SuperESD - SENC23Txx2U

1. Description

The SENC23Txx2U is a Transient Voltage Suppressor Arrays 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 are discharge method.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 450W Peak pulse Power (8/20us)
- Low clamping voltage
- Protects one bidirectional or two Unidirectional lines
- Low leakage current
- ESD protection > 15kV
- RoHS compliant

3. Applications

- Portable electronic
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communications systems

4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
SENC23Txx2U	SOT-23	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Marking for the SENC23Txx2U series							
V_{RWM}	3.3V	5V	7V	12V	15V	24V	36V
Marking	M03	M05	M07	M12	M15	M24	M36

Table-1 Ordering information

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5. Pin Configuration and Functions

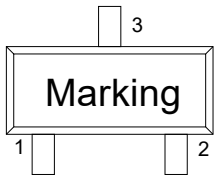
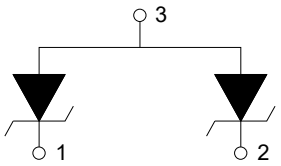
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		
3	GND	Connect to GND		

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℃	P_{pk}	-	450	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±30	kV
Junction temperature	T_J	-	150	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

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

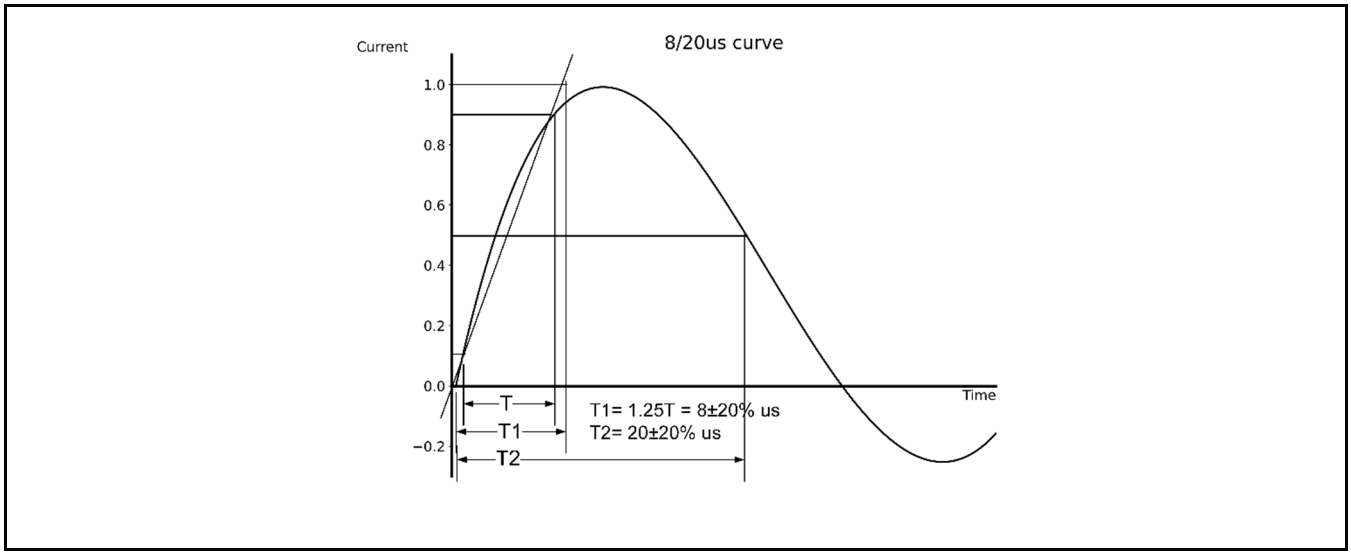
At TA = 25℃ unless otherwise noted

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)
SENC23T3V2U	3.3	4.5	9	32	18	1.0	300
SENC23T5V2U	5	6	9	30	18	1.0	220
SENC23T7V2U	7	7.5	9	25	20	1.0	180
SENC23T12V2U	12	13.5	18	15	28	1.0	100
SENC23T15V2U	15	16.5	22	11	33	1.0	80
SENC23T24V2U	24	26.5	33	6	48	1.0	60
SENC23T36V2U	36	40	55	3	65	1.0	50

