

1-Line Ultra Small Bi-directional TVS Diode

Description

The SESDB3V3UDL2 is a bi-directional TVS diode, to provide fast-response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data. The SESDB3V3UDL2 complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into an ultra-small $0.6 \times 0.3 \times 0.3\text{mm}$ lead-free DFN package. The ultra-small size and high ESD protection make SESD3V3UDL2 an ideal choice to replace 0201 size multilayer varistors (MLVs) and protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Ultra small package: $0.6 \times 0.3 \times 0.3\text{mm}$
- Very low capacitance
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 7A ($8/20\mu\text{s}$)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN0603-2 ($0.6 \times 0.3 \times 0.3\text{mm}$)
- Lead Finish: NiPdAu
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020

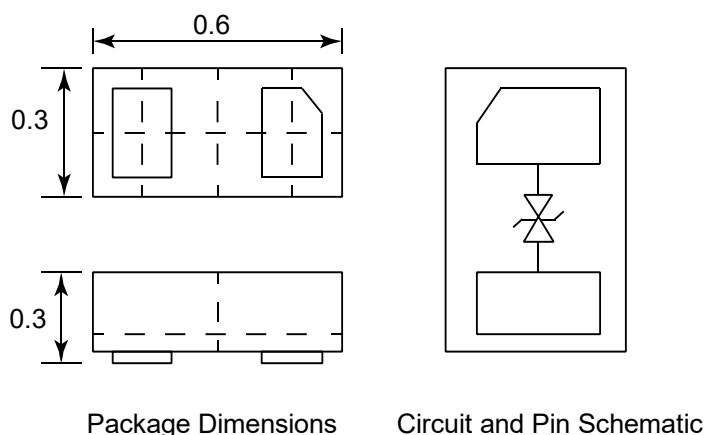
Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Ordering Information

Part Number	Shipping	Reel Size
SESDB3V3UDL2	10000/Tape & Reel	7 inch

Dimensions and Pin Configuration

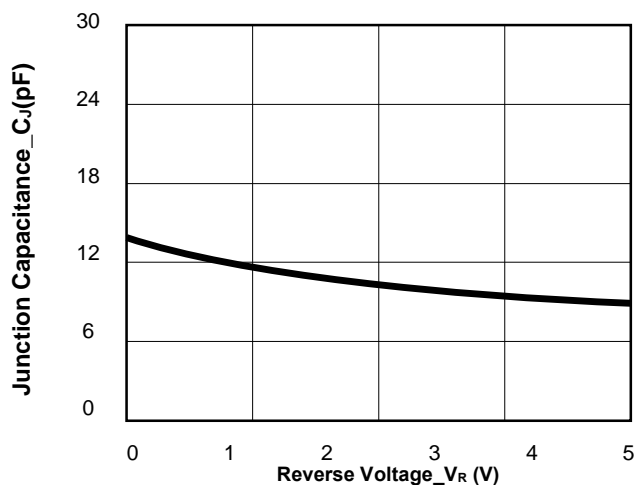
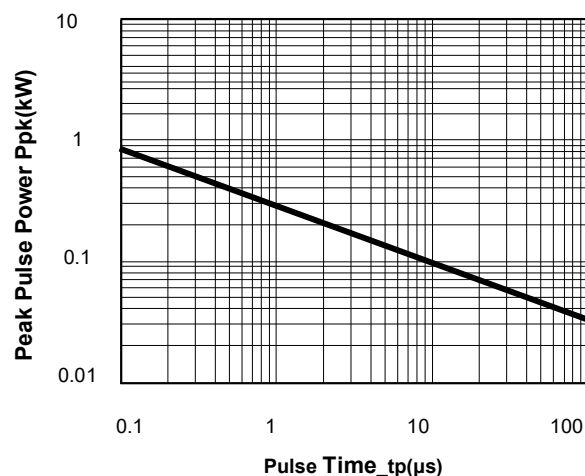
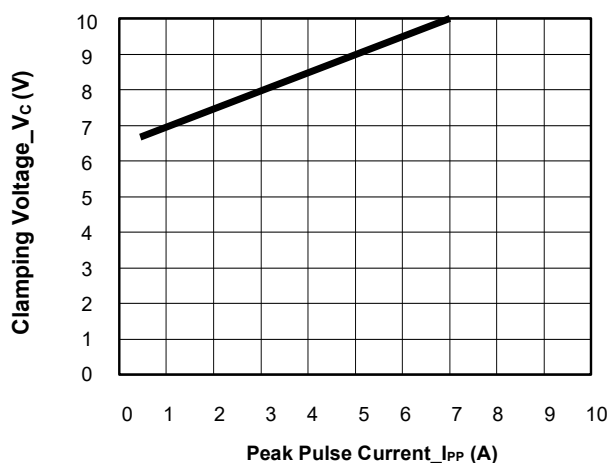
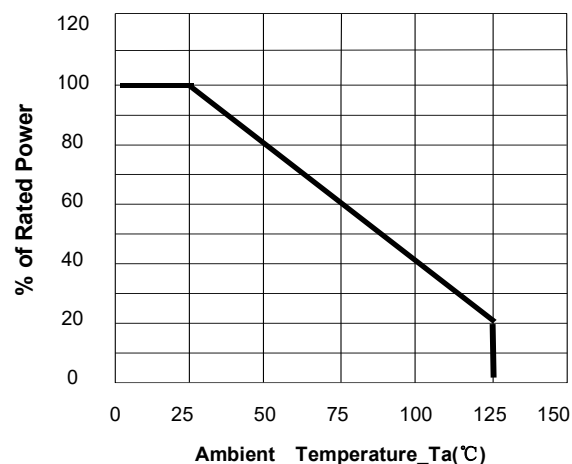
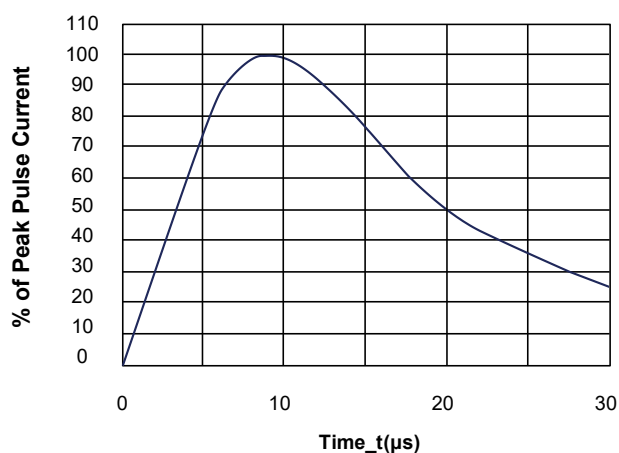


Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

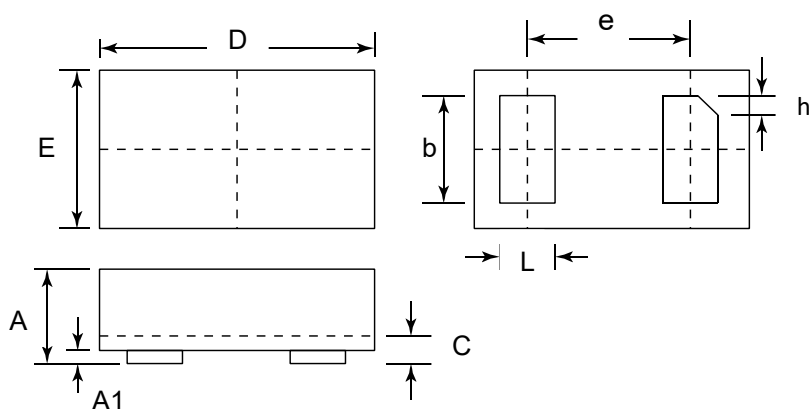
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PK}	70	W
Peak Pulse Current (8/20 μs)	I_{PP}	7	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30 ± 30	kV
Operating Temperature Range	T_{OP}	-40 to +85	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			3.3	V	
Breakdown Voltage	V_{BR}	3.8			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			1	μA	$V_{RWM} = 3.3\text{V}$
Clamping Voltage	V_C		5.5	7	V	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$
Clamping Voltage	V_C		8	10	V	$I_{PP} = 7\text{A}$, $t_p = 8/20\mu\text{s}$
Junction Capacitance	C_J		13	20	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

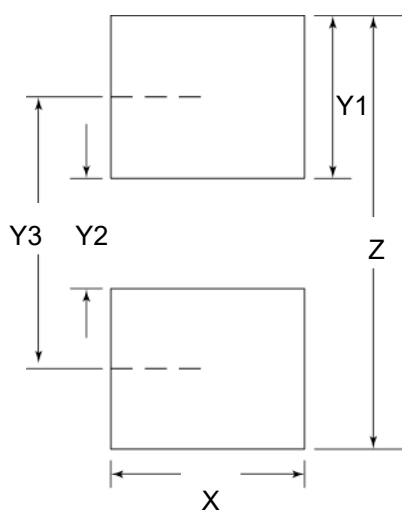
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)

Junction Capacitance vs. Reverse Voltage

Peak Pulse Power vs. Pulse Time

Clamping Voltage vs. Peak Pulse Current

Power Derating Curve

8/20 μs Pulse Waveform

DFN0603-2 Package Outline Drawing



SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.230		0.330
A1		0.020	0.050
b	0.215	0.245	0.275
c	0.120	0.150	0.180
D	0.550	0.600	0.650
e	0.355 BSC		
E	0.250	0.300	0.350
L	0.160	0.190	0.220
h	0.079 BSC		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.30	0.30
Y1	0.25	0.010
Y2	0.15	0.006
Y3	0.40	0.016
Z	0.65	0.026