

## SuperESD - SENC23Txx2B

### 1. Description

The SENC23Txx2B 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 15kV ESD pulses using the IEC61000-4-2 are discharge method.

### 2. Features

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

### 3. Applications

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

### 4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size		
SENC23Txx2B	SOT-23	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches		
Marking for the SENC23Txx2U series								
$V_{RWM}$	3.3V	5V	8V	12V	15V	18V	24V	36V
Marking	C03	C05	C08	C12	C15	C18	C24	C36

Table-1 Ordering information

## 5. Pin Configuration and Functions

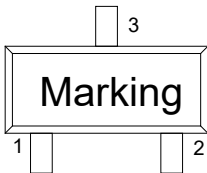
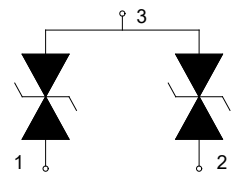
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		
3	GND	Connect to GND		

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°C	P <sub>pk</sub>	-	450	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>	-	± 15	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	± 15	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 @ $I_T = 1\text{mA}$
$V_{CL}$	Typical Clamping voltage
$I_{PP}$	Maximum peak pulse current
$I_R$	Reverse leakage current @ $V_{RWM}$
$C_O$	Typical line capacitance ( $V_{IO}=0\text{V}$ , $V_{P-P} = 30\text{mV}$ , $f = 1\text{MHz}$ )