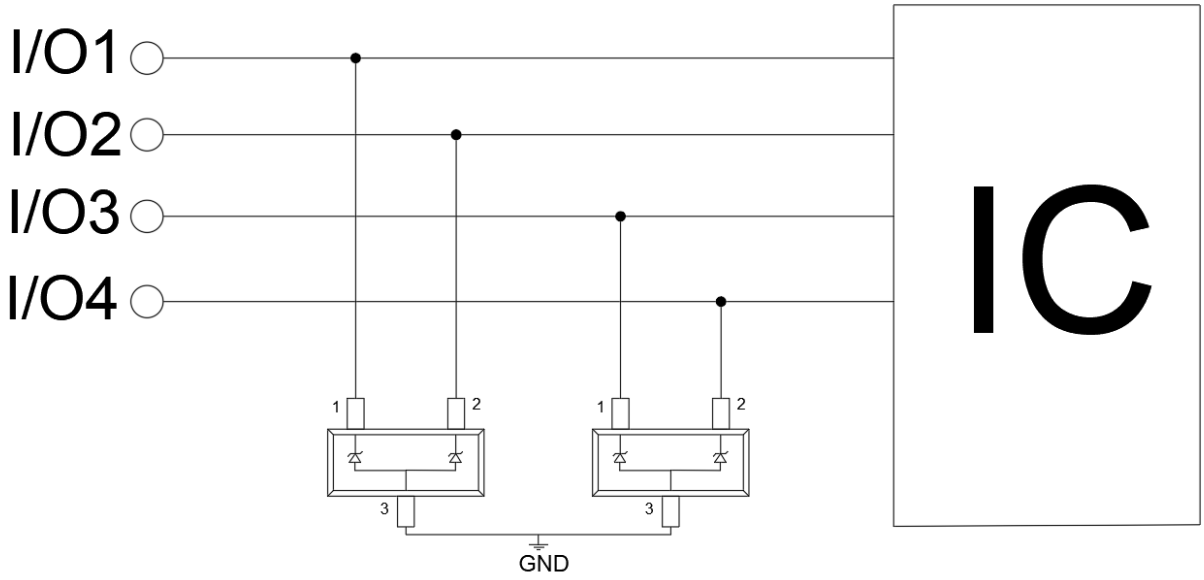
Table-5 Electrical Characteristics for All Series

