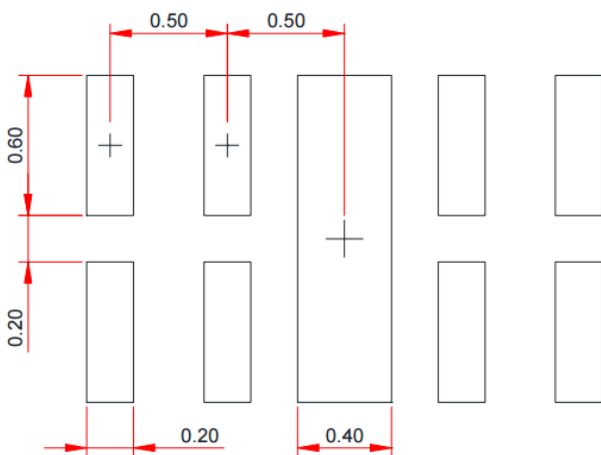
Power derating vs. Ambient temperature

Package Outline Dimensions (DFN2510-10L)



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.020	.023	.026	0.50	0.58	0.65
A1	0.00	.001	.002	0.00	0.03	0.05
A2		(.005)			(0.13)	
b	.006	.008	.010	0.15	0.20	0.25
b1	.014	.016	.018	0.35	0.40	0.45
D	.094	.098	.102	2.40	2.50	2.60
E	.035	.039	.043	0.90	1.00	1.10
e	.020 BSC			0.50 BSC		
L	.012	.015	.017	0.30	0.38	0.425
N	10			10		
aaa	.003			0.08		
bbb	.004			0.10		

Recommend Land Pattern (Unit: mm)



Note:
This recommended land pattern is for reference purpose only.