

SuperESD - SENC3Dxx1B

1. Description

The SENC3Dxx1B is Transient Voltage Suppressor that designed to protect components which are connected to data and transmission lines against electrostatic discharge (ESD), electrical fast transient (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
 - $\pm 30\text{kV}$ Contact Discharge
 - $\pm 30\text{kV}$ Air Discharge
- 350W Peak pulse Power (8/20us)
- Low clamping voltage
- Low leakage current
- RoHS compliant
- Protecting one bi-directional lines
- Working voltage:3.3/5/8/12/15/24/36V

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 | |
|-----------------------------------|---------|--------------|-------------|-------------------|---------------------|-----------|-----|
| SENC3Dxx1B | SOD-323 | Halogen free | Tape & Reel | 3,000 PCS | UL 94V-0 | 7 inches | |
| Marking for the SENC3Dxx1B series | | | | | | | |
| V_{RWM} | 3.3V | 5V | 8V | 12V | 15V | 24V | 36V |
| Marking | 2A | 2B | 2C | 2D | 2J | 2H | 2N |

Table-1 Ordering information

5. Pin Configuration and Functions


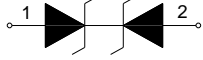
| Pin | Name | Description | Outline | Circuit Diagram |
|-----|------|---------------|---|---|
| 1 | IO1 | Connect to IO |  |  |
| 2 | IO2 | Connect to IO | | |

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} | - | ±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 @ $I_T = 1mA$ |
| V_{CL} | Typical Clamping voltage |
| I_{PP} | Maximum peak pulse current |
| I_R | Reverse leakage current @ V_{RWM} |
| C_O | Typical line capacitance ($V_{IO}=0V$, $V_{P-P} = 30mV$, $f = 1MHz$) |