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7. Typical Characteristic

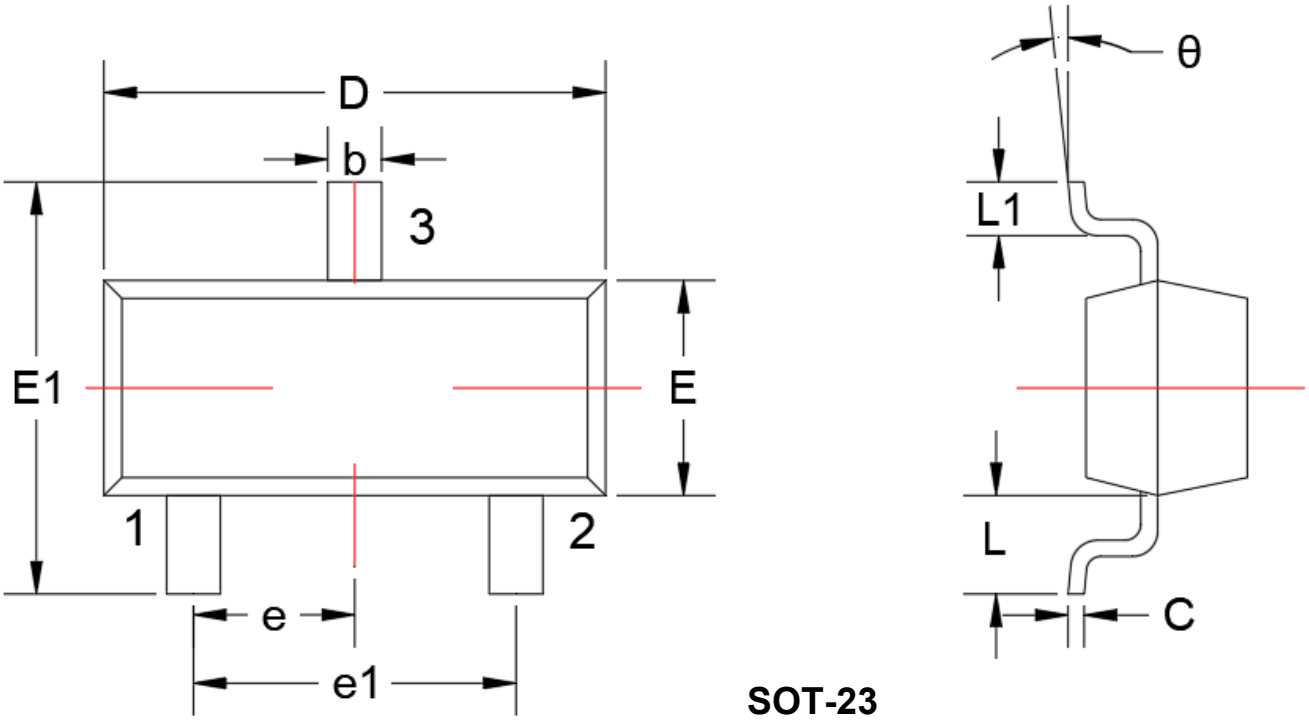


8. Typical Application

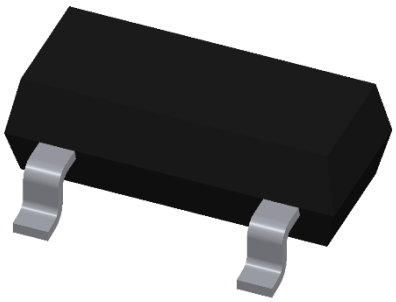


Typical Interface Application

9. Dimension



SOT-23

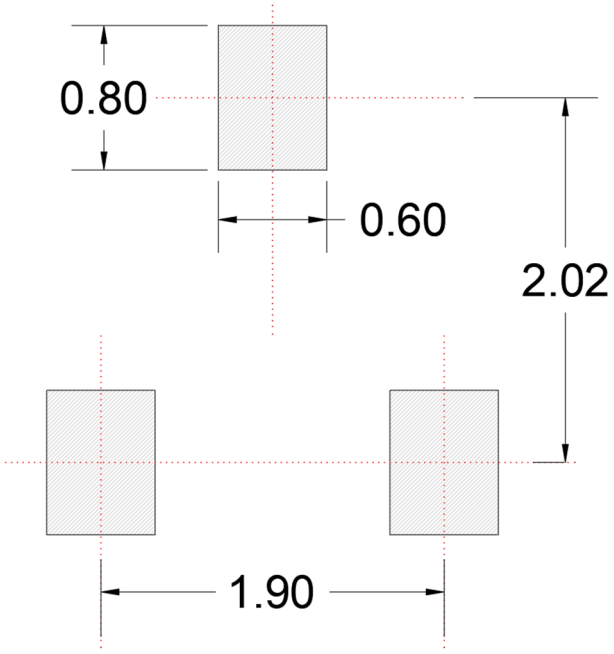


Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	0.90	1.15	e1	1.80	2.00
A1	0.90	1.05	L	0.55REF	
b	0.30	0.50	L1	0.30	0.50
C	0.08	0.15	θ	0°	8°
D	2.80	3.00			
E	1.20	1.40			
E1	2.25	2.55			
e	0.95TYP				

Table-5 Product dimensions

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10. Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only

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