

## PESDxxxU1UA

### 1. Description

The PESDxxxU1UA Series are ultra-low capacitance transient voltage suppressor arrays, designed to protect applications such as portable electronics and smart phones. This series is available bidirectional configurations and is rated at 350 Watts for an 8/20us waveshape. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This series offers a ultra-low capacitance and low leakage current in a miniature SOD-323 package.

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±10kV Contact Discharge
  - ±15kV Air Discharge
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- 350W Peak pulse Power (8/20us)
- RoHS compliance
- Unidirectional configuration
- Ultra-low Capacitance: 0.8pF (Typical)
- Low clamping voltage
- Protects one power or I/O

### 3. Applications

- Interfaces
  - USB 2.0/1.1
  - GPIO
  - Ethernet 10/100/1000 Mbps
  - Audio
- End Equipment
  - Industrial and Serve Robots
  - Laptops and Desktops
  - TV and Monitors
  - Wearables

### 4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size	
PESDxxxU1UA	SOD-323	Halogen free	Tape & Reel	3000 PCS	UL 94V-0	7 inches	
Marking for the PESDxxxU1UA series							
V <sub>RWM</sub>	3.3V	5V	8V	12V	15V	24V	-
Marking	S3	S5	S8	S12	S15	S24	-

Table-1 Ordering information

## 5. Pin Configuration and Functions

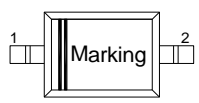
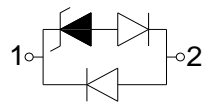
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	GND	Connect to GND		

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	$P_{pk}$	-	350	W
Peak pulse current (tp=8/20us)@25°C	$I_{PP}$		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25°C	$V_{ESD}$	-	±15	kV
ESD (IEC61000-4-2 contact discharge) @25°C	$V_{ESD}$	-	±10	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

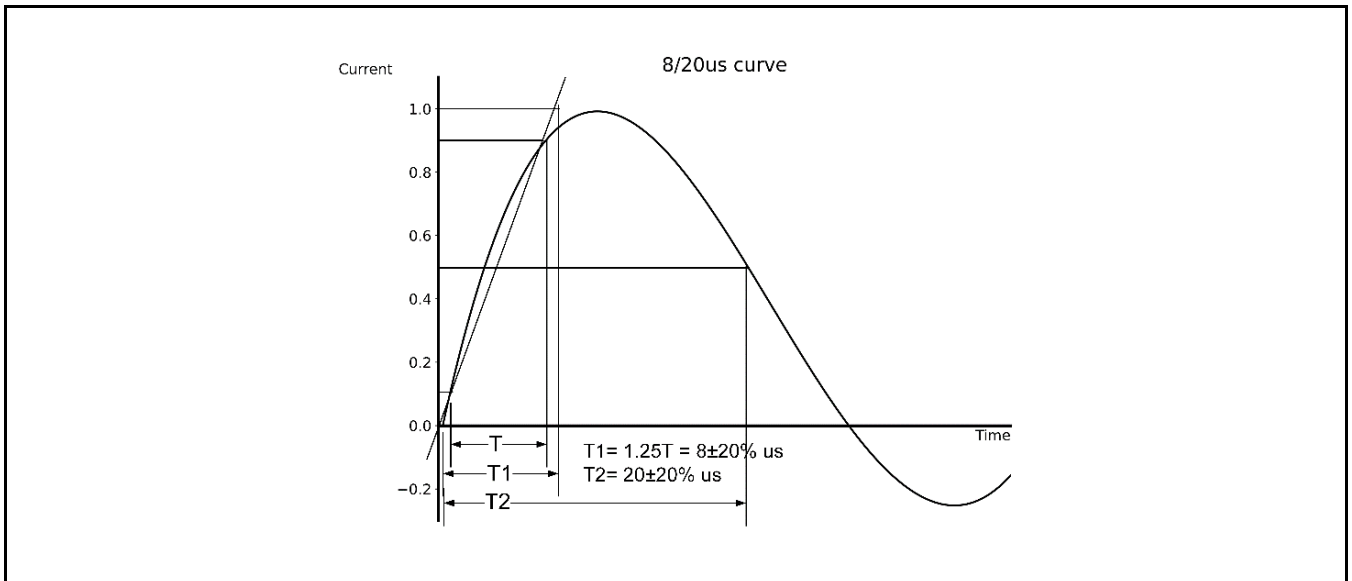
At  $T_A = 25^\circ\text{C}$  unless otherwise noted

