

Description

The XE5DUC5VB is an ultra-low capacitance ESD protection diode designed to protect sensitive electronic components which are connected to high speed data lines and control lines from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. The XE5DUC5VB may be used to provide ESD protection up to $\pm 20\text{kV}$ (contact) and $\pm 25\text{kV}$ (air) discharge according to IEC61000-4-2, and withstand peak pulse current up to 5A (8/20 μs) according to IEC61000-4-5.

The XE5DUC5VB is available in SOD523 package. Standard products are Pb-free and Halogen-free.

Features

- ◆ Working voltage: 5V
- ◆ SOD523 Package
- ◆ Ultra Low Capacitance: 0.35pF
- ◆ Transient protection for data lines to IEC 61000-4-2 (ESD) $\pm 25\text{kV}$ (air), $\pm 20\text{kV}$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Surge) 5A (8/20 μs)
- ◆ Low leakage current
- ◆ Low clamping voltage
- ◆ Solid-state silicon-avalanche technology

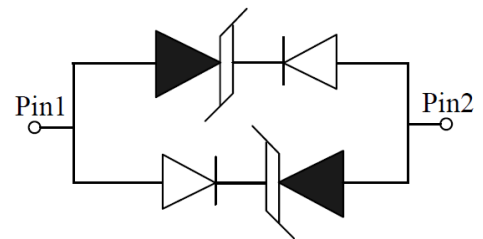
Applications

- ◆ USB2.0 and USB3.0
- ◆ HDMI1.3 and HDMI1.4
- ◆ SATA and eSATA
- ◆ DVI
- ◆ IEEE1394
- ◆ PCI Express
- ◆ Portable Electronics
- ◆ Notebook

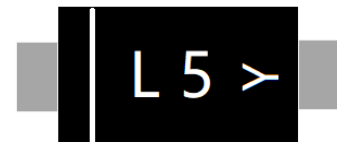
<http://www.xihangsemi.com>



SOD523



Circuit Diagram



L5: Marking
 Y: Date Code

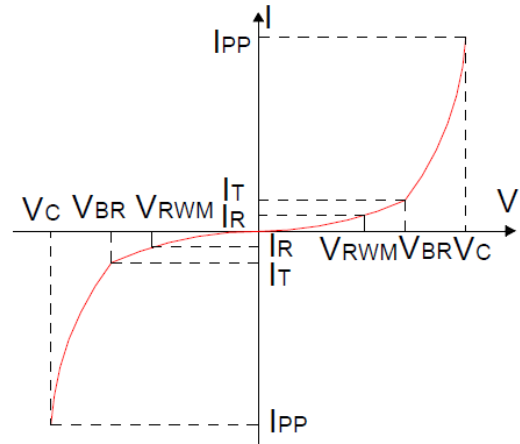
Marking (Top View)

Order Information

Device	Package	Shipping
XE5DUC5VB	SOD523	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_{BR}	Reverse Breakdown Current
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
I_T	Test current



Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_P = 8/20\mu S$)	P_{PK}	125	W
Peak Pulse Current ($t_P = 8/20\mu S$)	I_{pp}	5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 25	kV
ESD according to IEC61000-4-2 contact discharge		± 20	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	$^{\circ}C$

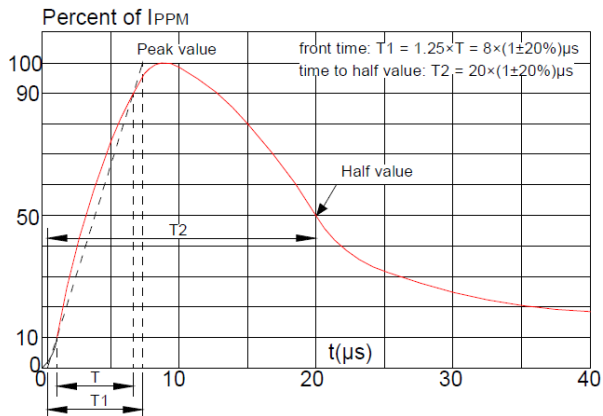
Electrical Characteristics ($T_a=25^{\circ}C$, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				± 5.0	V
Reverse Leakage Current	I_R	$V_{RWM} = \pm 5V$			100	nA
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	7.0	8.5	10	V
Clamping Voltage ¹⁾	V_{CL}	$I_{PP}=1A \quad t_P = 8/20\mu s$		10	12.5	V
		$I_{PP}=2.5A \quad t_P = 8/20\mu s$		13	15	V
		$I_{PP}=5A \quad t_P = 8/20\mu s$		20	25	V
Junction Capacitance	C_j	$V_R=0V \quad f = 1MHz$		0.35	0.5	pF

