

SuperESD – PESDxxS1UB

1. Description

The PESDxxS1UB is a Transient Voltage Suppressor that designed to protect components which are connected to data and transmission lines against electrostatic discharge (ESD), electrical fast Transients (EFT), and lightning. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 air discharge methods.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
 - ±30kV Contact Discharge
 - ±30kV Air Discharge
- 250W Peak pulse Power (8/20us)
- RoHS compliance
- Unidirectional configuration
- Low clamping voltage
- Low leakage current
- Protects one power or I/O

3. Applications

- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communication systems
- Digital cameras

4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
PESDxxS1UB	SOD523	Halogen	Tape & Reel	3000 PCS	UL 94V-0	7 inches
Marking for the PESDxxS1UB series						
V_{RWM}	3.3V	5V	7V	12V	15V	24V
Marking	N1	N2	Z.H.8	N3	N4	N5

Table-1 Ordering information

5. Pin Configuration and Functions


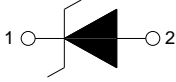
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	GND	Connect to GND		

Table-2 Pin configuration

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P _{pk}	-	250	W
Peak pulse current (tp=8/20us)@25°C	I _{PP}	-	Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25°C	V _{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V _{ESD}	-	±30	kV
Junction temperature	T _J	-	150	°C
Operating temperature	T _{OP}	-40	125	°C
Storage temperature	T _{STG}	-55	150	°C
Lead temperature	T _L	-	260	°C

Table-3 Absolute Maximum rating

6.2. Electrical Characteristics

Symbol	Description
V_{RWM}	Rated reverse stand-off voltage
V_{BR}	Minimum breakdown voltage @ $I_T = 1\text{mA}$
V_{CL}	Typical Clamping voltage
I_{PP}	Maximum peak pulse current
I_R	Reverse leakage current @ V_{RWM}
C_O	Typical line capacitance ($V_{IO}=0V$, $V_{P-P} = 30\text{mV}$, $f = 1\text{MHz}$)

