

## Description

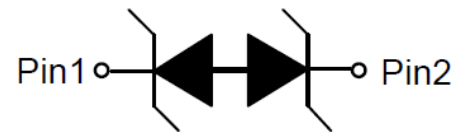
The XE3D5VB is a bi-directional ESD protection diode designed to protect sensitive electronic components which are connected to low speed data lines and control lines from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. The XE3D5VB may be used to provide ESD protection up to  $\pm 30\text{kV}$  (contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 8A (8/20 $\mu\text{s}$ ) according to IEC61000-4-5.

The XE3D5VB is available in SOD323 package. Standard products are Pb-free and Halogen-free.

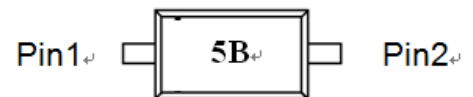
<http://www.xihangsemi.com>



**SOD323**



## Circuit Diagram



5B=Device Code

## Marking (Top View)

## Order Information

Device	Package	Shipping
XE3D5VB	SOD323	3000/Tape&Reel

## Features

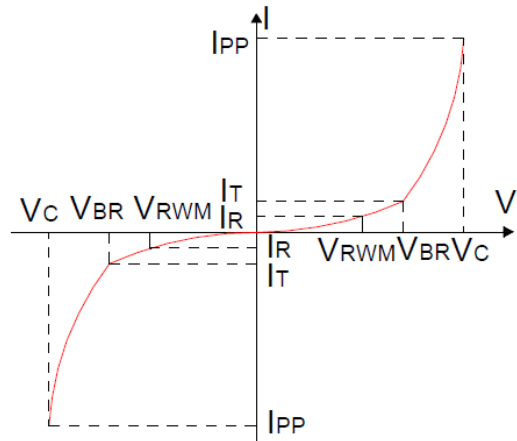
- ◆ Working voltage: 5V
- ◆ SOD323 Package
- ◆ Transient protection for data lines to IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)  
IEC61000-4-5 (Surge)8A (8/20us)  
IEC61000-4-4(EFT)40A(5/50ns)
- ◆ Low leakage current
- ◆ Low clamping voltage
- ◆ Solid-state silicon-avalanche technology

## Applications

- ◆ Personal digital assistants (PDA's)
- ◆ Notebooks, Desktops, and Servers
- ◆ Cell phone Handsets and Accessories
- ◆ Portable Electronics
- ◆ Peripherals

### Definitions of electrical characteristics

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



### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu S$ )	$P_{PK}$	80	W
Peak Pulse Current ( $t_p = 8/20\mu S$ )	$I_{pp}$	8	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	kV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	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	$^{\circ}C$

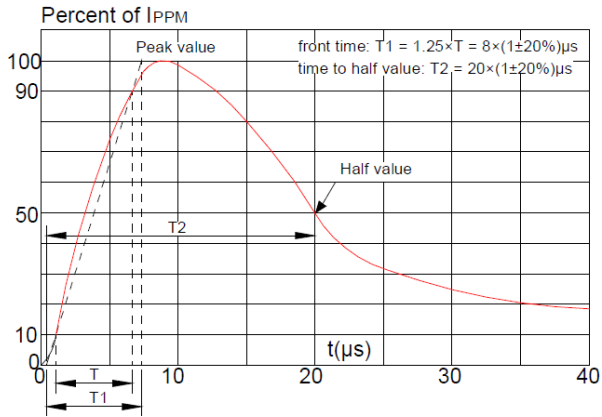
### Electrical Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				$\pm 5$	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V$			1	$\mu A$
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	5.9			V
Clamping Voltage <sup>1)</sup>	$V_{CL}$	$I_{pp} = 5A$ $t_p = 8/20\mu s$		8.0	9.0	V
		$I_{pp} = 8A$ $t_p = 8/20\mu s$		9.5	10	V
Junction Capacitance	$C_j$	$V_R = 0V$ $f = 1MHz$		14		pF

