

## SuperESD - SENC3Dxx1U

### 1. Description

The SENC3Dxx1U 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 method.

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- 350W Peak pulse Power (8/20us)
- RoHS compliance
- Unidirectional configuration
- Low clamping voltage
- Working voltage:  
3.3V/5V/7V/12V/15V/24V/36V

### 3. Applications

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

### 4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size	
SENC3Dxx1U	SOD323	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches	
<b>Marking for the SENC3Dxx1U series</b>							
V <sub>RWM</sub>	3.3V	5V	7V	12V	15V	24V	36V
Marking	03W	D05	07W	12W	15W	24W	36W

Table-1 Ordering information

## 5. Pin Configuration and Functions


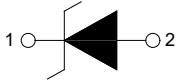
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	GND	Connect to GND		

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 <sub>pk</sub>	-	350	W
Peak pulse current (tp=8/20us)@25°C	I <sub>PP</sub>		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
Junction temperature	T <sub>J</sub>	-	125	°C
Operating temperature	T <sub>OP</sub>	-40	85	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	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 @ $I_T = 1mA$
$V_{CL}$	Clamping voltage
$I_{PP}$	Maximum peak pulse current
$I_R$	Reverse leakage current @ $V_{RWM}$
$C_O$	Typical line capacitance ( $V_{IO}=0V$ , $V_{P-P} = 30mV$ , $f = 1MHz$ )

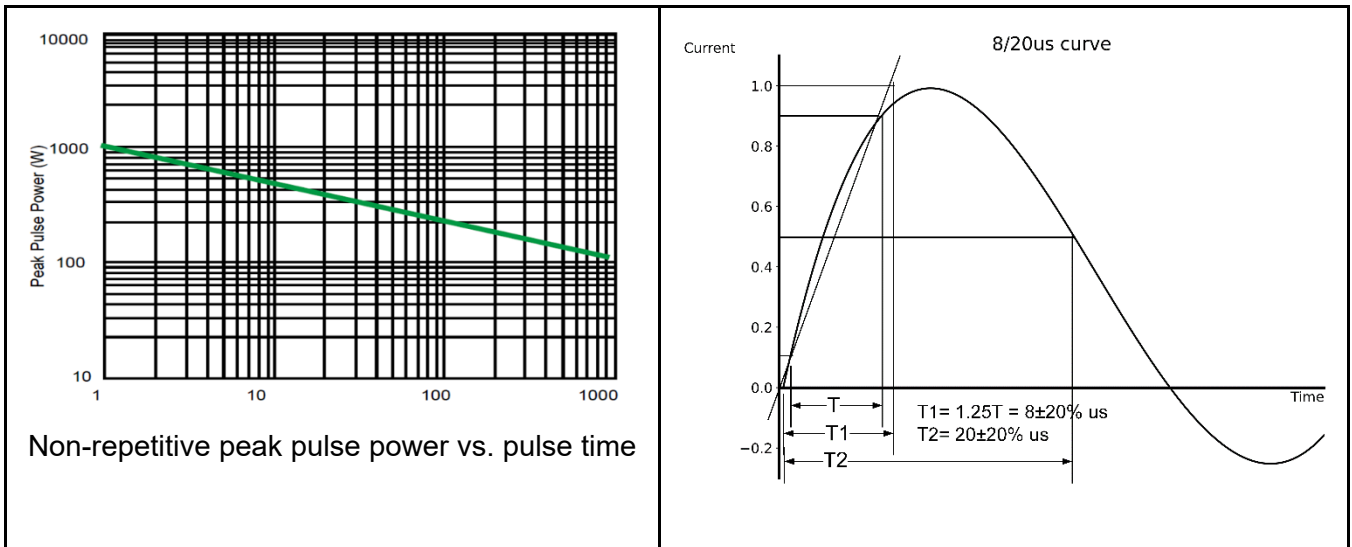
Table-4 Parameters Description

At TA = 25°C unless otherwise noted

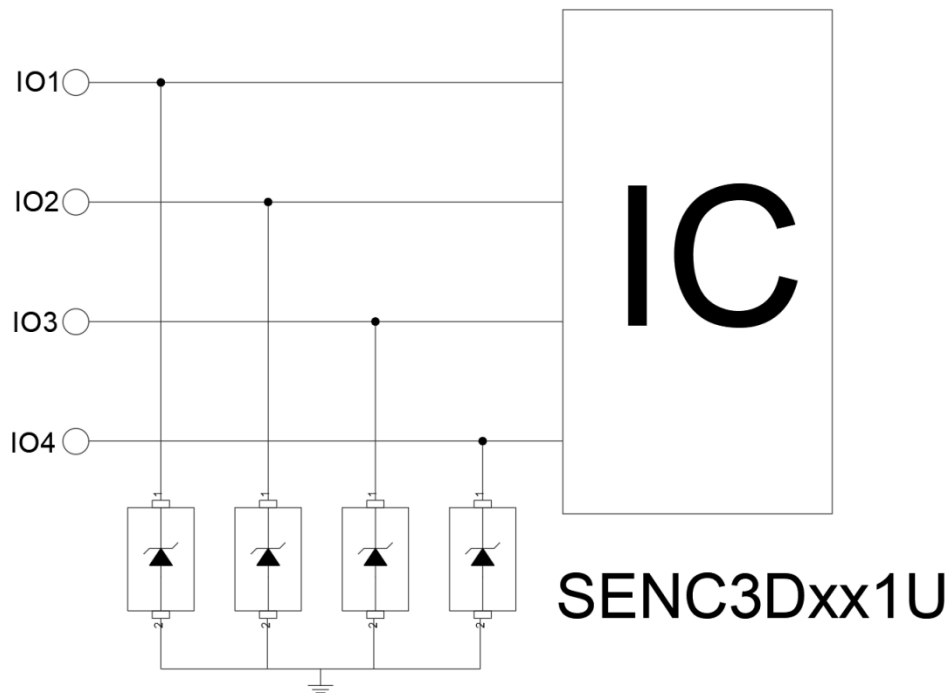
Part Number	$V_{RWM}$	$V_{BR}$	$V_{CL}@I=1A$	$I_{PP}$	$V_{CL}@I=I_{PP}$	$I_R$	$C_O$
	(V)	(V)	(V)	(A)	(V)	(uA)	(pF)
SENC3D3V1U	3.3	4.5	8.0	24.0	19.0	1.0	300
SENC3D5V1U	5.0	6.5	9.0	20.0	20.0	1.0	300
SENC3D7V1U	7.0	7.5	10.0	15.0	23.0	1.0	200
SENC3D12V1U	12.0	13.3	19.0	12.0	33	1.0	150
SENC3D15V1U	15.0	16.5	24	9.0	50	1.0	120
SENC3D24V1U	24.0	26.0	38	6.0	60	1.0	80
SENC3D36V1U	36.0	38.0	55	4.0	70	1.0	50

