Features

- 240W peak pulse power (8/20μs)
- Ultra low capacitance: 2pF typical
- Ultra low leakage: nA leel
- Low operating voltage: 3.3V
- Low clamping voltage
- Protects one power line or data line
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  - – IEC61000-4-4 (EFT) 40A (5/50ns)
  - – IEC61000-4-5 (Lightning) 16A (8/20μs)
- RoHS Compliant

Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below

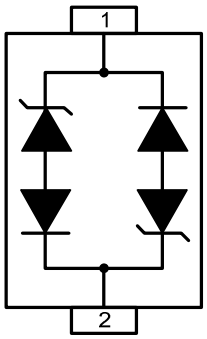
Applications

- USB Ports
- Smart Phones
- Wireless Systems
- Ethernet 10/100/1000 Base T

Description

The ESD3V310LG is a 3.3V bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The ESD3V310LG has a low capacitance with a typical value at 2pF, and complies with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV contact discharge. It is assembled into a lead free SOD-323 package. The small size, low capacitance and high ESD surge protection make ESD3V310LG an ideal choice to protect cell phone, wireless systems, and communication equipment.

Dimensions and Pin Configuration



Circuit and Pin Schematic

Part Number Code

E	S	D	0	5	1	1	L	1
1	2	3	4	5	6	7	8	9

Product Type	
ESD	TSK Electrostatic suppressor ESD Type

Reverse Working Voltage（V）	
3V3	3.3V
05	5V
16	16V

Line	
1	1-Line
2	2-Line
3	3-Line

directional	
0	Bi
1	Uni

Capacitance Type	
L	Low
X	Normal

Size	
1	0201
2	0402
3	DFN0603
4	DFN1006

★ Code 4 to 9 is optional

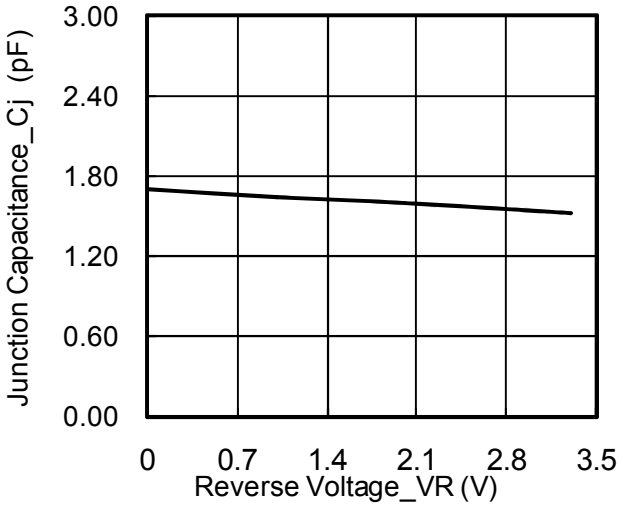
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	240	W
Peak Pulse Current (8/20μs)	I_{PP}	16	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	ESD	±30 ±30	kV
Operating Temperature Range	T_J	−40 to +85	°C
Storage Temperature Range	Tstg	−55 to +150	°C

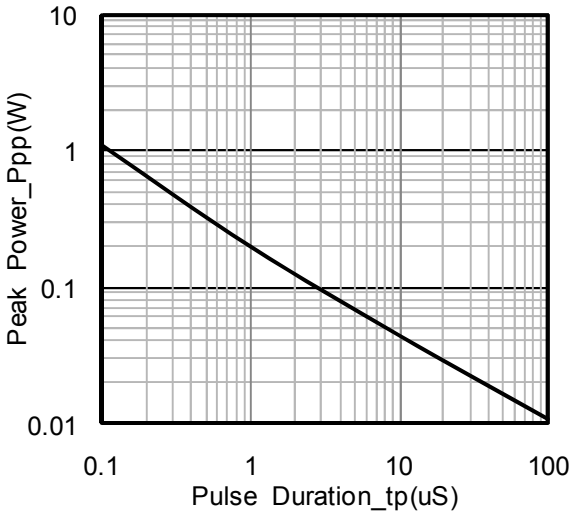
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			3.3	V	
Punch-Through Voltage	V_{PT}	3.5			V	I_T = 2μA
Snap-Back Voltage	V_{SB}	2.8			V	I_T = 50mA
Reverse Leakage Current	I_R			0.5	μA	$_{RWM}$ = 3.3V
Clamping Voltage	V_C			5	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			15	V	I_{PP} = 16A (8 x 20μs pulse)
Junction Capacitance	C_J		2		pF	VR = 0V, f = 1MHz

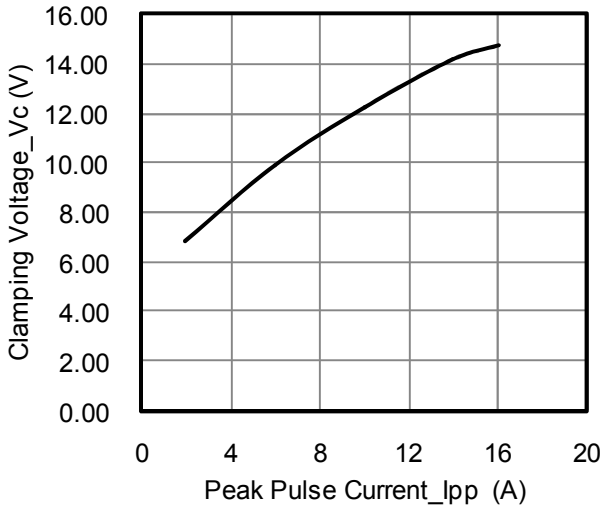
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



