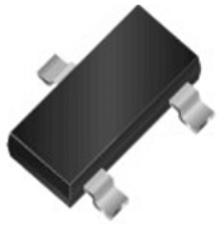
Description

The XE23T12VB 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.

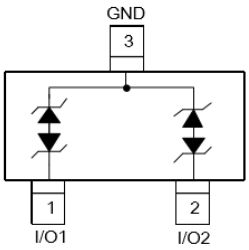
The XE23T12VB may be used to provide ESD protection up to ±30kV (contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 12A (8/20μs) according to IEC61000-4-5.

The XE23T12VB is available in SOT-23 package. Standard products are Pb-free and Halogen-free.

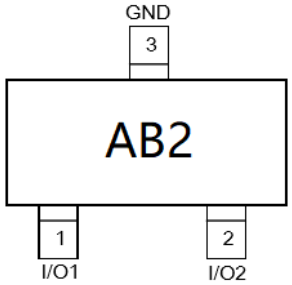
http//:www.xihangsemi.com



SOT-23



Circuit Diagram



Marking（Top View）

Features

- Working voltage: 12V
- SOT-23 Package
- Transient protection for data lines to
  IEC61000-4-2 (ESD) ±30kV (air),
  ±30kV (contact)
  IEC61000-4-5 (Surge)12A (8/20us)
  IEC61000-4-4(EFT)40A(5/50ns)
- Low leakage current
- Low clamping voltage
- Solid-state silicon-avalanche technology

Order Information

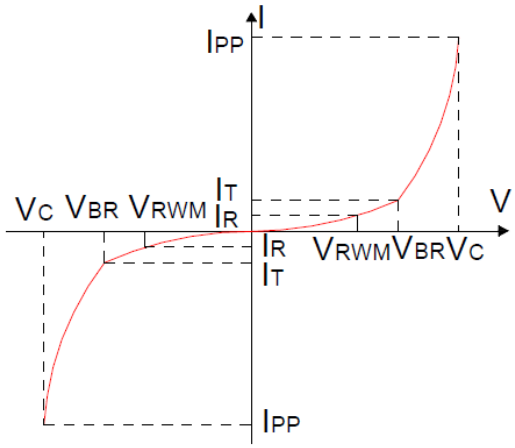
Device	Package	Shipping
XE23T12VB	SOT-23	3000/Tape&Reel

Applications

- Set-top box
- Wireless bus protection
- Control & monitoring systems
- Portable electronics
- Servers, notebook and desktop
- Cellular handsets and accessories
- RS-232,RS-422 & RS-485

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 = 8/20μS)	P_{PK}	300	W
Peak Pulse Currentr (t_P = 8/20μS)	I_{pp}	12	A
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	℃

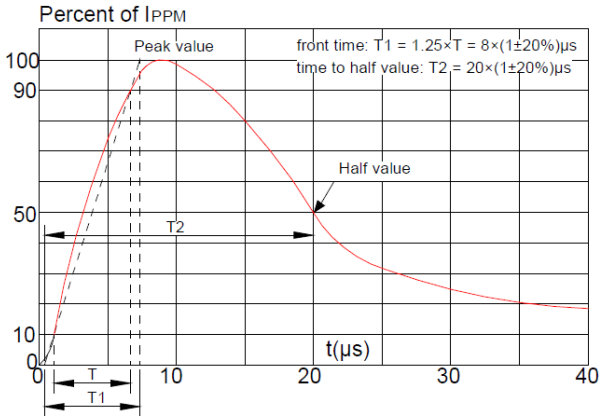
Electrical Characteristics (Ta=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				12	V
Reverse Leakage Current	I_R	V_{RWM} =12V			1	uA
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	13.3			V
Clamping Voltage[1)]	V_{CL}	I_{PP}=1A t_P = 8/20μs			19	V
		I_{PP}=12A t_P = 8/20μs			25	V
Junction Capacitance	C_j	V_R=0V f = 1MHz		30		pF

