

Description

The SSCE3V3 is a 12V 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 SSCE3V3 has a low capacitance with a typical value at 2pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make SSCE3V3 an ideal choice to protect cell phone, wireless systems, and communication equipments.

Features

- 350W peak pulse power (8/20 μs)
- Ultra low capacitance: 0.8pF typical
- Ultra low leakage: nA level
- 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: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 12A (8/20 μs)
- 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
- Marking Information: See Below

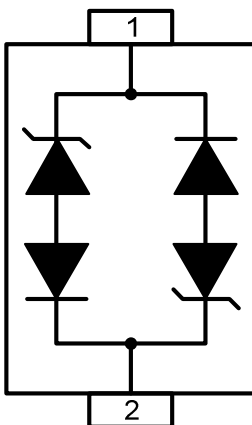
Applications

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

Ordering Information

Part Number	Packaging	Reel Size
SSCE3V312D2	3000/Tape & Reel	7 inch

Dimensions and Pin Configuration



Circuit and Pin Schematic

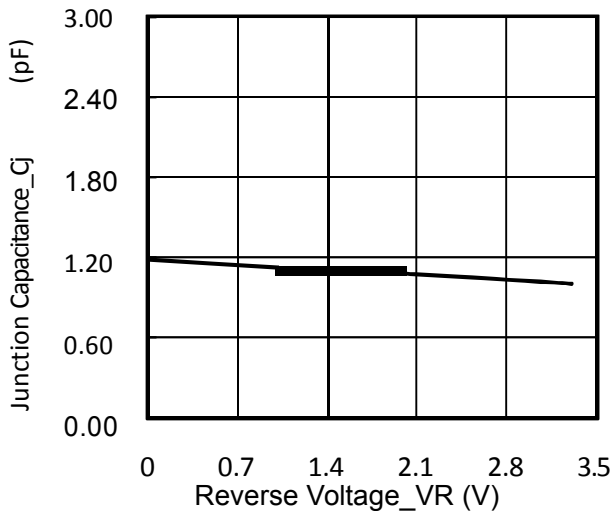
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	350	W
Peak Pulse Current (8/20 μs)	I _{PP}	22	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T _J	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^\circ\text{C}$

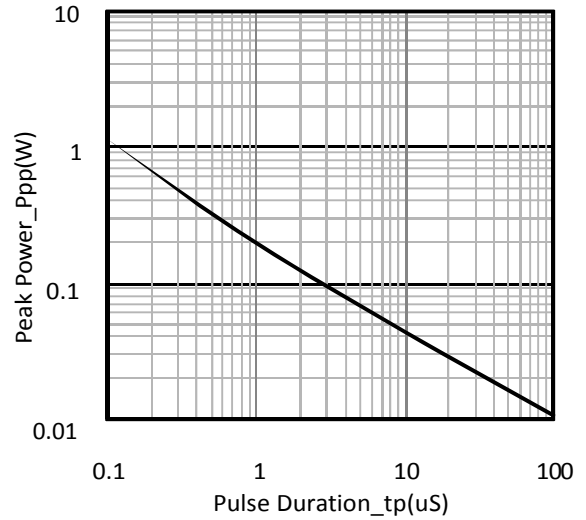
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			3.3	V	
Breakdown Voltage	V _{BR}	4			V	I _T = 1mA
Reverse Leakage Current	I _R			0.1	μA	V _{RWM} = 3.3V
Clamping Voltage	V _C			5	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C			16	V	I _{PP} = 22A (8 x 20 μs pulse)
Junction Capacitance	C _J		0.8		pF	V _R = 0V, f = 1MHz

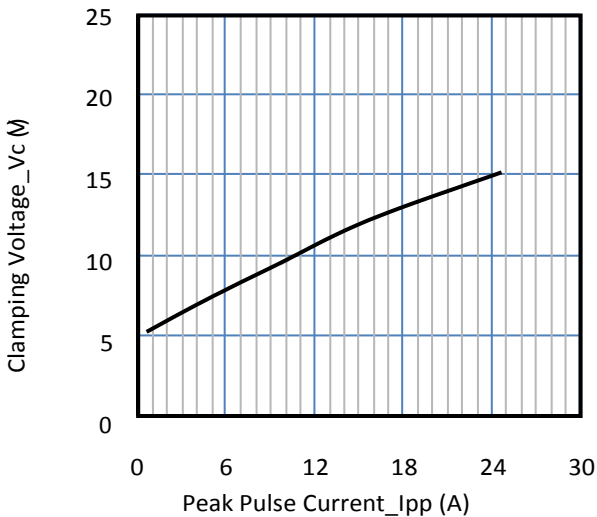
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



