

SuperESD - SENC3D48V1B

1. Description

The SENC3D48V1B 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 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
- 1700W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 48V
- Low leakage current
- RoHS compliant
- Protecting one bi-directional line
- Junction capacitance: 20pF Typ.

3. Applications

- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- CAN bus protection
- Automotive application
- Cellular handsets and accessories

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
SENC3D48V1B	SOD-323	48B	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

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℃	P _{pk}	-	1700	W
Peak pulse current (tp=8/20us) @25℃	I _{PP}		18	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

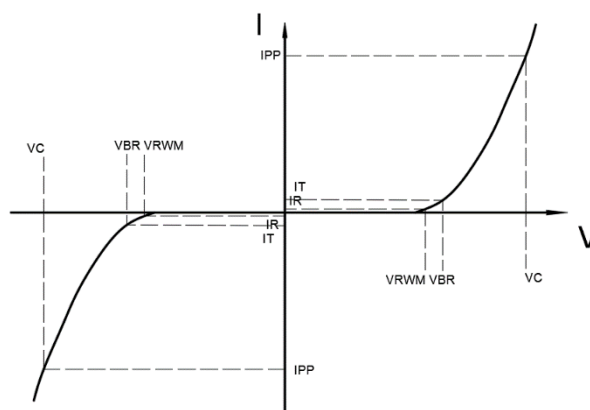
6.2. Electrical Characteristics

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				48	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	52			V
Reverse Leakage Current	I_R	$V_{RWM}=48\text{V}$			1.0	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}$; $t_p=8/20\mu\text{s}$		60	65	V
Clamping Voltage	V_C	$I_{PP}=18\text{A}$; $t_p=8/20\mu\text{s}$		87	95	V
Junction Capacitance	C_J	$V_R=0\text{V}$; $f=1\text{MHz}$		20	30	pF

