

PDL0521P1L

Description

The PDL0521P1L 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 PDL0521P1L has an ultra-low capacitance with a typical value at 0.15pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 25\text{kV}$ air and $\pm 22\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size, ultra-low capacitance and high ESD surge protection make PDL0521P1L an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

Features

- Ultra small package: 1.0 x0.6 x0.5mm
- Ultra low capacitance: 0.15pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- AEC-Q101 qualified
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test Air discharge: $\pm 25\text{kV}$
 - IEC61000-4-5 (Lightning) 4A (8/20 μs) Contact discharge: $\pm 22\text{kV}$
- RoHS Compliant

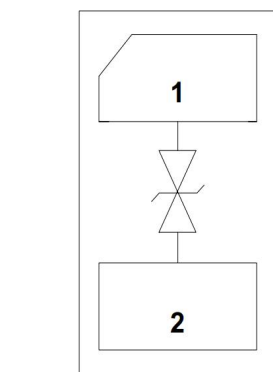
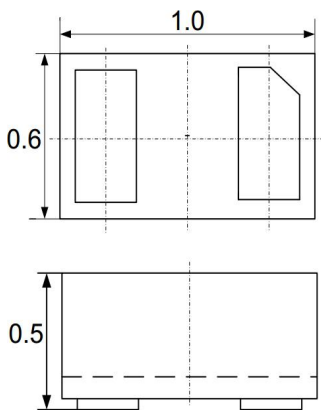
Mechanical Characteristics

- 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

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



Package Dimensions

Circuit and Pin Schematic

Marking Information



Ordering Information

Part Number	Marking	Packaging	Reel Size
PDL0521P1L	2L	10000/Tape & Reel	7 inch

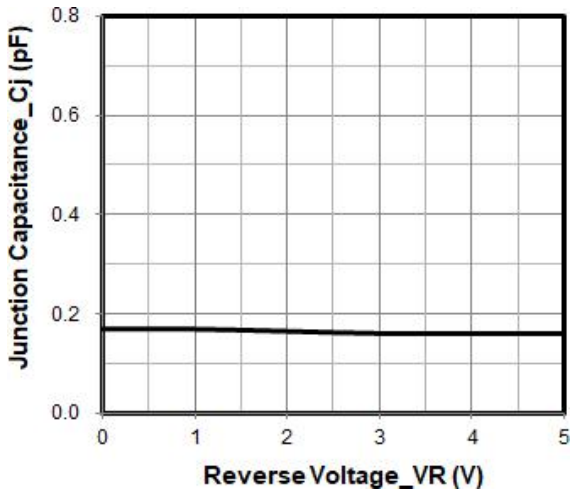
Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20µs)	Ppk	100	W
Peak Pulse Current(8/20µs)	IPP	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±25 ±22	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

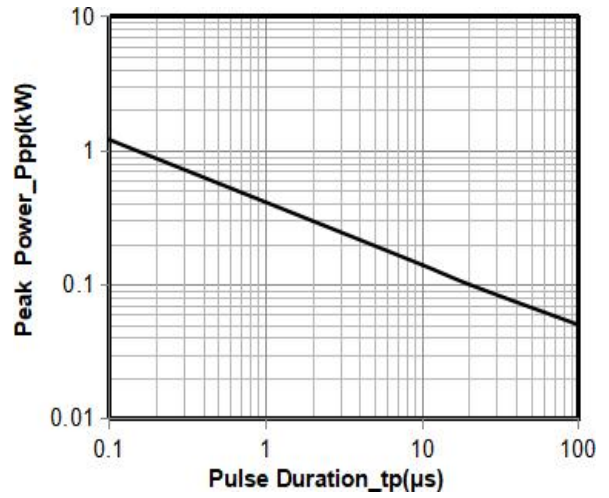
Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6.5		9.5	V	IT = 1mA
Reverse Leakage Current	IR			0.2	uA	VRWM = 5V
Clamping Voltage	VC			12.5	V	IPP = 1A (8 x 20µs pulse)
Clamping Voltage	VC			25	V	IPP = 4A (8 x 20µs pulse)
Junction Capacitance	CJ		0.15	0.3	pF	VR = 0V, f = 1MHz

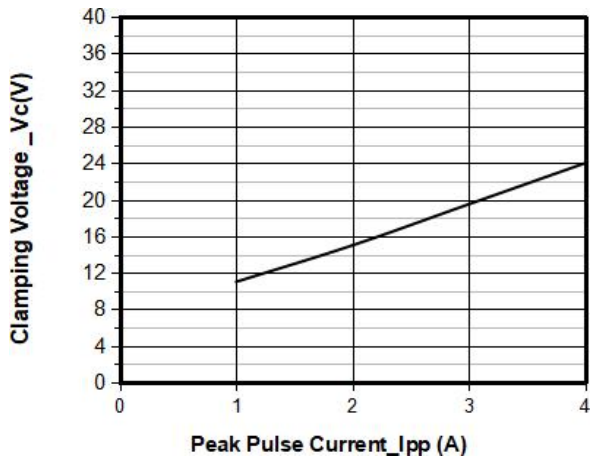
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