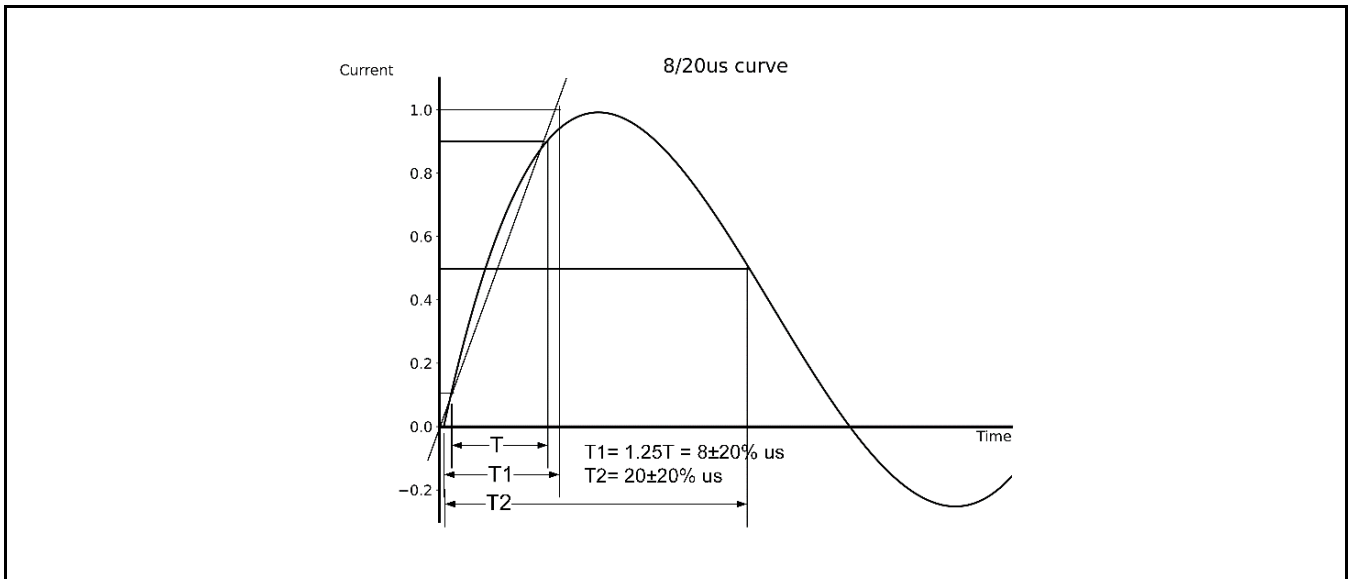
Table-4 Parameters Description

At $T_A = 25^\circ\text{C}$ unless otherwise noted

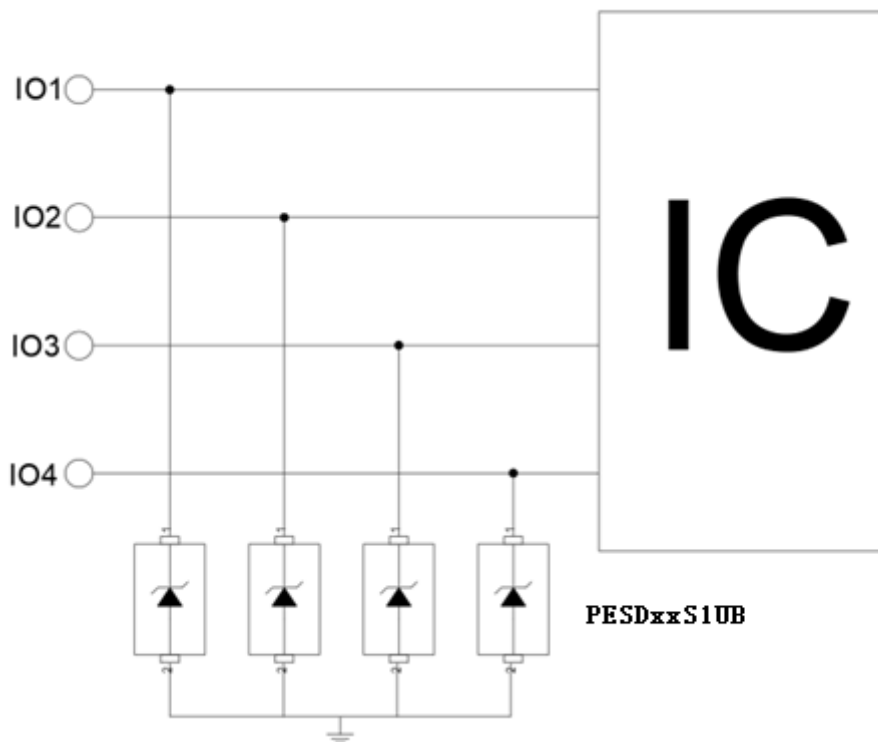
Part Number	V_{RWM}	V_{BR}	$V_{CL}@I=1A$	I_{PP}	$V_{CL}@I=I_{PP}$	I_R	C_O
	(V)	(V)	(V)	(A)	(V)	(μA)	(pF)
PESD3V3S1UB	3.3	4.5	8.5	16.0	18.0	1.0	200
PESD5V0S1UB	5.0	6.5	9.5	15.0	20.0	1.0	180
PESD7V0S1UB	7.0	7.5	11.0	12.0	22.0	1.0	140
PESD12VS1UB	12.0	13.3	20.0	8.0	35.0	1.0	100
PESD15VS1UB	15.0	16.5	25.0	6.0	45.0	1.0	60
PESD24VS1UB	24.0	26.0	40.0	4.0	55.0	1.0	40

