

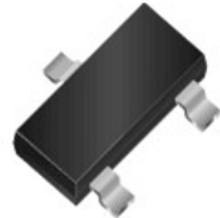
## Description

The XE23T24VU 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.

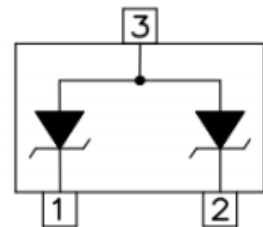
The XE23T24VU may be used to provide ESD protection up to  $\pm 30\text{kV}$  contact and  $\pm 30\text{kV}$  air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 5A (8/20 $\mu\text{s}$ ) according to IEC61000-4-5.

The XE23T24VU is available in SOT-23 package. Standard products are Pb-free and Halogen-free.

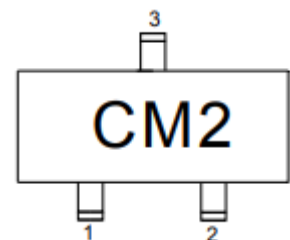
<http://www.xihangsemi.com>



**SOT-23**



**Circuit Diagram**



**Marking (Top View)**

## Features

- ◆ Working voltage: 24V
- ◆ SOT-23 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

## Applications

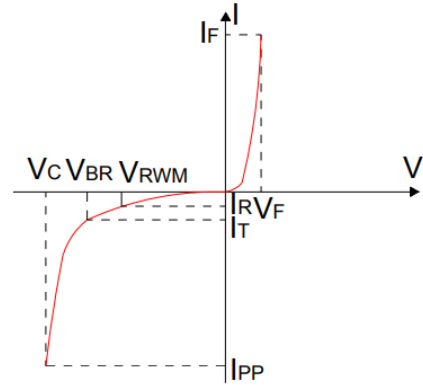
- ◆ Subscriber identify module (SIM) card protection
- ◆ Wireless bus protection
- ◆ Control & monitoring systems
- ◆ Portable electronics
- ◆ Servers, notebook and desktop
- ◆ Cellular handsets and accessories

## Order Information

Device	Package	Shipping
XE23T24VU	SOT-23	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 @ $I_T$
$I_R$	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 ( $t_P = 8/20\mu S$ )	$P_{PK}$	270	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	$^{\circ}C$

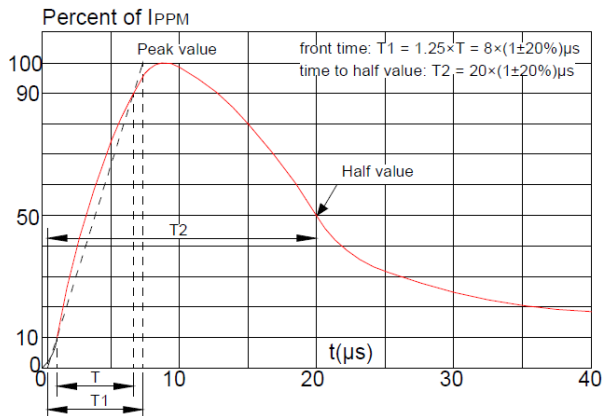
## Electrical Characteristics ( $T_a=25^{\circ}C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				24	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 24V$			1	$\mu A$
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	26.7			V
Clamping Voltage <sup>1)</sup>	$V_{CL}$	$I_{PP} = 1A$ $t_P = 8/20\mu s$			43	V
		$I_{PP} = 5A$ $t_P = 8/20\mu s$			55	V
Junction Capacitance	$C_j$	$V_R = 0V$ $f = 1MHz$		150	180	pF

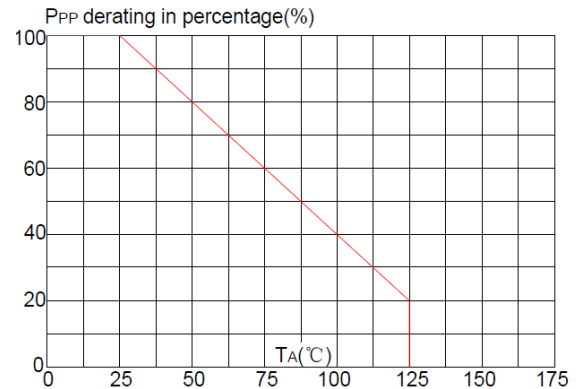
Notes:

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

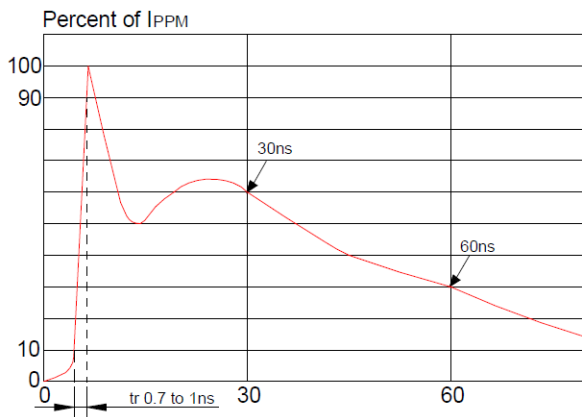
## Typical Characteristics (Ta=25°C, unless otherwise noted)



**Pulse Waveform (8/20us)**

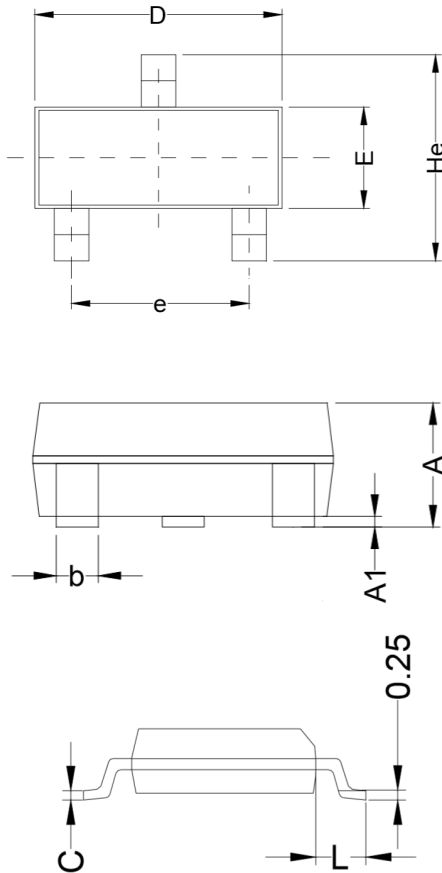


**Pulse Derating Curve**



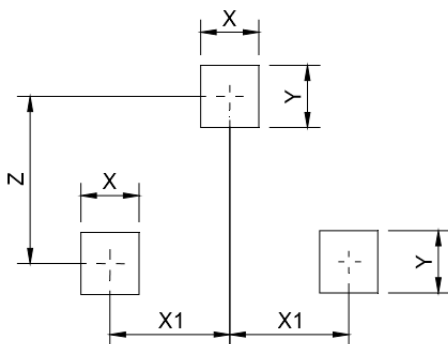
**ESD Clamping(8kV Contact Discharge )**

## Package Outline Dimensions (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.

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