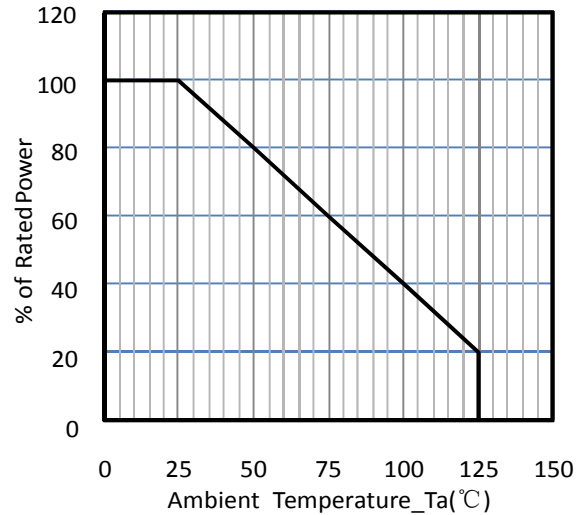
Junction Capacitance vs. Reverse Voltage



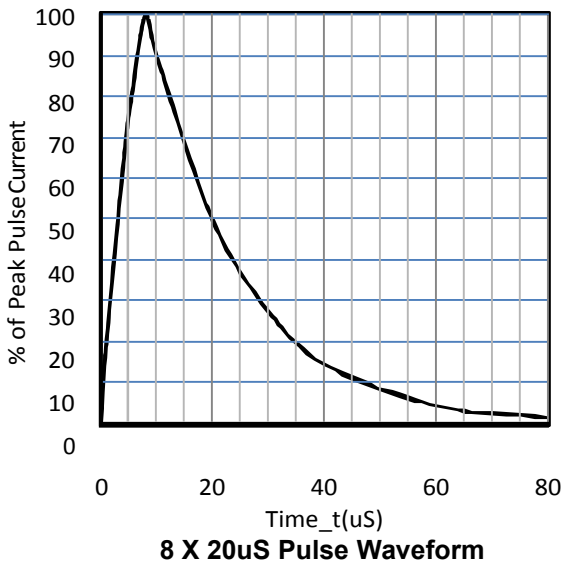
Peak Pulse Power vs. Pulse Time



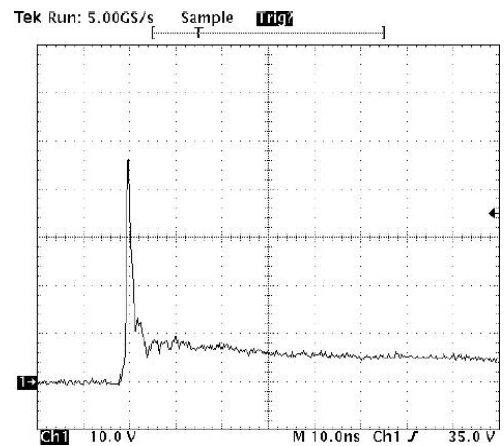
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



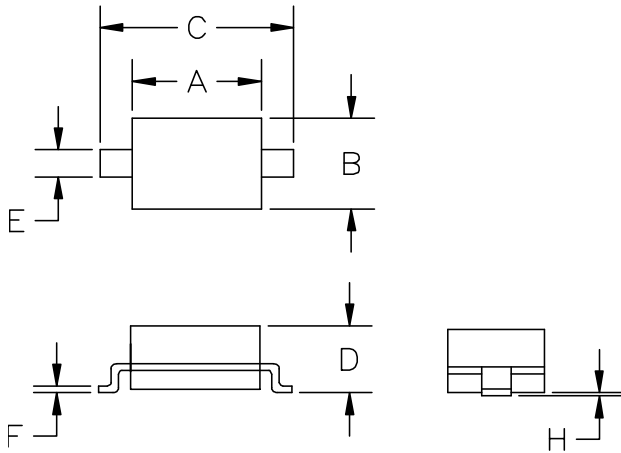
8 X 20uS Pulse Waveform



ESD Clamping Voltage

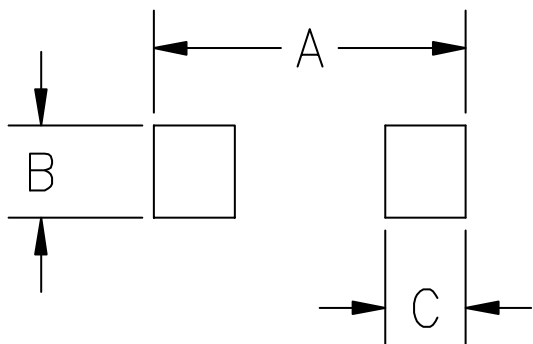
8 kV Contact per IEC61000-4-2

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