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)	( $\mu\text{A}$ )	(pF)
PESD3V3U1UA	3.3	4.5	8.5	14.0	20.0	1.0	0.8
PESD5V0U1UA	5.0	6.5	9.5	12.0	21.0	1.0	0.8
PESD8V0U1UA	8.0	8.5	12.0	10.0	25.0	1.0	0.8
PESD12VU1UA	12.0	13.3	19.0	8.0	35	1.0	0.8
PESD15VU1UA	15.0	16.5	24	6.0	45	1.0	0.8
PESD24VU1UA	24.0	26.0	34	3.0	55	1.0	0.8

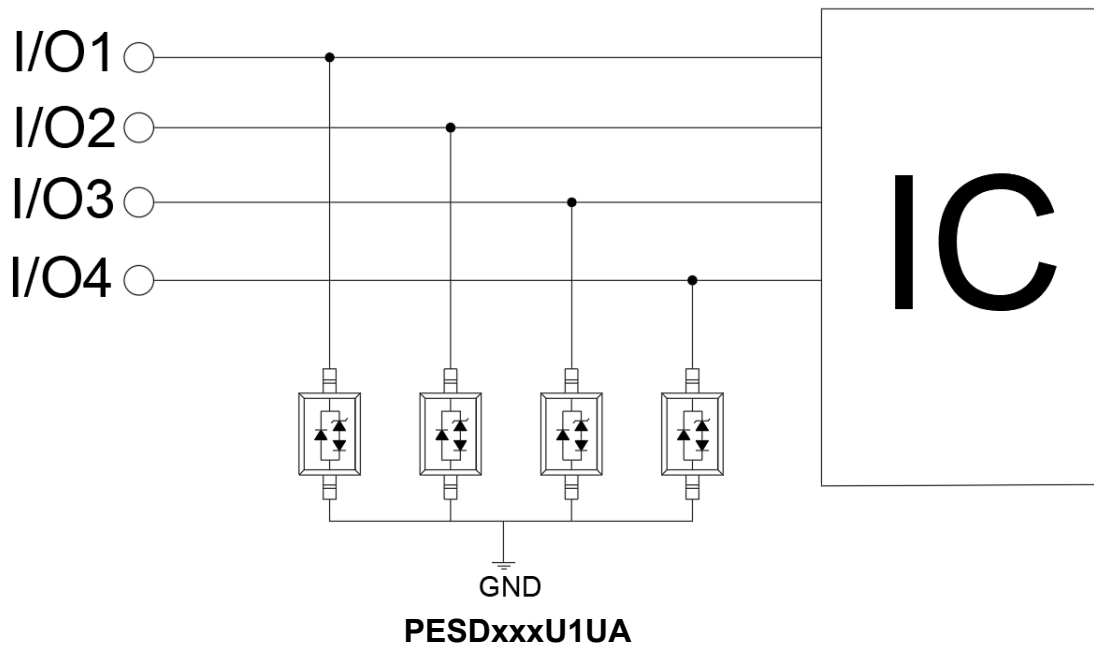
Table-5 Electrical Characteristics for All Series



