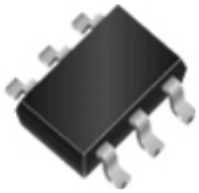
Description

The XE6TLC5VU 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 Lighting.

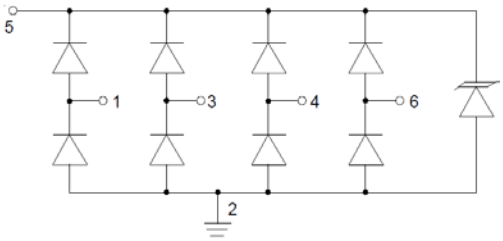
XE6TLC5VU incorporates eight low capacitance steering diodes and a TVS diode in a single package.

The XE6TLC5VU is in a SOT23-6L package and will protect four high-speed lines. It may be used to provide ESD protection up to ±30kV (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.

http//:www.xihangsemi.com



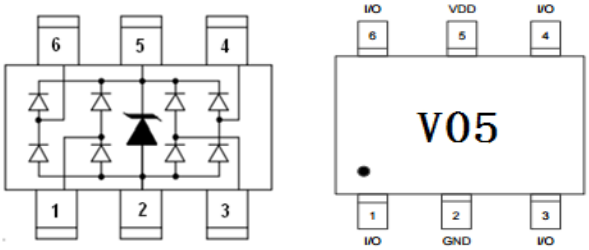
SOT23-6L



Circuit Diagram

Features

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



Marking

Applications

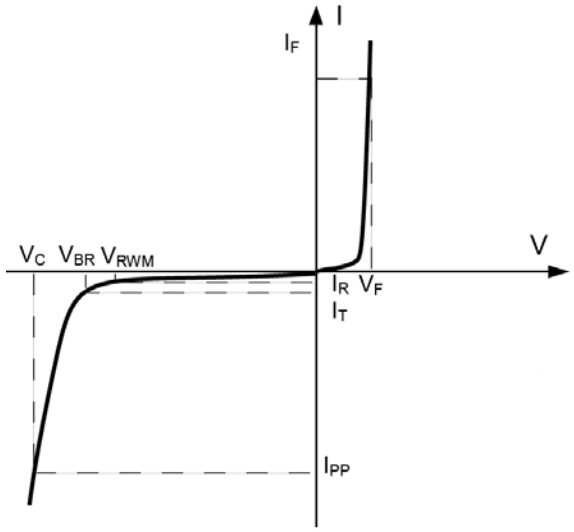
- USB 2.0 Power and Data Line Protection
- Video Graphics Cards
- Digital Visual Interface (DVI)
- 10/1000 Ethernet
- SIM Ports
- Notebook Computer
- Monitors and Flat Panel Displays
- IEEE 1394 Firewire Ports

Order Information

Device	Package	Shipping
XE6TLC5VU	SOT23-6L	3000/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



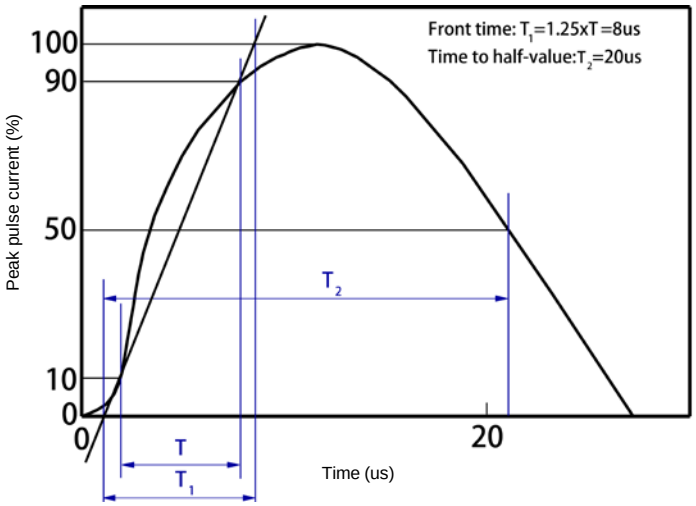
Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (t_P = 8/20μS)	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)	℃
Operating Temperature	T_{OP}	-55 to +125	℃
Storage Temperature	T_{STG}	-55 to +150	℃

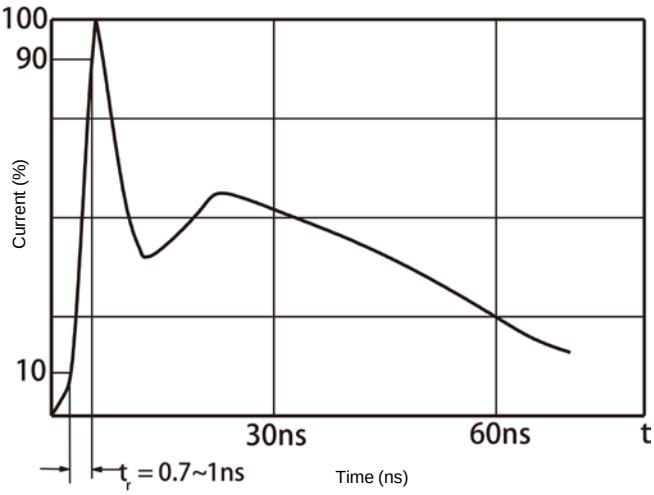
Electrical Characteristics (Ta=25℃, unless otherwise noted)

