

Description

The ST0321D2S is a 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 ST0321D2S has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a DFN0603-2 leadfree package. The small size, ultra-low capacitance and high ESD surge protection make ST0321D2S an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Features

- ◆ Ultra low capacitance: 0.3pF typical
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 3.3V
- ◆ Low clamping voltage
- ◆ 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) 10A (8/20 μs)
- ◆ RoHS Compliant

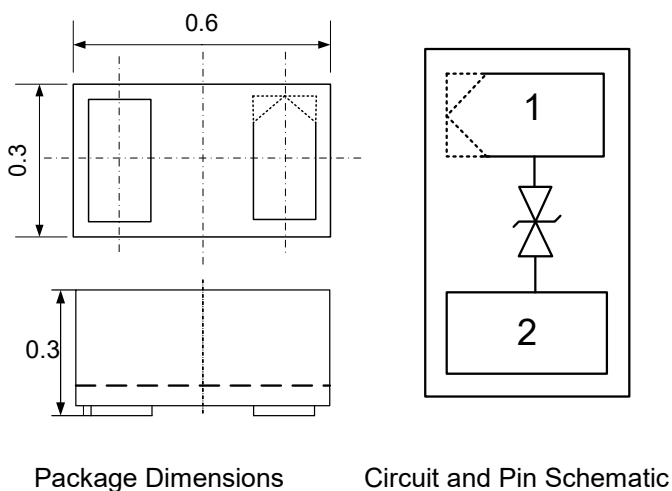
Mechanical Characteristics

- ◆ Package: DFN0603-2
- ◆ Case Material: “Green” Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

Applications

- ◆ Cellular Handsets and Accessories
- ◆ Display Ports
- ◆ MDDI Ports
- ◆ USB Ports
- ◆ Digital Visual Interface (DVI)
- ◆ PCI Express and Serial SATA Ports

Dimensions and PIN Configuration



Ordering Information

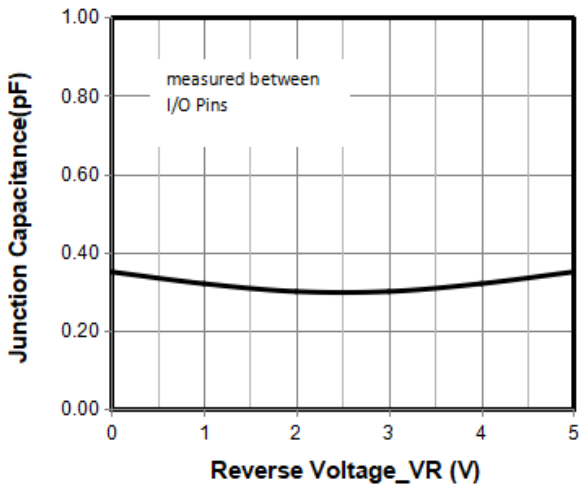
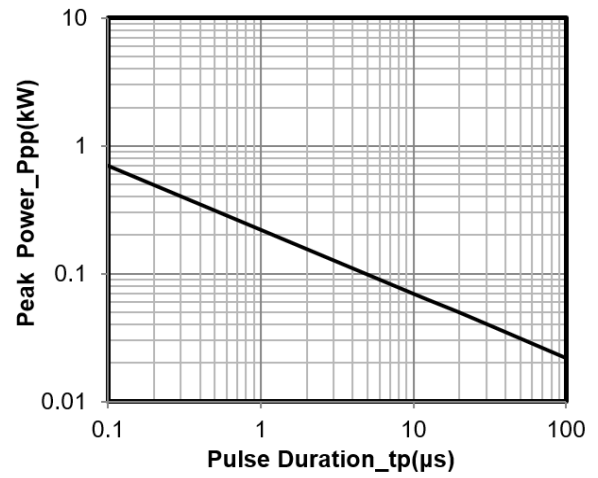
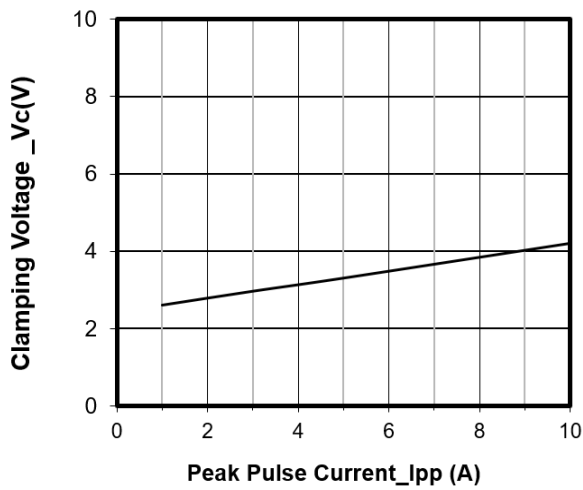
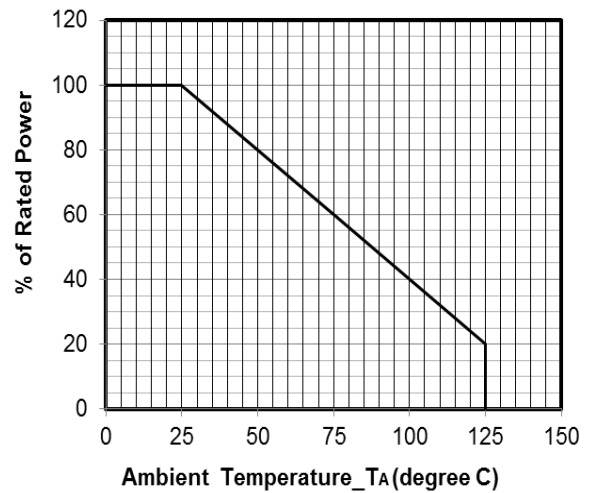
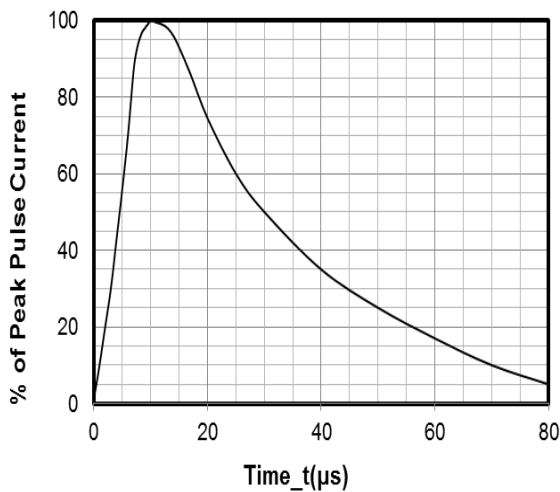
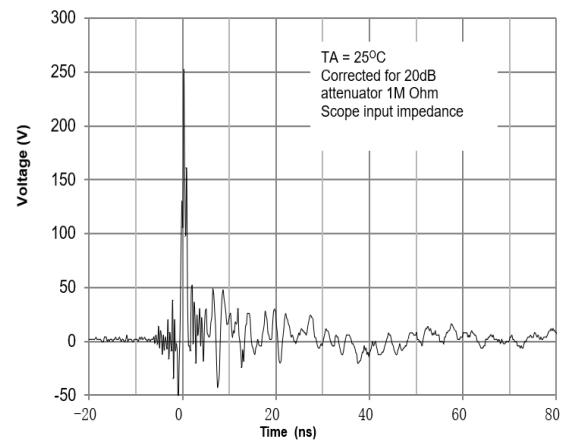
Part Number	Packaging	Reel Size
ST0321D2S	10000/Tape & Reel	7 inch