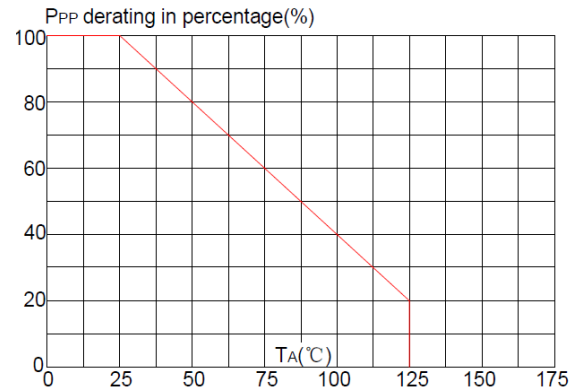
Notes:

1)Non-repetitive current pulse, according to IEC61000-4-5.

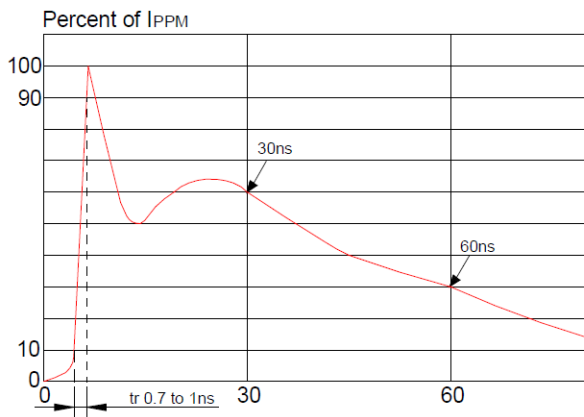
Typical Characteristics (Ta=25°C, unless otherwise noted)



Pulse Waveform (8/20us)

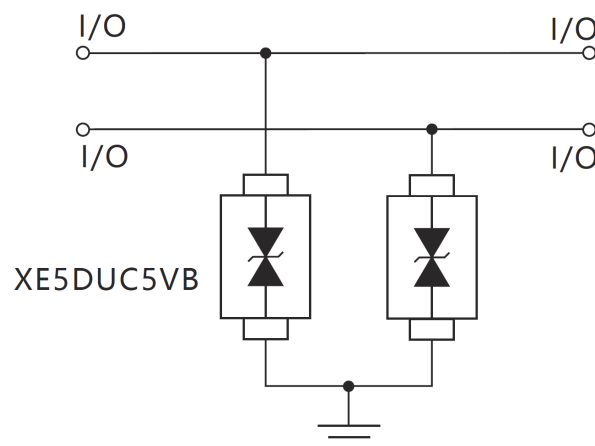


Pulse Derating Curve

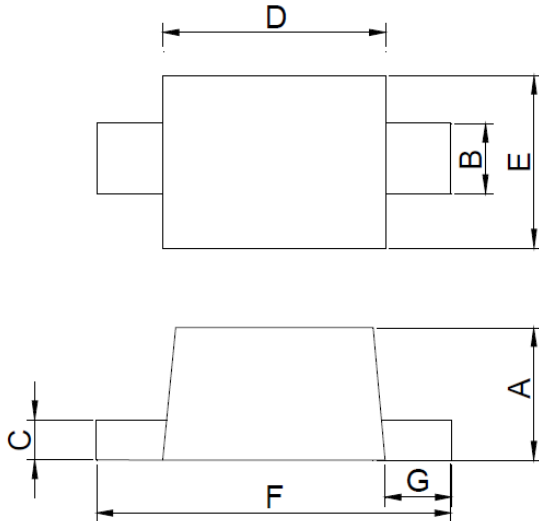


ESD Clamping(8kV Contact Discharge)

Application Information

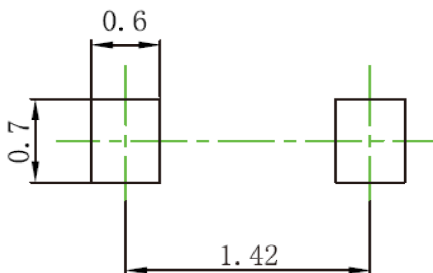


Package Outline Dimensions (SOD523)



Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.020	0.028	0.50	0.70
B	0.010	0.014	0.25	0.35
C	0.0028	0.0079	0.07	0.20
D	0.043	0.051	1.10	1.30
E	0.028	0.035	0.70	0.90
F	0.059	0.067	1.50	1.70
G	0.006	0.010	0.15	0.25
P1	0.016		0.40	
P	0.072		1.80	

Recommend Land Pattern (Unit: mm)



Note:

This recommended land pattern is for reference purpose only.

NOTICE

XIHANG's products are not authorized for use as components in any life support device or systems.

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