Table-4 Electrical Characteristics

Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}



7. Typical Characteristic

Figure1: Clamping Voltage vs. Peak Pulse Current

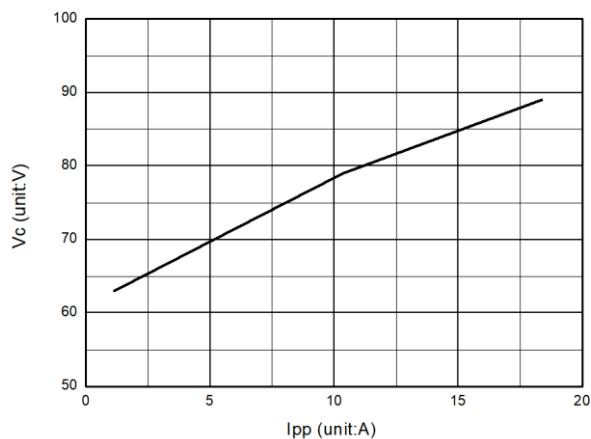


Figure2: Junction Capacitance vs. Reverse Voltage

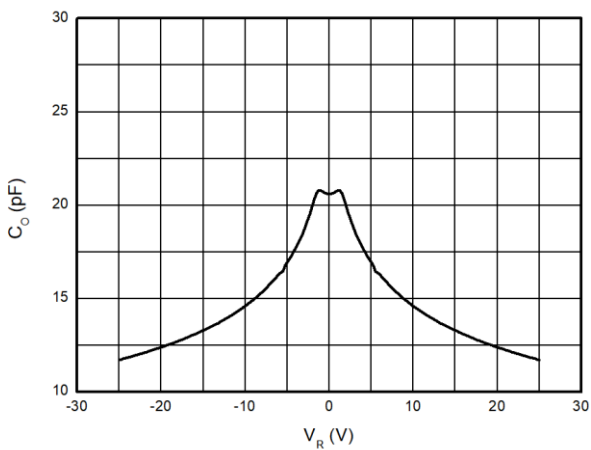


Figure3: 8 X 20us Pulse Waveform

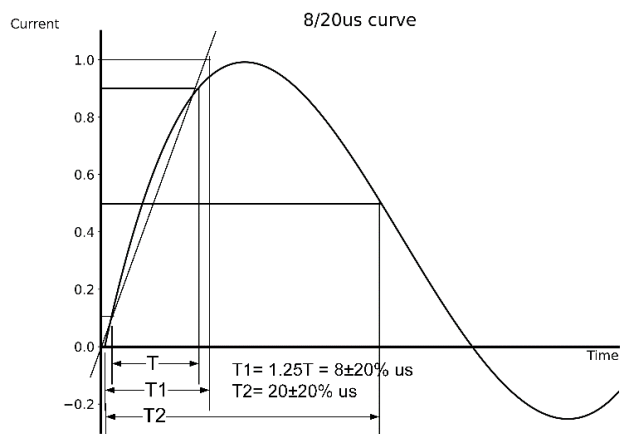
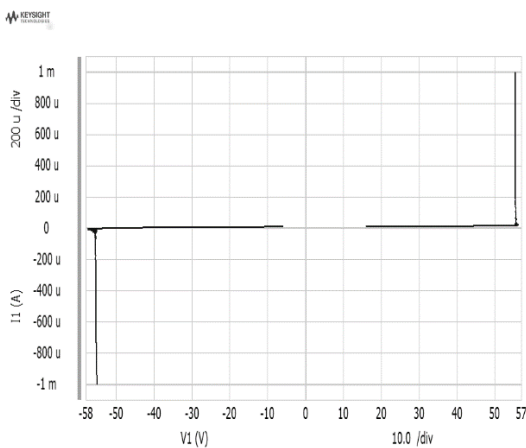
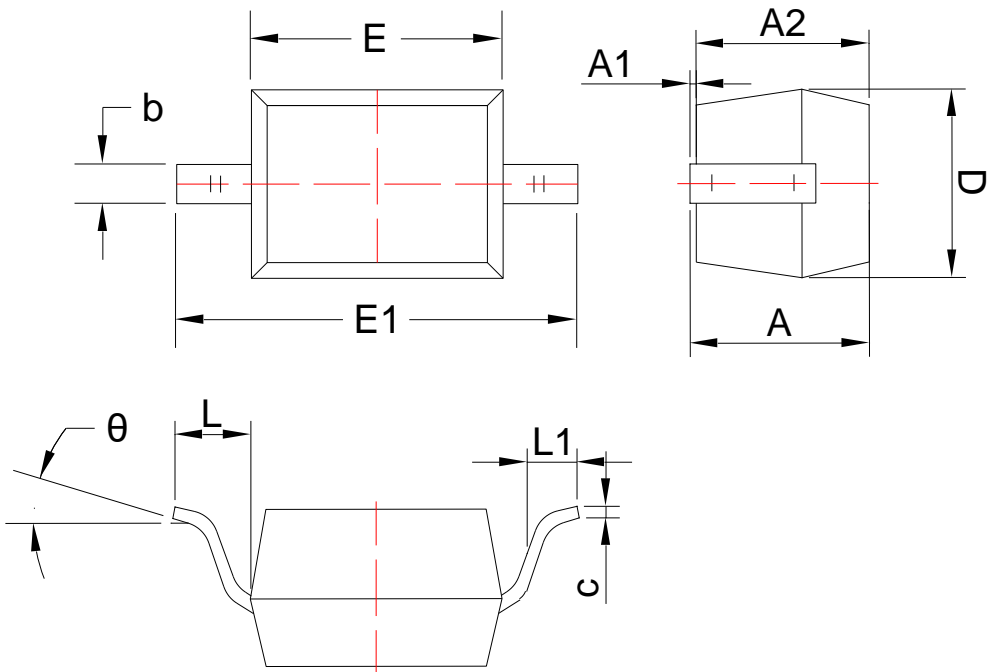


Figure4: I-V Curve



8. Dimension (SOD-323)



Symbol	Dimensions in Millimeters	
	Min.	Max.
A	0.80	1.00
A1	0.00	0.14
A2	0.66	0.97
b	0.25	0.35
c	0.08	0.18
D	1.20	1.40
E	1.55	1.80
E1	2.50	2.80
L	0.475REF	
L1	0.25	0.40
θ	0°	8°

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