

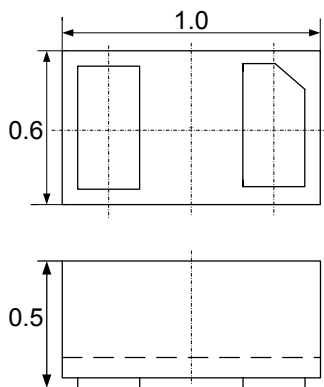
## Description

The DC0561P1 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time, very low capacitance and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The DC0561P1 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 an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size and very low capacitance make DC0561P1 an ideal choice to protect cell phone, digital cameras, audio players, data interface and many other portable applications.

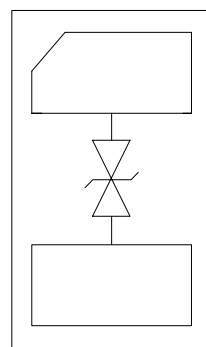
## Mechanical Characteristics

- ◆ 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

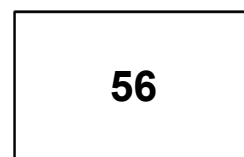
## Features

- ◆ Ultra small package: 1.0 x0.6 x0.5mm
- ◆ Protects one data or power line
- ◆ Very low capacitance: 2.5pF typical
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 5V
- ◆ Low clamping voltage
- ◆ 2-pin leadless package
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 15\text{kV}$
    - Contact discharge:  $\pm 8\text{kV}$
  - IEC61000-4-5 (Lightning) 2A (8/20 $\mu\text{s}$ )
- ◆ RoHS Compliant

## Applications

- ◆ Cellular Handsets and Accessories
- ◆ Personal Digital Assistants
- ◆ Notebooks and Handhelds
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ Peripherals
- ◆ Audio Players
- ◆ Keypads, Side Keys, USB 2.0, LCD Displays

## Marking Information



## Ordering Information

Part Number	Marking	Packaging	Reel Size
DC0561P1	56	10000/Tape & Reel	7 inch

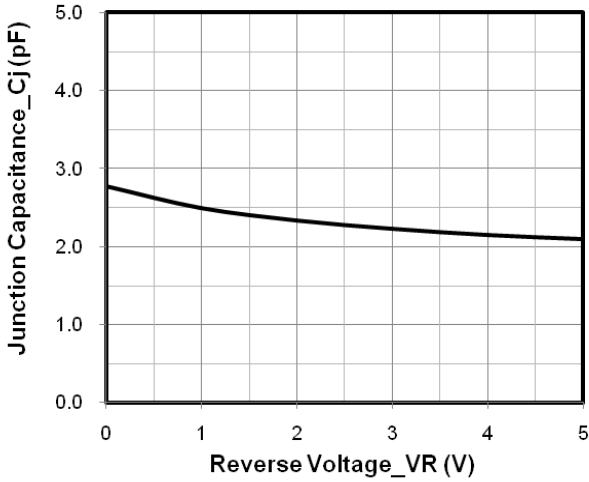
### **Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise specified)**

Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air)	VESD	±15	kV
ESD per IEC 61000-4-2 (Contact)		±8	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

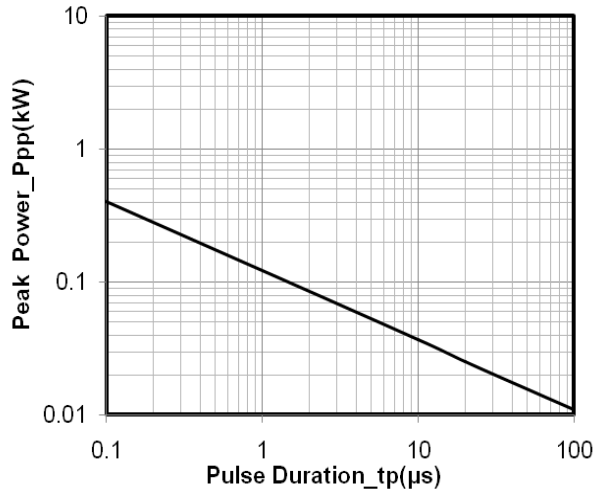
### **Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	Pin 1 to Pin 2 or Pin 2 to Pin 1
Breakdown Voltage	VBR	6			V	IT = 1mA, Pin 1 to Pin 2 or Pin 1 to Pin 2
Reverse Leakage Current	IR			0.2	µA	VRWM = 5V, Pin 1 to Pin 2 or Pin 1 to Pin 2
Clamping Voltage	VC			10	V	I <sub>PP</sub> = 1A (8 x 20µs pulse), Pin 1 to Pin 2 or Pin 1 to Pin 2
Junction Capacitance	CJ		2.5	3	pF	VR = 0V, f = 1MHz