Table-5 Electrical Characteristics for All Series

7. Typical Characteristic

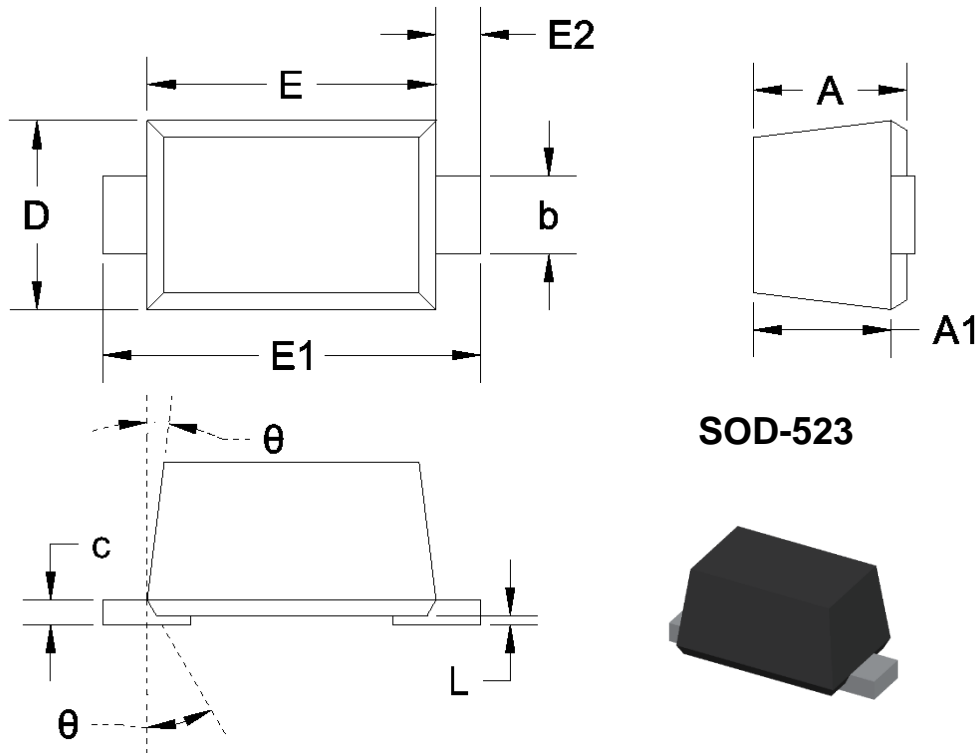


8. Typical Application

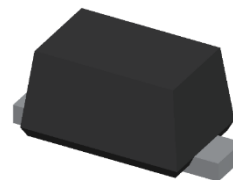


Pic-3 Typical Internet 1G Interface Application

9. Dimension



SOD-523

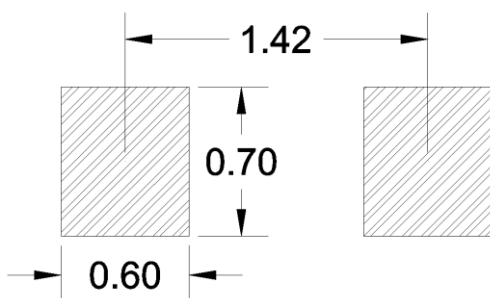


Units: Millimeters

Unit	A	A1	b	c	D	E	E1	E2	L	θ
Max.	0.77	0.70	0.35	0.15	0.125	1.30	1.70	0.20	0.07	7°
Min.	0.51	0.50	0.25	0.08	0.75	1.10	1.50	REF.	0.01	REF.

Table-6 product dimensions

10. Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only

DISCLAIMER

ELECSUPER PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with ElecSuper products. You are solely responsible for

- (1) selecting the appropriate ElecSuper products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. ElecSuper grants you permission to use these resources only for development of an application that uses the ElecSuper products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other ElecSuper intellectual property right or to any third party intellectual property right. ElecSuper disclaims responsibility for, and you will fully indemnify ElecSuper and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources. ElecSuper's products are provided subject to ElecSuper's Terms of Sale or other applicable terms available either on www.elecsuper.com or provided in conjunction with such ElecSuper products. ElecSuper's provision of these resources does not expand or otherwise alter ElecSuper's applicable warranties or warranty disclaimers for ElecSuper products.