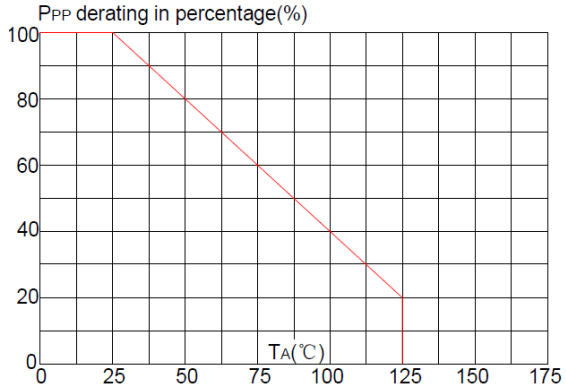
Notes:

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

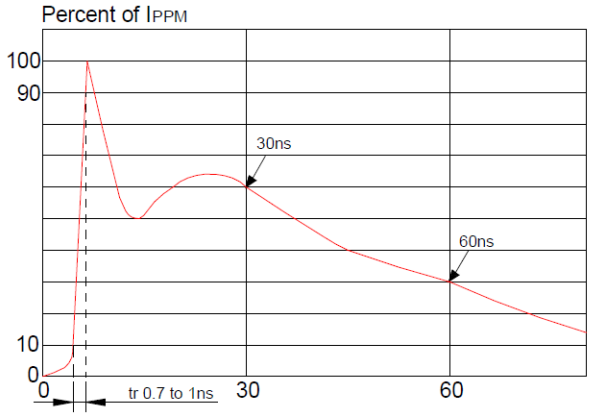
Typical Characteristics (Ta=25℃, unless otherwise noted)



Pulse Waveform (8/20us)

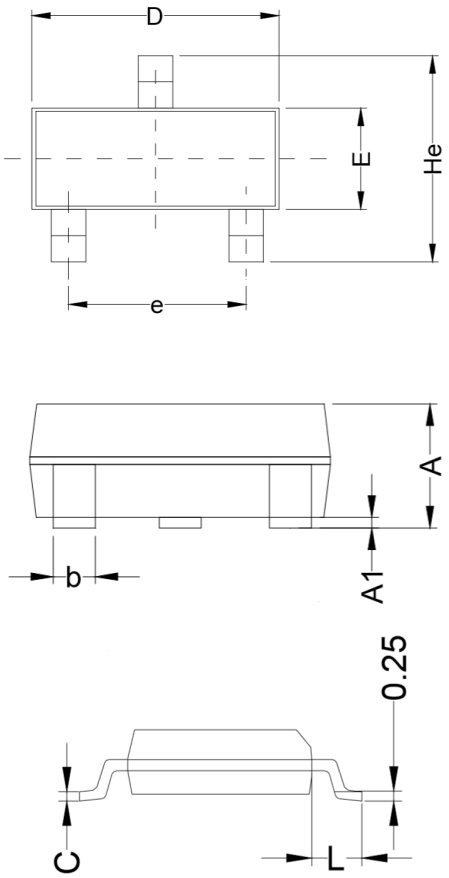


Pulse Derating Curve



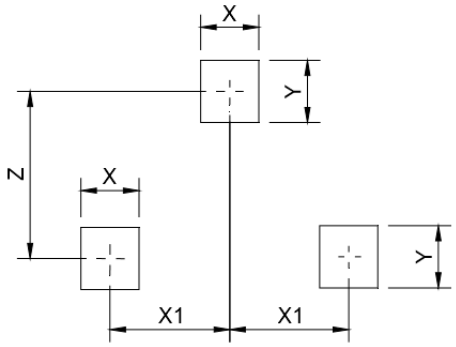
ESD Clamping(8kV Contact Discharge)

Package Outline Dimensions (SOT-23）



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.25	0.325	0.010	0.013
C	0.22	0.25	0.009	0.010
D	2.80	3.00	0.110	0.118
E	1.80	1.90	0.071	0.075
E	1.20	1.40	0.047	0.055
L	0.30	0.50	0.012	0.020
He	2.25	2.25	0.089	0.100
X	0.80		0.031	
X1	0.95		0.037	
Y	0.80		0.031	
Z	2.02		0.080	

Recommend Land Pattern (Unit: mm)



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

NOTICE

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