

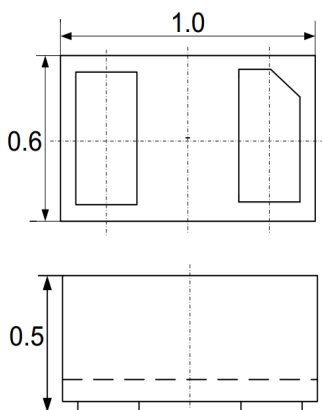
Description

The DC3321P1S is a 3.3V bi-directional ESD protection diode, utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The DC3321P1S 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 an ultra-small 1.0x0.6x0.5mm DFN lead-free pack-age. The small size and high ESD surge protection make DC3321P1S an ideal choice to protect cell phone, digital cameras, audio players and many other portable applica-tions.

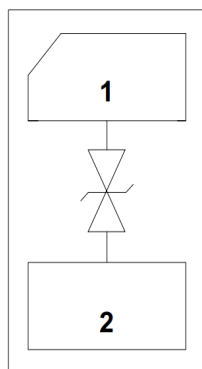
Mechanical Characteristics

- ◆ Package: DFN1006-2 (1.0 x0.6 x0.5mm)
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

Dimensions and Pin Configuration



Package Dimensions



Circuit and Pin Schematic

Features

- ◆ Ultra small package: 1.0 x0.6 x0.5mm
- ◆ Protects one data line
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 3.3V
- ◆ Ultra 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) 8A (8/20 μs)
- ◆ RoHS Compliant

Applications

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

Marking Information



Ordering Information

Part Number	Marking	Packaging	Reel Size
DC3321P1S	3S	10000/Tape & Reel	7 inch

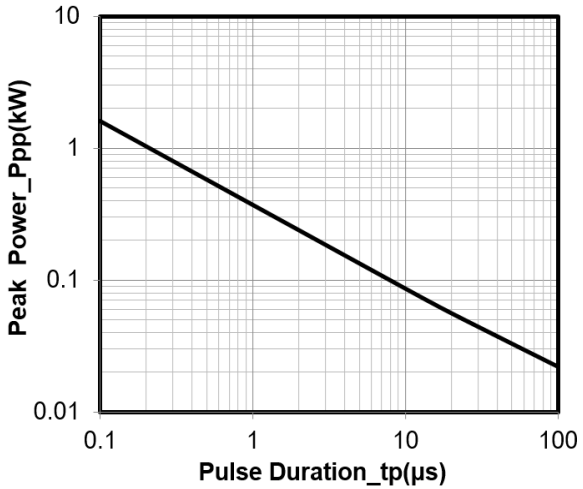
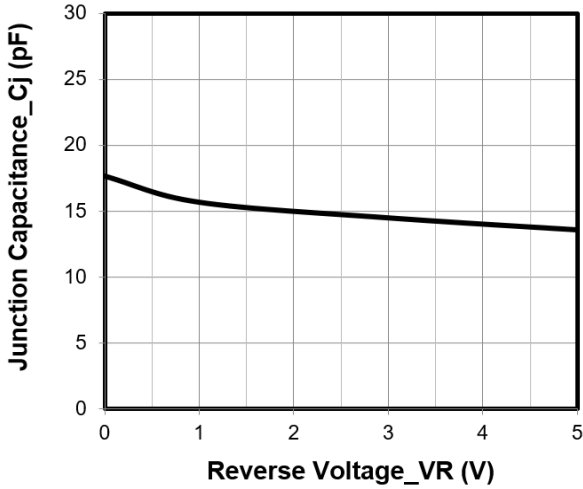
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	56	W
Peak Pulse Current (8/20 μs)	Ipp	8	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