### 7. Typical Characteristic



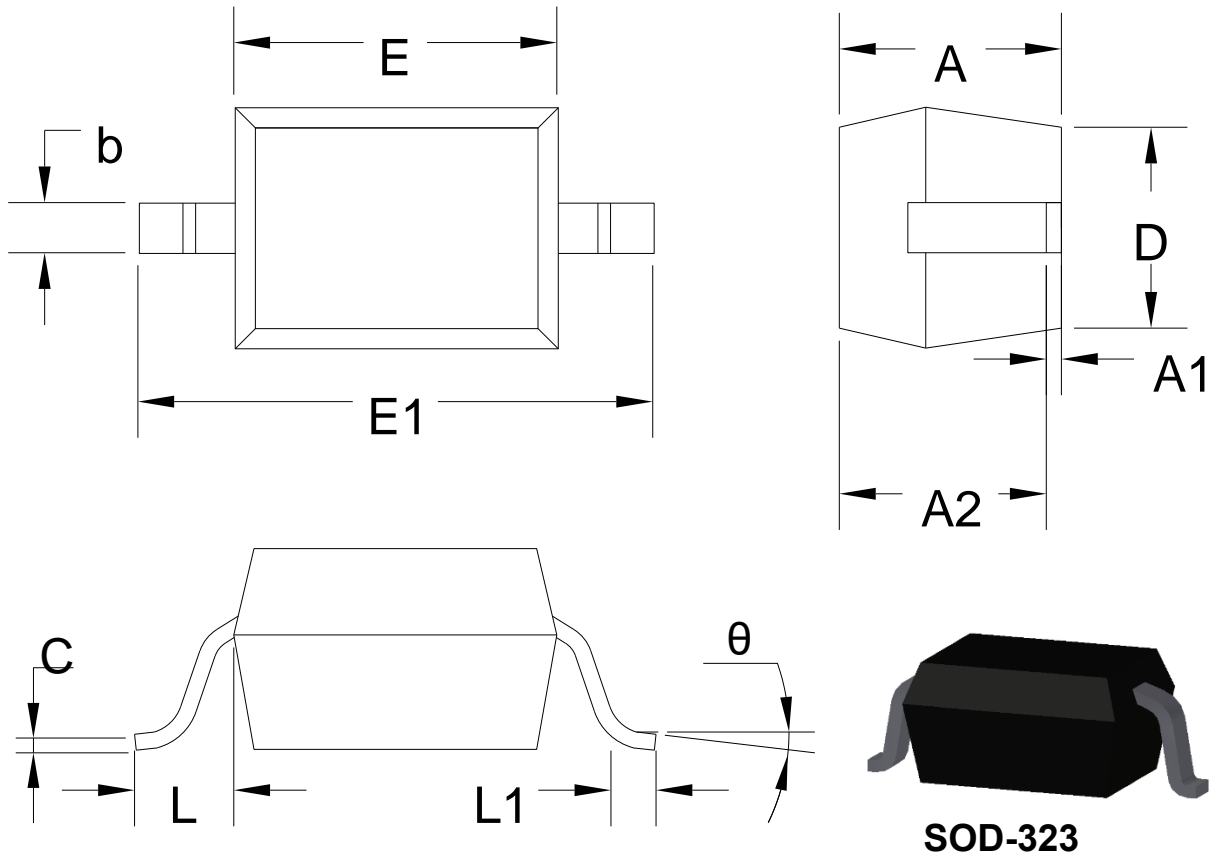
### 8. Typical Application



Pic-3 Typical Internet 1G Interface Application



9. Dimension

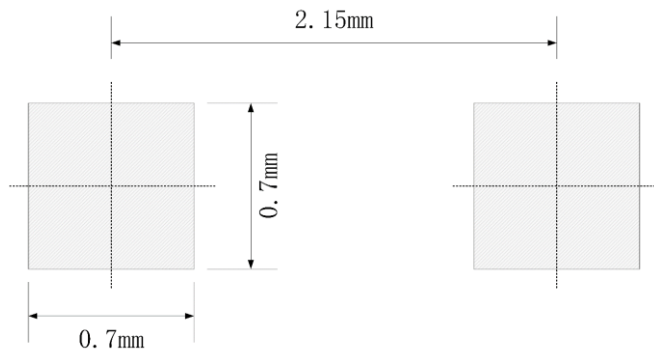


Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.350	0.010	0.014
C	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.550	2.750	0.100	0.108
L	0.475REF		0.019REF	
L1	0.250	0.400	0.010	0.016
θ	0°	8°	0°	8°

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

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