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 = 8/20μs			5	A
Clamping Voltage (I/O pin to Ground)	V_C	I_{PP}=1A t_P = 8/20μs		9.5	11	V
		I_{PP}=5A t_P = 8/20μs		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

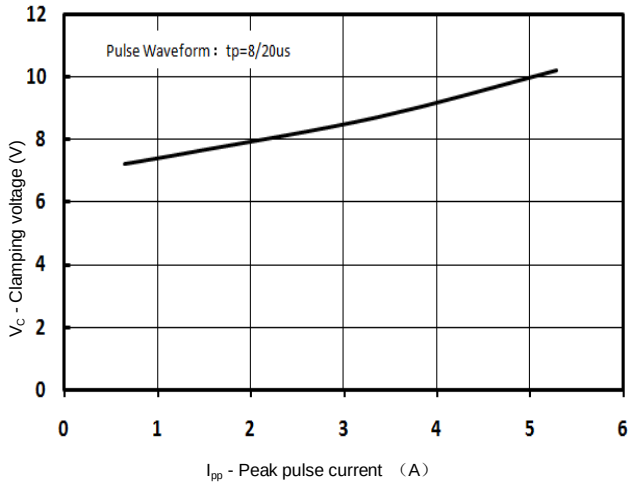
Typical Characteristics (Ta=25℃, unless otherwise noted)



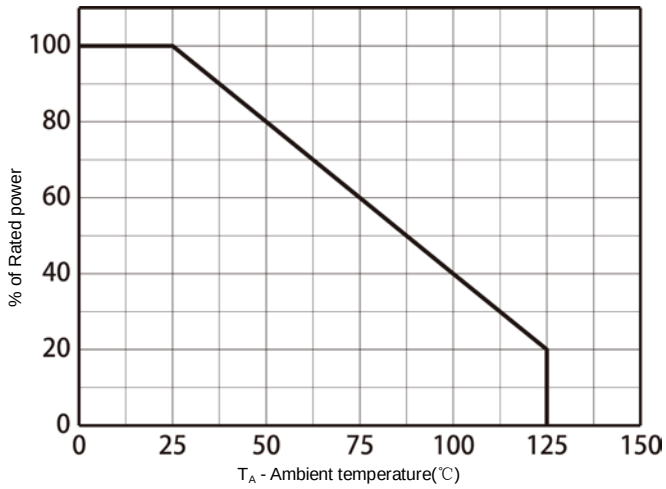
8/20 us waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

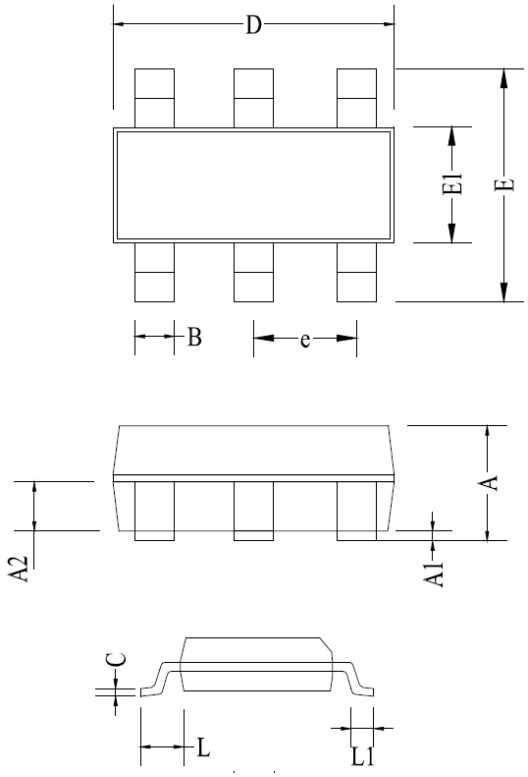


Clamping Voltage vs. Peak pulse current



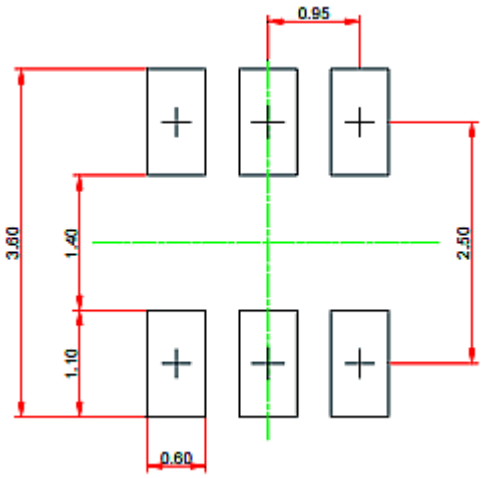
Power derating vs. Ambient temperature

Package Outline Dimensions (SOT23-6L)



Symbol	Millimeter		Inches	
	Min	Max	Min	Max
A	0.90	1.45	0.035	0.057
A1	0.00	0.15	0.000	0.006
A2	0.45	0.65	0.017	0.026
B	0.35	0.50	0.010	0.020
C	0.08	0.20	0.003	0.007
D	2.80	3.00	0.110	0.122
e	0.69	1.02	0.032	0.043
E1	1.50	1.75	0.0060	0.0069
E	2.80BSC		0.110BSC	
L1	0.35	0.60	0.013	0.024
L	0.60		0.024	

Recommend Land Pattern (Unit: mm)



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