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

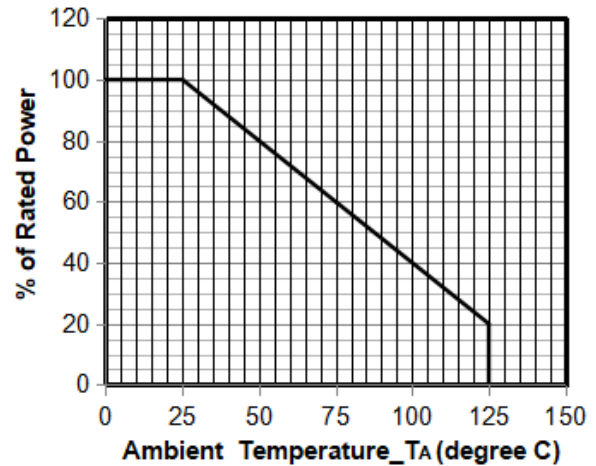
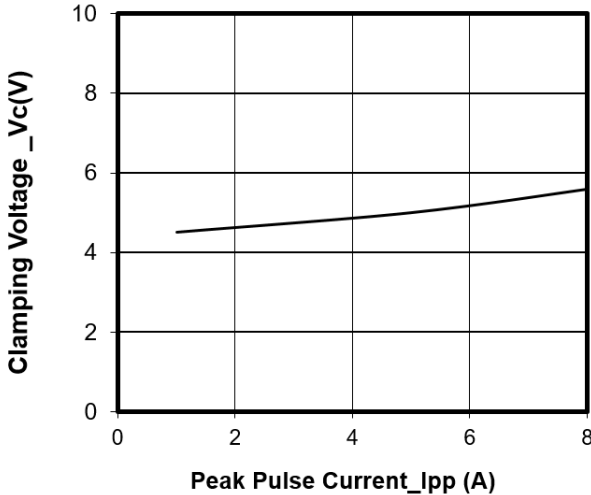
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			3.3	V	
Breakdown Voltage	VBR	3.5			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I _R			0.2	μA	VRWM = 3.3V
Clamping Voltage	V _C			5.5	V	I _{PP} = 1A (8 x 20 μs pulse)
				7	V	I _{PP} = 8A (8 x 20 μs pulse)
Junction Capacitance	C _J		20		pF	VR = 0V, f = 1MHz

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



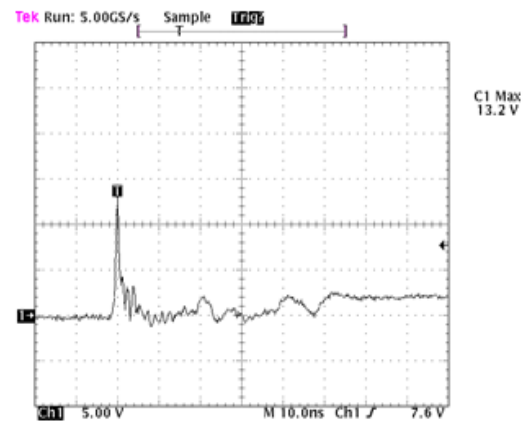
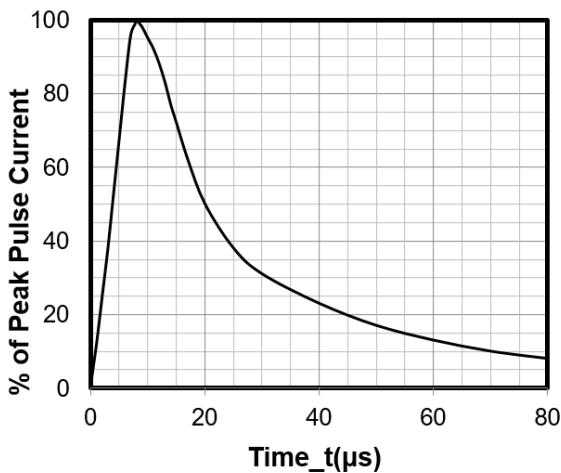
Junction Capacitance vs. Reverse Voltage

Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

Power Derating Curve



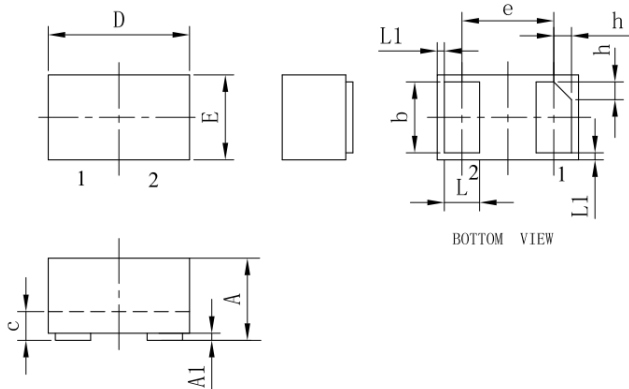
8 X 20μs Pulse Waveform

Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

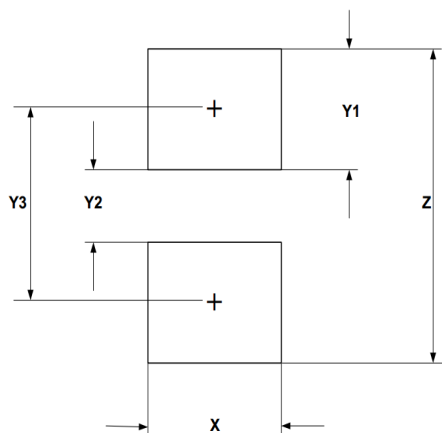
8 kV Contact per IEC61000-4-2

DFN1006-2 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.450	0.500	0.550	0.018	0.020	0.022
A1	0.000	0.020	0.050	0.000	0.001	0.002
b	0.450	0.50	0.550	0.018	0.020	0.022
c	0.120	0.150	0.180	0.005	0.006	0.007
D	0.950	1.000	1.050	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052

Contact Information

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