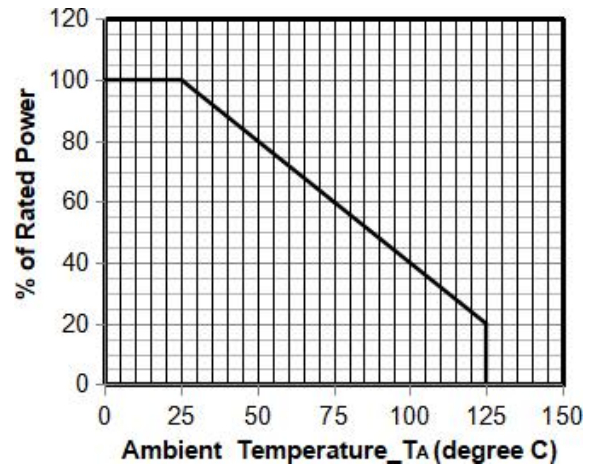
Junction Capacitance vs. Reverse Voltage



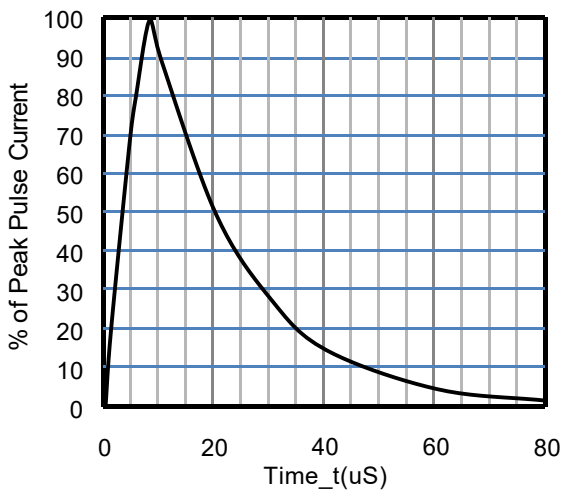
Peak Pulse Power vs. Pulse Time



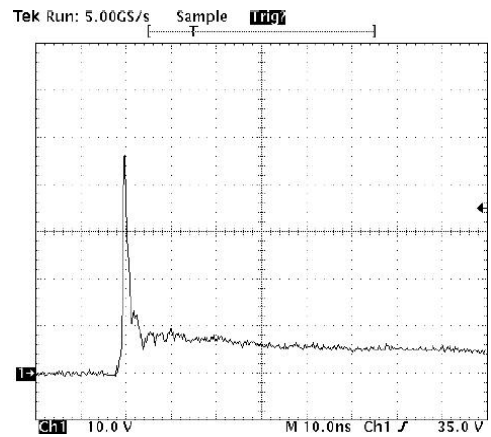
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform

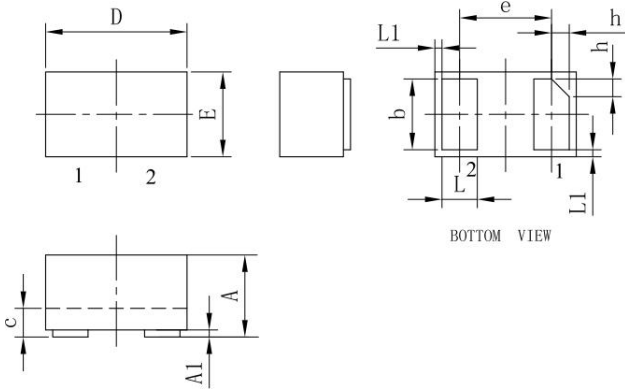


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

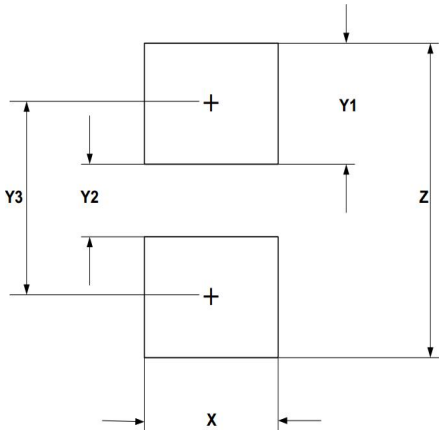
8 kV Contact per IEC61000-4-2

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