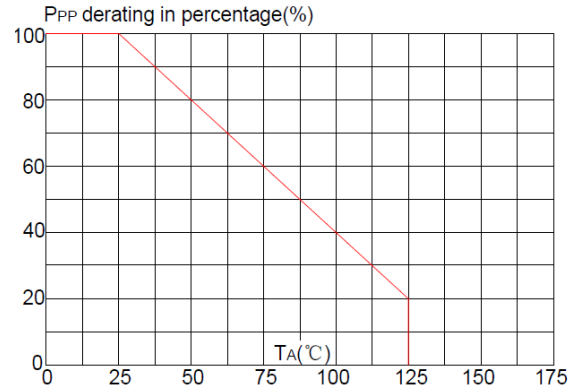
Notes:

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

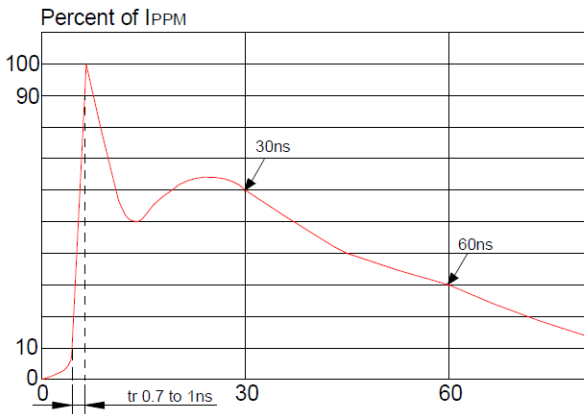
Typical Characteristics (Ta=25°C, unless otherwise noted)



Pulse Waveform (8/20us)

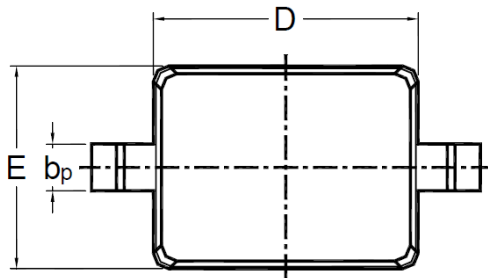
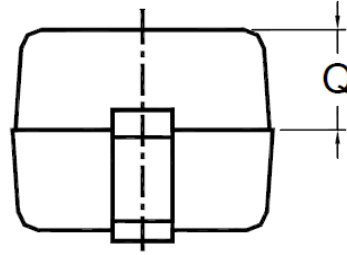
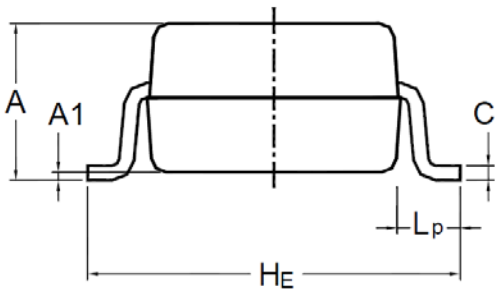


Pulse Derating Curve



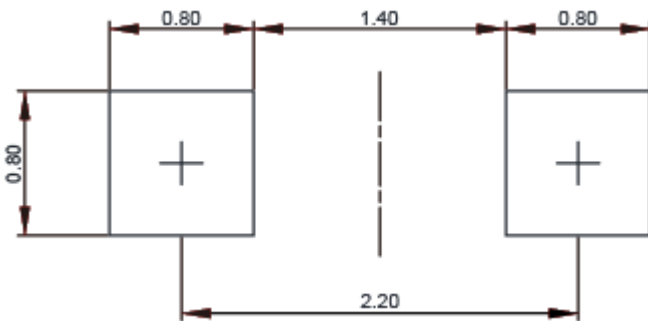
ESD Clamping(8kV Contact Discharge )

Package Outline Dimensions (SOD323)



Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.031	0.043	0.8	1.0
A <sub>1</sub>	0.000	0.004	0	0.1
b <sub>p</sub>	0.010	0.016	0.25	0.4
C	0.000	0.006	0	0.15
D	0.063	0.071	1.6	1.8
E	0.045	0.053	1.15	1.35
H <sub>E</sub>	0.091	0.110	2.3	2.8
L <sub>P</sub>	0.004	0.020	0.1	0.5
Q	0.012	0.020	0.3	0.5

Recommend Land Pattern (Unit: mm)



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