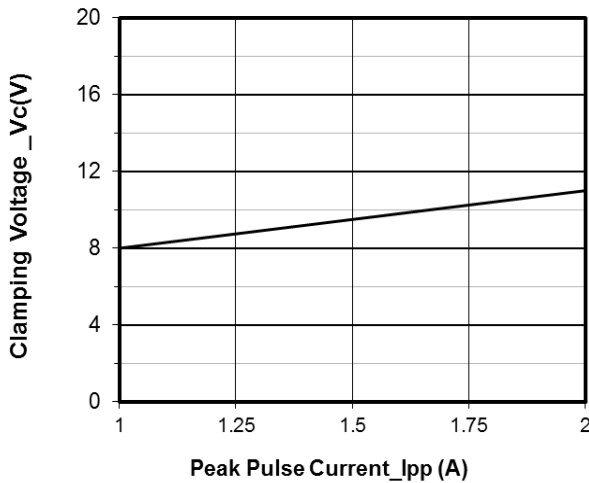
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



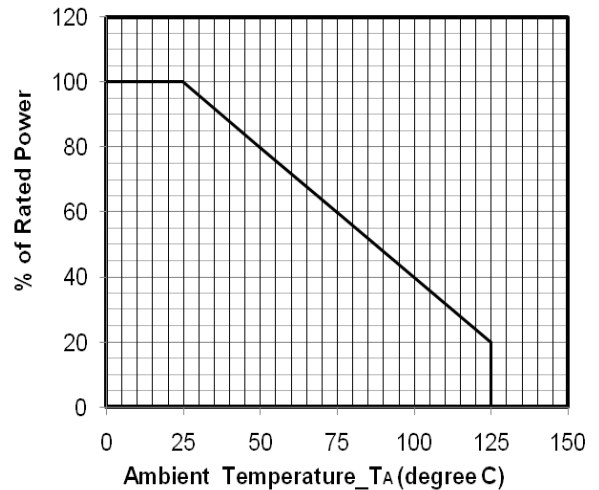
Junction Capacitance vs. Reverse Voltage



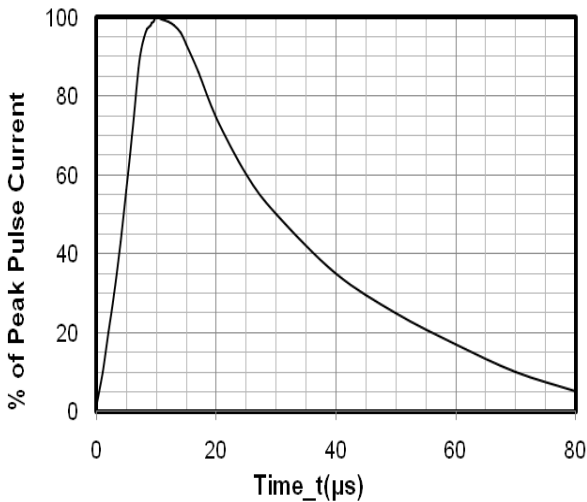
Peak Pulse Power vs. Pulse Time



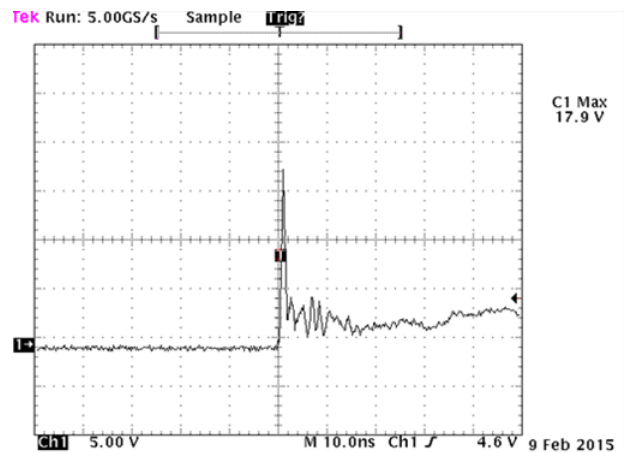
Clamping Voltage vs. Peak Pulse Current (tp = 8/20µs)



Power Derating Curve



8 X 20µs Pulse Waveform

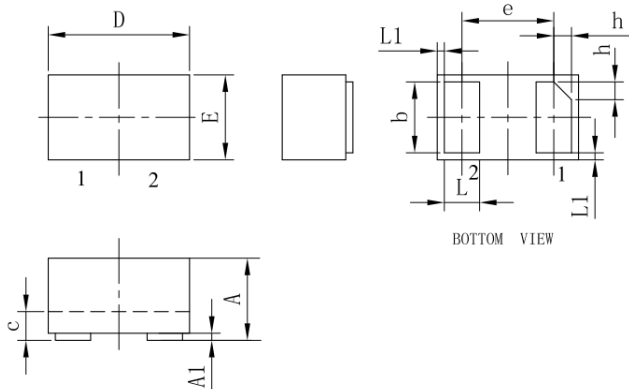


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

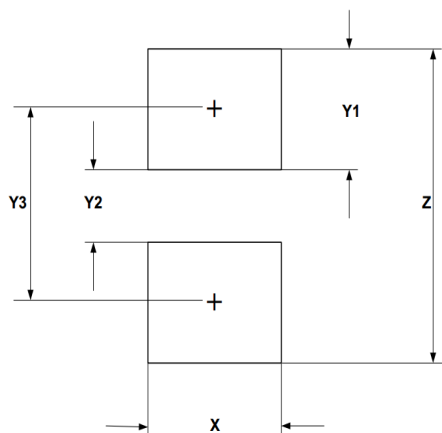
+8 kV Contact per IEC61000-4-2

## 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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