

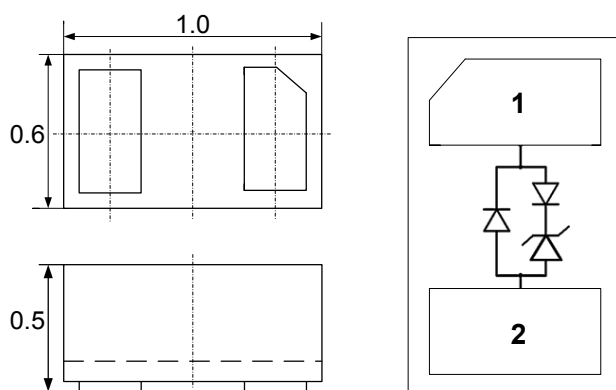
Description

The LEL0501P1 is an uni-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 LEL0501P1 has an ultra-low capacitance with a typical value at 0.8pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 25\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0 x 0.6 x 0.5mm lead-free DFN package. The small size, ultra-low capacitance and high ESD surge protection make LEL0501P1 an ideal choice to protect cell phone, digital visual interfaces, HDMI, DVI, USB2.0, USB3.0, and other high speed ports.

Mechanical Characteristics

- ◆ Package: DFN1006-2 (1.0 x 0.6 x 0.5mm)
- ◆ 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



Circuit and Pin Schematic

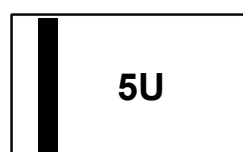
Features

- ◆ Ultra small package: 1.0 x 0.6 x 0.5mm
- ◆ Ultra low capacitance: 0.8pF 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: $\pm 25\text{kV}$
 - Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- ◆ RoHS Compliant

Applications

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

Marking Information



5U = Device Marking Code
Bar denotes cathode

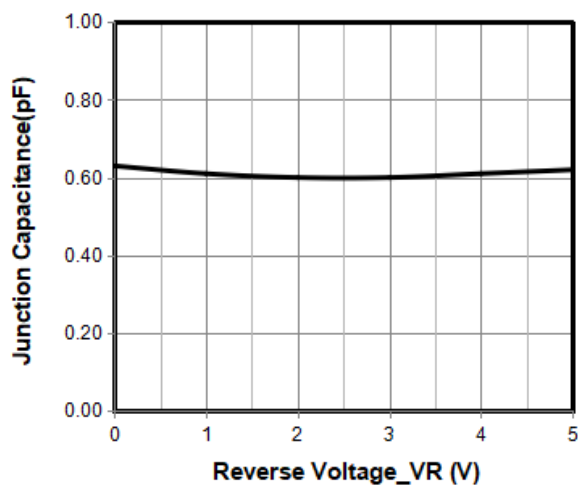
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20 μs)	Ppk	80	W
Peak Pulse Current(8/20 μs)	I _{PP}	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 25 ± 20	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

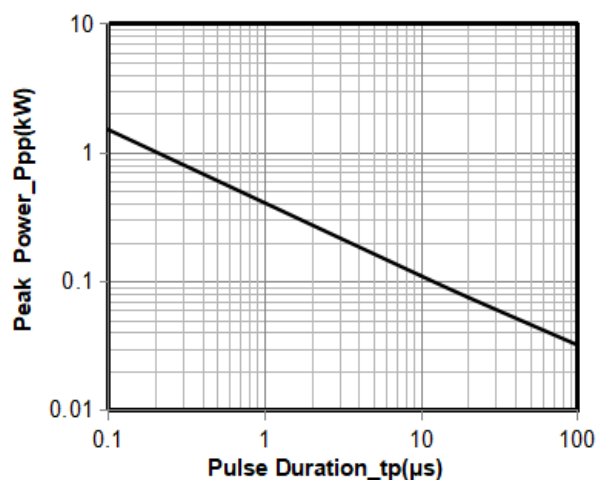
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	Pin 1 to Pin 2
Breakdown Voltage	V _{BR}	6			V	I _T = 1mA, Pin 1 to Pin 2
Reverse Leakage Current	I _R			0.5	μA	V _{RWM} = 5V, Pin 1 to Pin 2
Clamping Voltage	V _C			10	V	I _{PP} = 1A (8 x 20 μs pulse), Pin 1 to Pin 2
Clamping Voltage	V _C			16	V	I _{PP} = 5A (8 x 20 μs pulse), Pin 1 to Pin 2
Junction Capacitance	C _J		0.8		pF	V _R = 0V, f = 1MHz

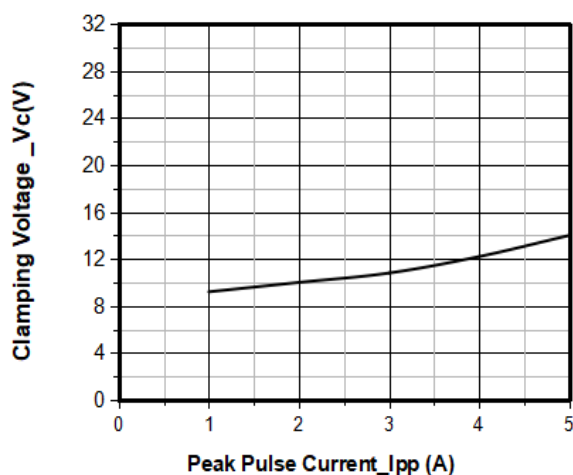
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