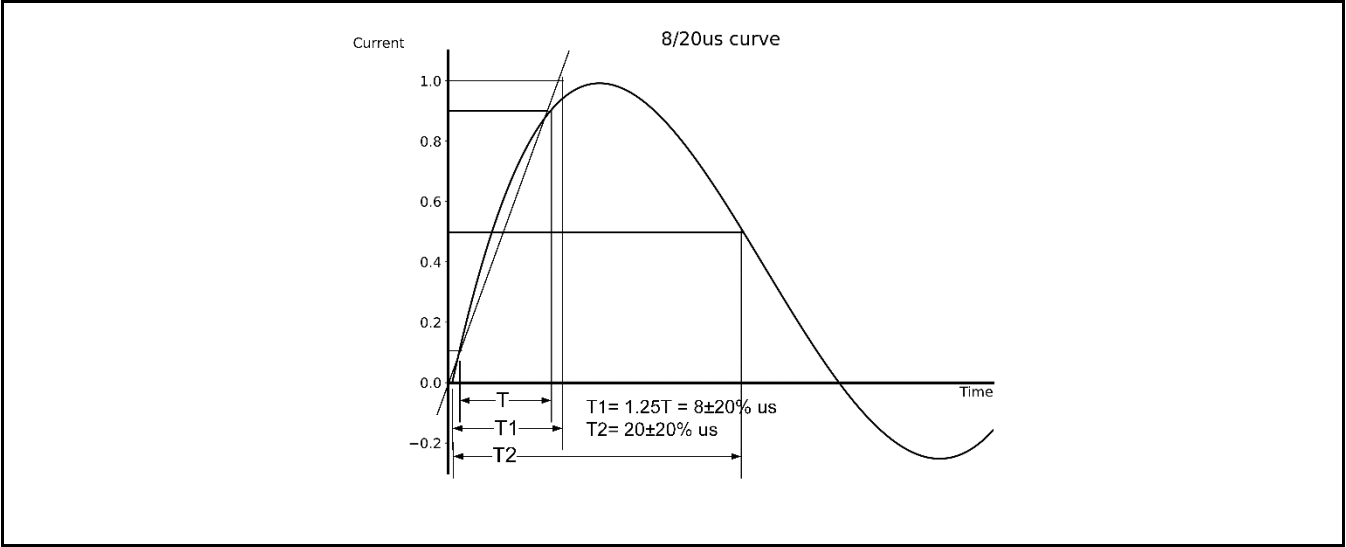
Table-4 Parameters Description

At TA = 25°C unless otherwise noted

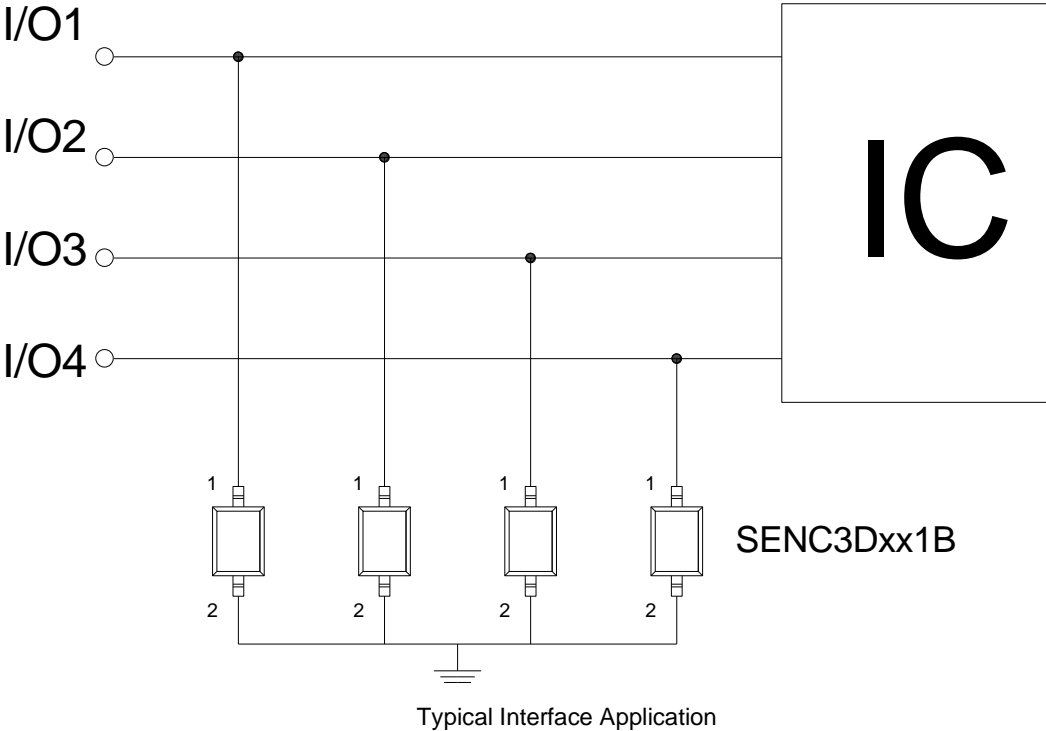
| Part Number | V_{RWM} | V_{BR} | $V_{CL}@I=1A$ | I_{PP} | $V_{CL}@I=I_{PP}$ | I_R | C_O |
|-------------|-----------|----------|---------------|----------|-------------------|-------|-------|
| | (V) | (V) | (V) | (A) | (V) | (uA) | (pF) |
| SENC3D3V1B | 3.3 | 4.5 | 8.5 | 24.0 | 22.0 | 1.0 | 150 |
| SENC3D5V1B | 5 | 6.5 | 9.5 | 20.0 | 22.0 | 1.0 | 120 |
| SENC3D8V1B | 8 | 8.5 | 11.0 | 15.0 | 28.0 | 1.0 | 110 |
| SENC3D12V1B | 12 | 13.3 | 20.0 | 12.0 | 37.0 | 1.0 | 70 |
| SENC3D15V1B | 15 | 16.5 | 25.0 | 9.0 | 55.0 | 1.0 | 40 |
| SENC3D24V1B | 24 | 26.0 | 40.0 | 6.0 | 63.0 | 1.0 | 30 |
| SENC3D36V1B | 36 | 38.0 | 55.0 | 4.0 | 72.0 | 1.0 | 25 |

