

## Description

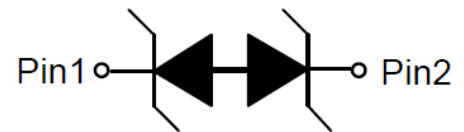
The XE5D5VB is a bi-directional ESD protection diode designed to protect sensitive electronic components which are connected to low speed data lines and control lines from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. The XE5D5VB may be used to provide ESD protection up to  $\pm 30\text{kV}$  (contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 5A (8/20 $\mu\text{s}$ ) according to IEC61000-4-5.

The XE5D5VB is available in SOD523 package. Standard products are Pb-free and Halogen-free.

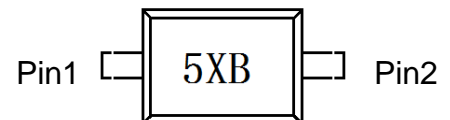
<http://www.xihangsemi.com>



**SOD523**



**Circuit Diagram**



**Marking (Top View)**

## Features

- ◆ Working voltage: 5V
- ◆ SOD523 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) 5A (8/20 $\mu\text{s}$ )
- ◆ IEC61000-4-4(EFT)40A(5/50ns)
- ◆ Low leakage current
- ◆ Low clamping voltage
- ◆ Solid-state silicon-avalanche technology

## Order Information

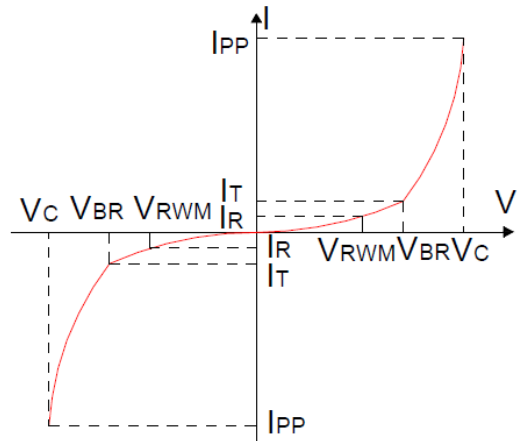
Device	Package	Shipping
XE5D5VB	SOD523	5000/Tape&Reel

## 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 ( $t_p = 8/20\mu S$ )	$P_{PK}$	100	W
Peak Pulse Current ( $t_p = 8/20\mu S$ )	$I_{pp}$	5	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	$^{\circ}C$

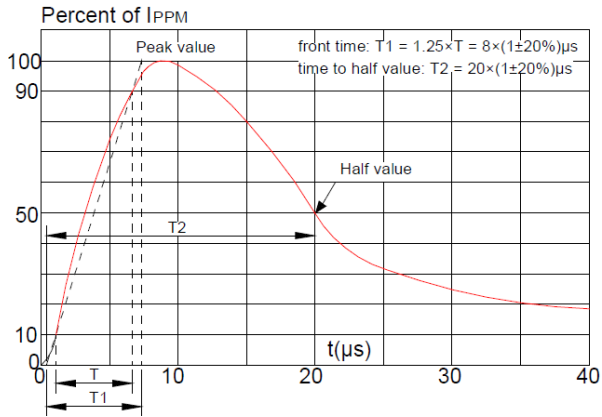
### Electrical Characteristics (Ta=25°C, unless otherwise noted)

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	$V_{BR}$	$I_T = 1mA$	5.5			V
Clamping Voltage <sup>1)</sup>	$V_{CL}$	$I_{pp} = 1A \quad t_p = 8/20\mu s$		9	10	V
		$I_{pp} = 5A \quad t_p = 8/20\mu s$		13	15.5	V
Junction Capacitance	$C_j$	$V_R = 0V \quad f = 1MHz$		7.5	15	pF

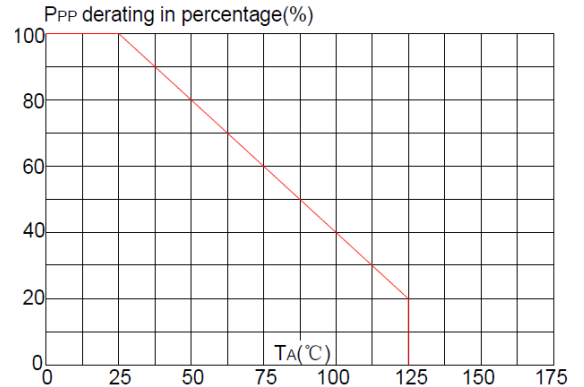
Notes:

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

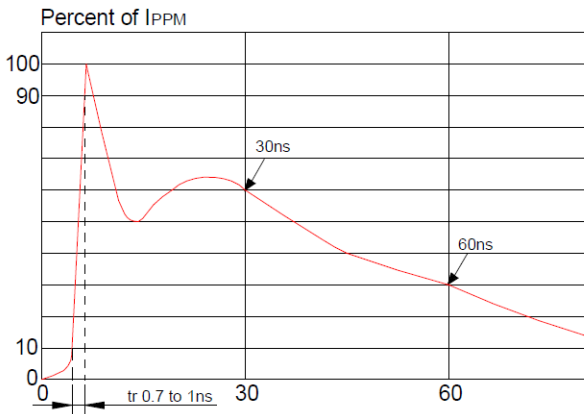
Typical Characteristics (Ta=25°C, unless otherwise noted)



Pulse Waveform (8/20us)

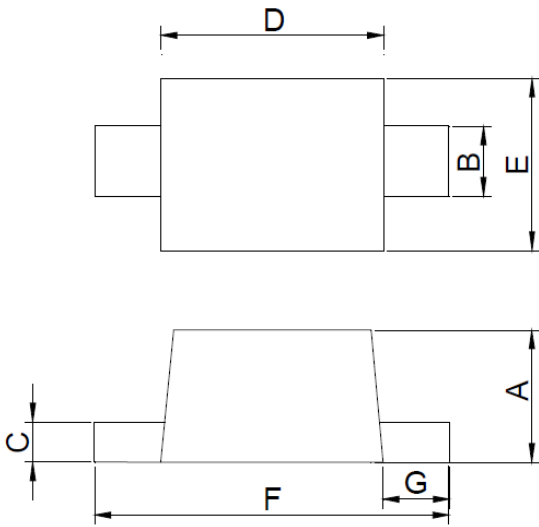


Pulse Derating Curve



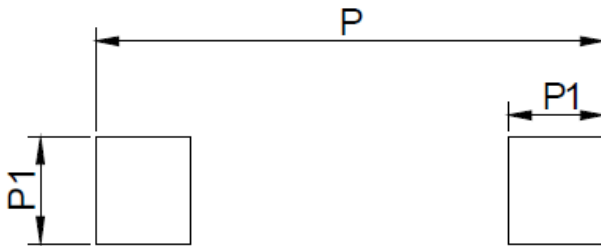
ESD Clamping(8kV Contact Discharge )

Package Outline Dimensions (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.