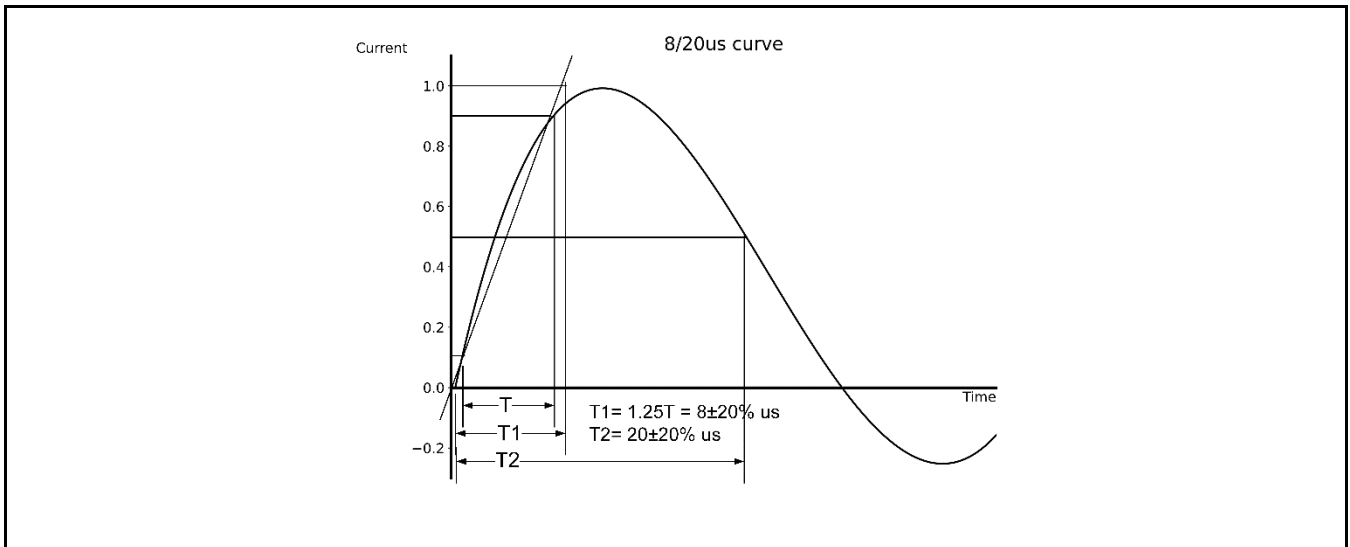
Table-4 Parameters Description

At TA = 25°C unless otherwise noted

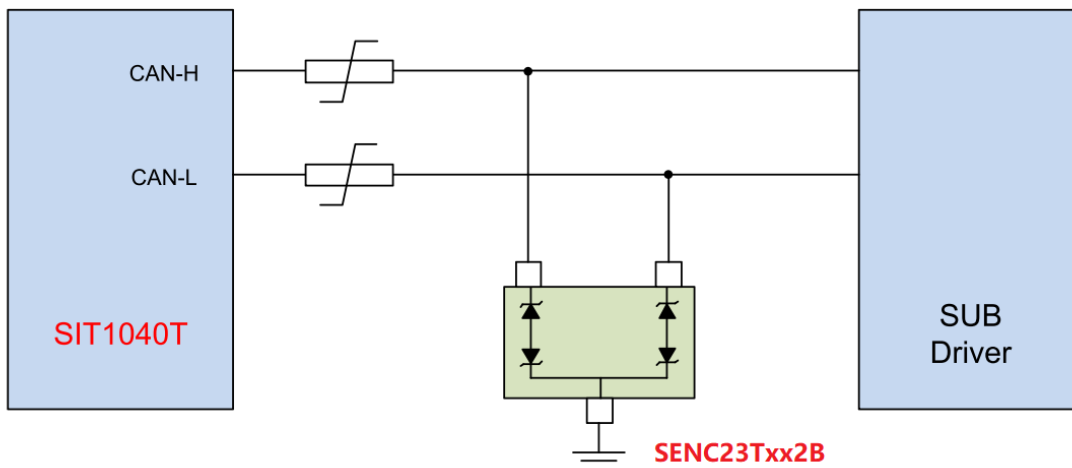
Part Number	$V_{RWM}$	$V_{BR}$	$V_{CL}@I=1\text{A}$	$I_{PP}$	$V_{CL}@I=I_{PP}$	$I_R$	$C_O$
	(V)	(V)	(V)	(A)	(V)	( $\mu\text{A}$ )	(pF)
SENC23T3V2B	3.3	4.5	8.5	24	22.0	1.0	120
SENC23T5V2B	5	6.5	9.5	20	22.0	1.0	120
SENC23T8V2B	8	8.5	11.0	15	28.0	1.0	110
SENC23T12V2B	12	13.3	20.0	12	37.0	1.0	70
SENC23T15V2B	15	16.5	25.0	9.0	55.0	1.0	40
SENC23T18V2B	18	19.5	30.0	7.0	56.0	1.0	35
SENC23T24V2B	24	26.0	40.0	6.0	63.0	1.0	30
SENC23T36V2B	36	38	55.0	4.0	72.0	1.0	25