Table-5 Electrical Characteristics for All Series

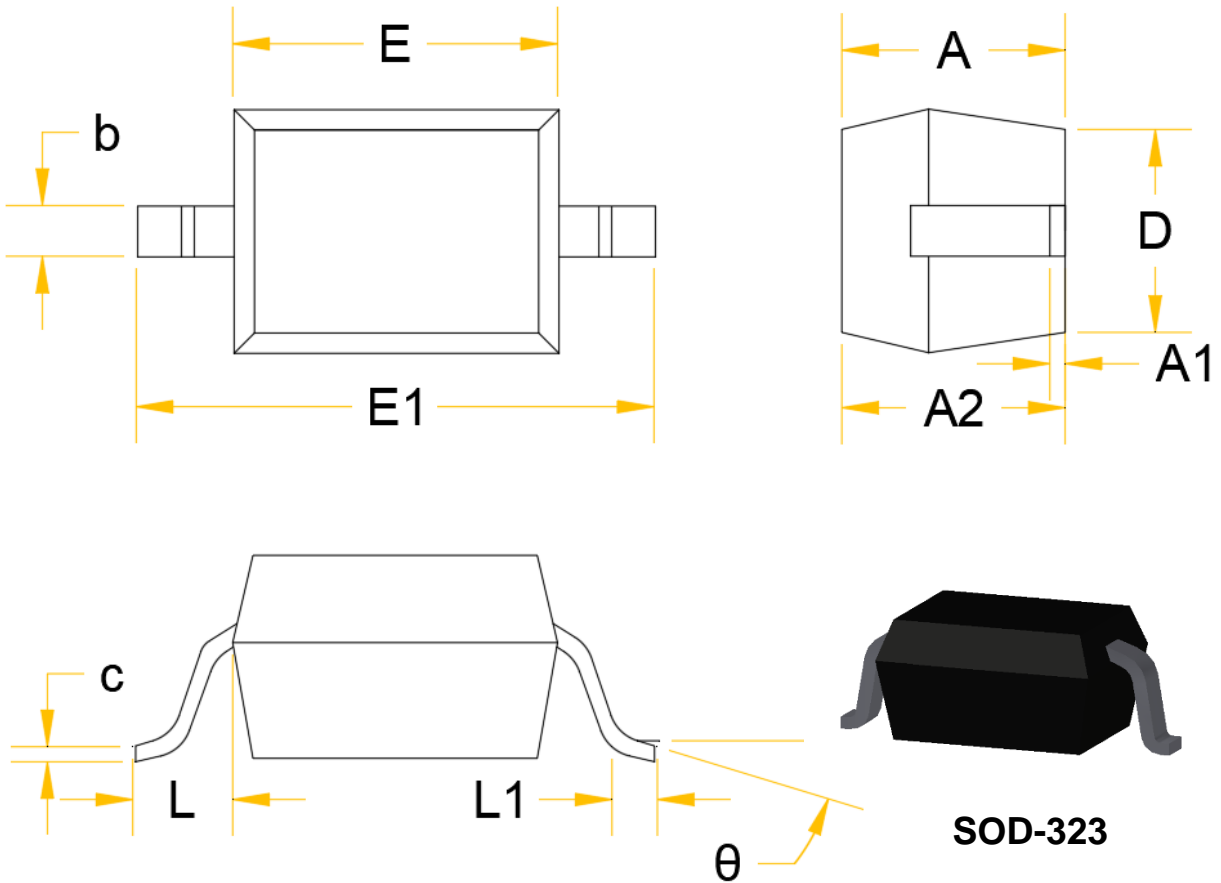
7. Typical Characteristic



8. Typical Application



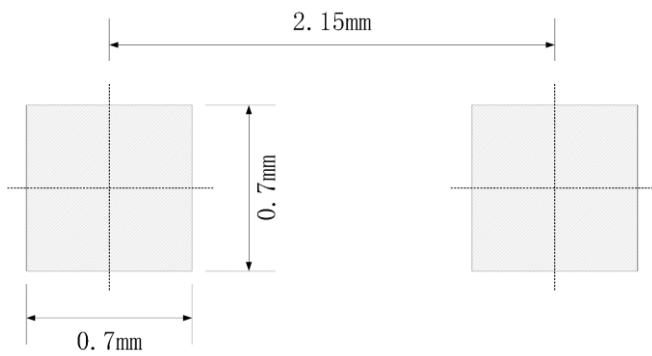
9. Dimension



| 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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