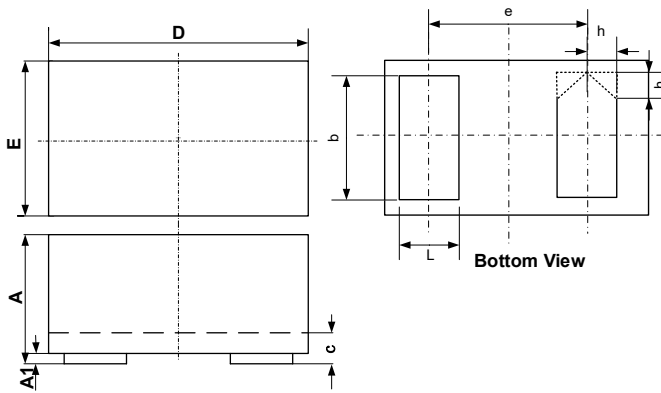
Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	50	W
Peak Pulse Current (8/20μs)	I _{PP}	10	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±30 ±30	kV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

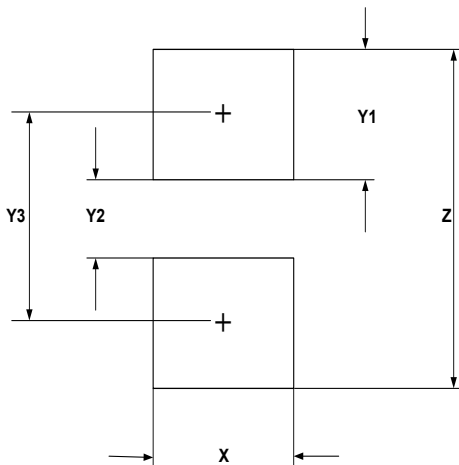
Electrical Characteristics (TA=25°C unless otherwise specified)

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}	0.8			V	I _T = 50mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 3.3V
Clamping Voltage	V _C			3	V	I _{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V _C			5	V	I _{PP} = 10A (8 x 20μs pulse)
Junction Capacitance	C _J		0.3		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 20μs Pulse Waveform

**ESD Clamping Voltage
8 kV Contact per IEC61000-4-2**

DFN0603-2 Package Outline Drawing


SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.230		0.330
A1	0.000	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	0.012
Y1	0.25	0.010
Y2	0.15	0.006
Y3	0.40	0.016
Z	0.65	0.026

Contact Information

Sursemi Technologies, Inc.

396 Arbor Court, Simi Valley, CA 93065

Phone: (805) 402-0326 Email: sales@sursemi.com

Sursemi Co., Ltd. reserves the right to make changes to the product specification and data in this document without notice. Sursemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Sursemi assume any liability arising from the application or use of any products or circuits, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.