Table-5 Electrical Characteristics for All Series

### 7. Typical Characteristic

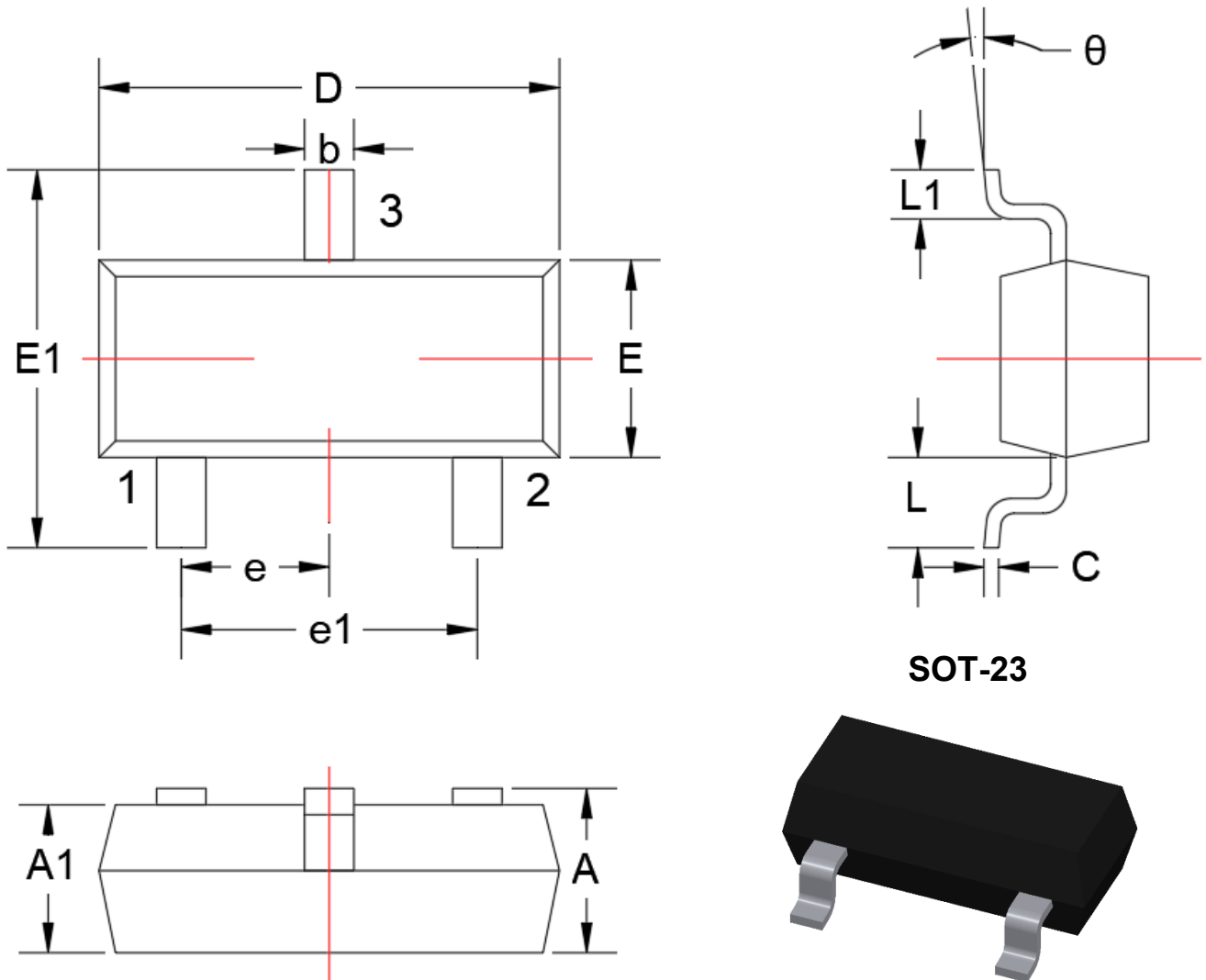


### 8. Typical Application



Typical Interface Application

9. Dimension

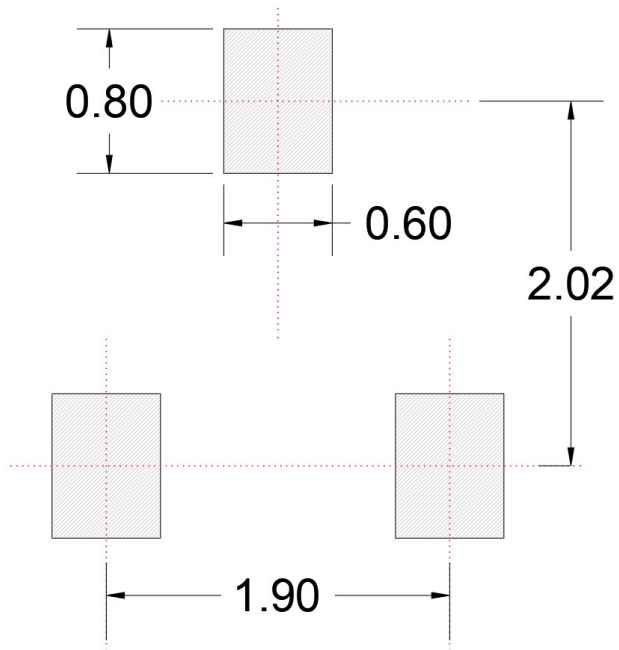


**SOT-23**

Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	0.9	1.15	e1	1.80	2.00
A1	0.00	0.10	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

## 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](http://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