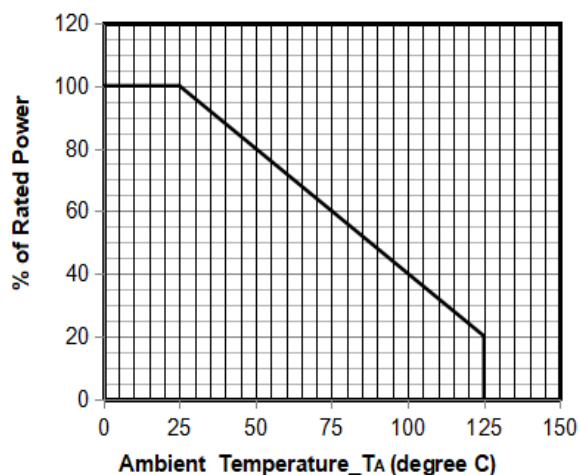
Junction Capacitance vs. Reverse Voltage



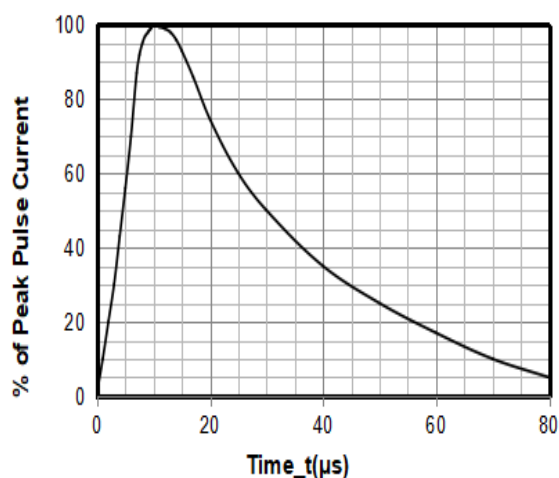
Peak Pulse Power vs. Pulse Time



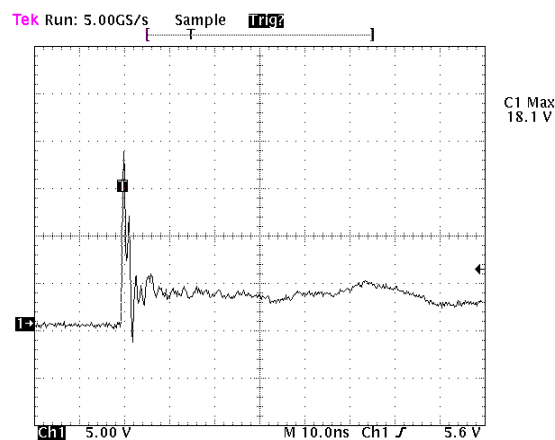
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform

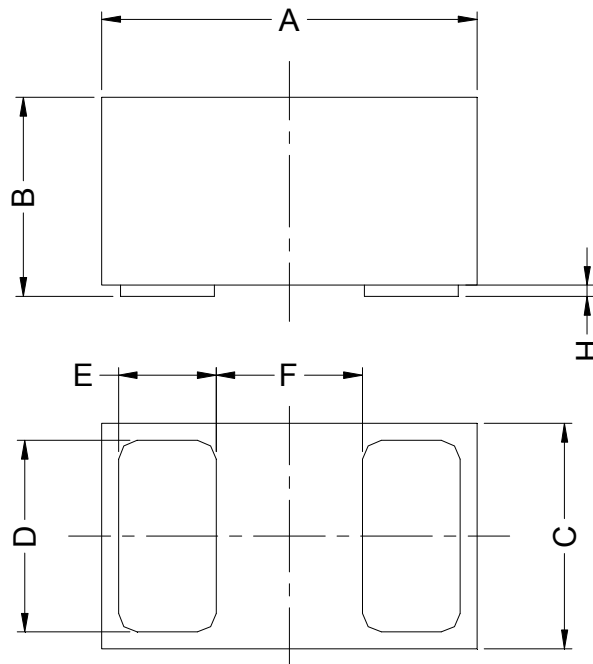


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

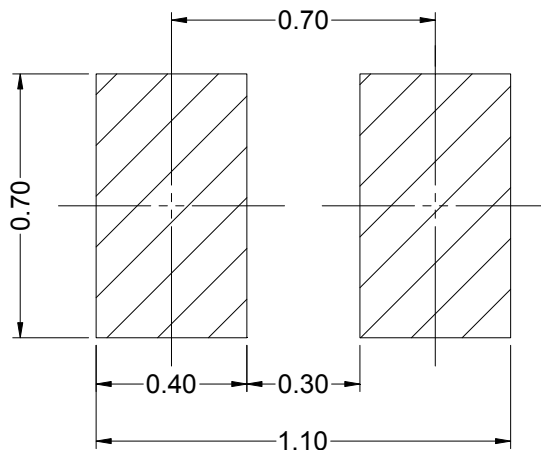
8 kV Contact per IEC61000-4-2

Package Outline Dimensions



DFN1006-2			
Dim	Min	Typ	Max
A	0.95	1.00	1.075
B	0.47	0.50	0.53
C	0.55	0.60	0.675
D	0.45	0.50	0.55
E	0.20	0.25	0.30
F	-	0.40	-
H	0	0.03	0.05
All Dimensions in mm			

Suggested Pad Layout



Unit : mm

Ordering Information

TYPE	REEL	Reel Size	Box	Carton
LEL0501P1	10000 pcs	7 Inch	150,000 pcs	600,000 pcs