Table-5 Electrical Characteristics for All Series

### 7. Typical Characteristic

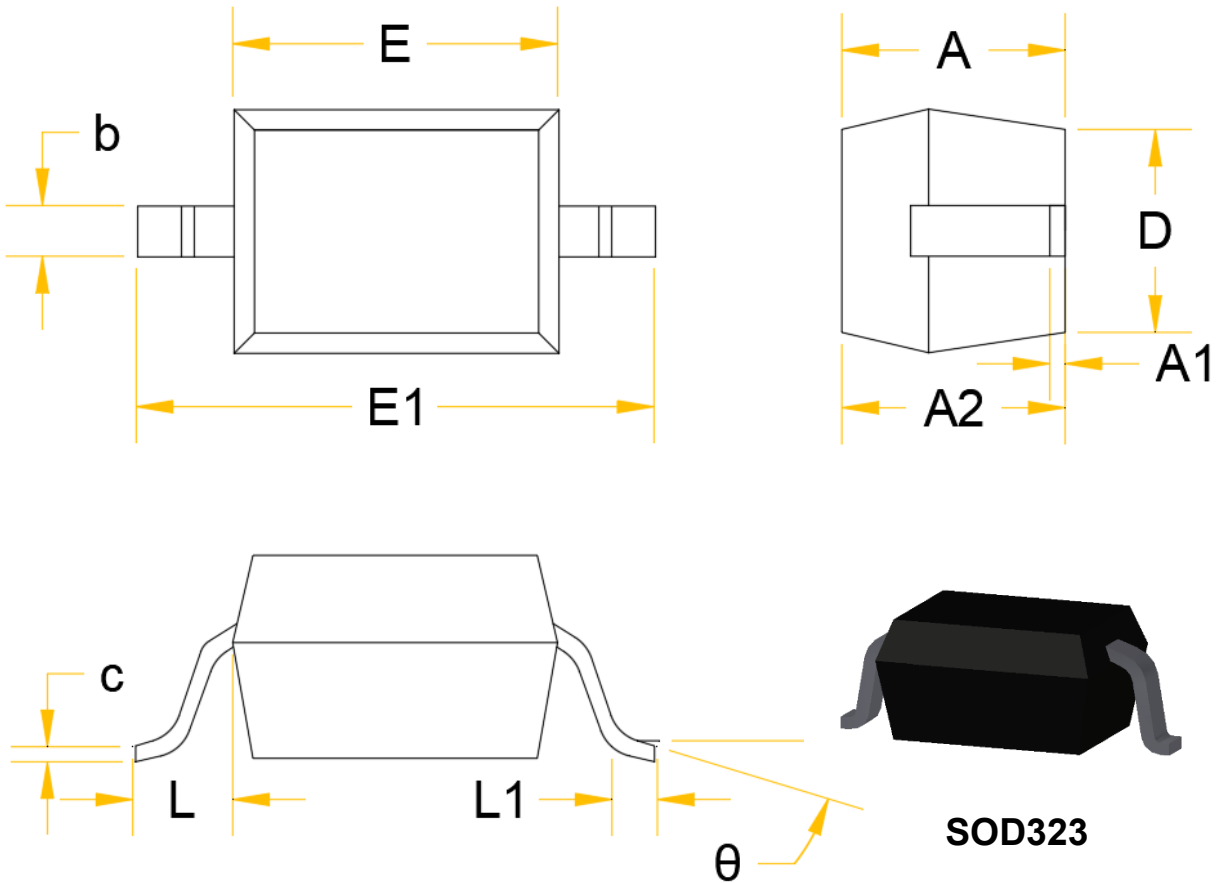


### 8. Typical Application



Pic-3 Typical Internet 1G Interface Application

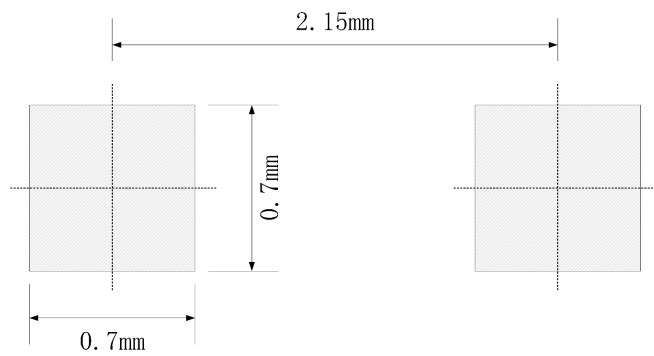
9. Dimension



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
4. Unit: mm

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