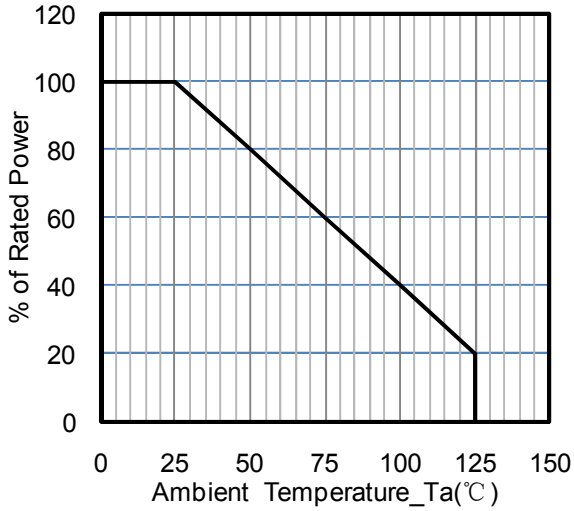
Junction Capacitance vs. Reverse Voltage



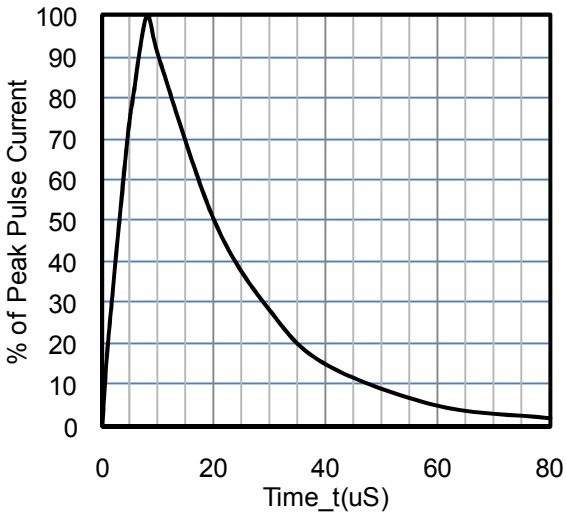
Peak Pulse Power vs. Pulse Time



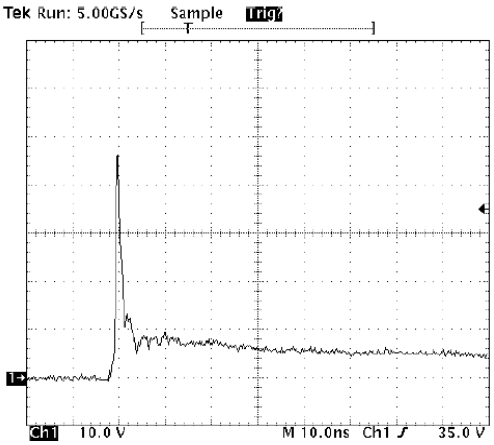
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



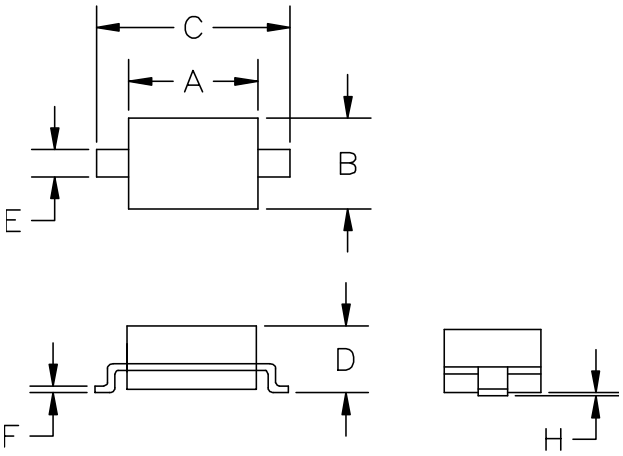
8 X 20uS Pulse Waveform



ESD Clamping Voltage

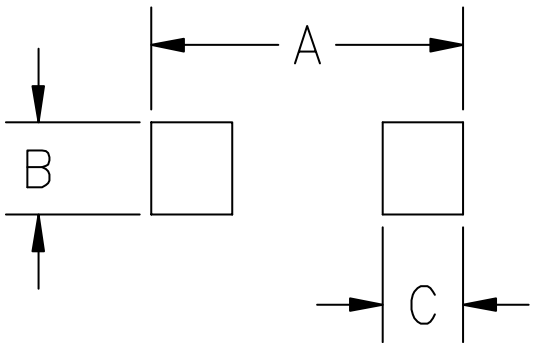
8 kV Contact per IEC61000−4−2

SOD-323 Package Outline Drawing



SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031

Ordering Information

Part Number	Packaging	Reel Size
ESD3V310LG	3000/Tape & Reel	7 inch