

ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



DESCRIPTION

The PLR0514LC is an ultra low capacitance, 4-channel steering diode/TVS array. This device is designed to protect computing applications such as Gigabit Ethernet, HDMI (2.0 & 4K), USB(1.0-3.1) and DVI interfaces as well as telecommunication equipment and systems. The PLR0514LC is available in the space-saving DFN-10 package configuration.

This device meets the IEC 61000-4-2 (ESD), 61000-4-4 (EFT) requirements. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This device in conjunction with passive components integrated into a TVS/filter network can be used for EMI/RFI protection.

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Contact $\pm 8\text{kV}$, Air $\pm 15\text{kV}$
- Compatible with IEC 61000-4-4 (EFT)
- Compatible with IEC 61000-4-5 (Surge)
- Protects 4 Lines
- Ultra Low Capacitance: $0.48\text{pF Typ(I/O-GND)}$ & $0.35\text{pF Typ(I/O-I/O)}$
- Low Clamping Voltage
- 5V Low Operating Voltage
- Optimized Package for High Speed Data Line PCB Layout
- RoHS Compliant
- REACH Compliant

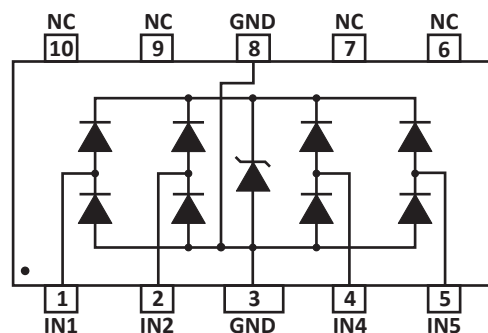
APPLICATIONS

- HDMI, HDMI 2.0, HDMI 4K
- Display Ports
- Gigabit Ethernet
- USB(1.0 - 3.1)
- VGA
- Set-top Box
- Flat Panel Monitors/Smart TV
- Laptops & Desktops
- UHD
- DVI Ports

MECHANICAL CHARACTERISTICS

- Molded DFN-10 Package
- Approximate Weight: 7 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 8mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

PIN CONFIGURATION



TYPICAL DEVICE CHARACTERISTICS
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

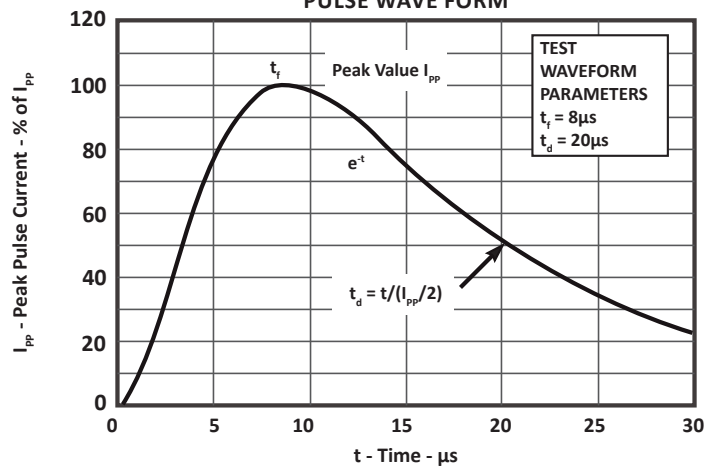
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Current	I_{PP}	3	Amps
Operating Temperature	T_L	-55 to 125	°C
Storage Temperature	T_{STG}	-55 to 150	°C
ESD Pulse - Contact	-	±15	kV
ESD Pulse - Air	-	±25	kV

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE (Note 1) V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE (Note 1) @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Note 1) (Fig. 1) @ $I_p = 1A$ V_c VOLTS	MAXIMUM LEAKAGE CURRENT (Note 1) @ V_{WM} I_D μA	TYPICAL CAPACITANCE I/O - I/O C_J pF	TYPICAL CAPACITANCE I/O - GND C_J pF
PLR0514LC	P14	5.0	6.0	12	1.0	0.35	0.48

NOTES

1. I/O to ground.

**FIGURE 1
PULSE WAVE FORM**


TYPICAL DEVICE CHARACTERISTICS

FIGURE 2
 Typical curve C_{IN} vs. V_{IN}

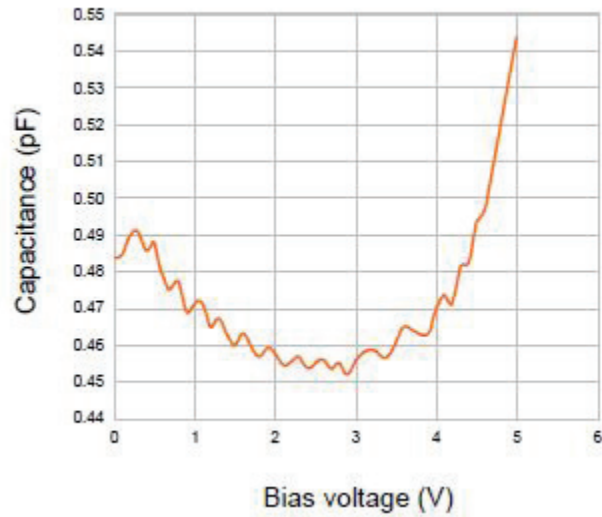


FIGURE 3

Positive transmission line pulse
 (I/O to ground)

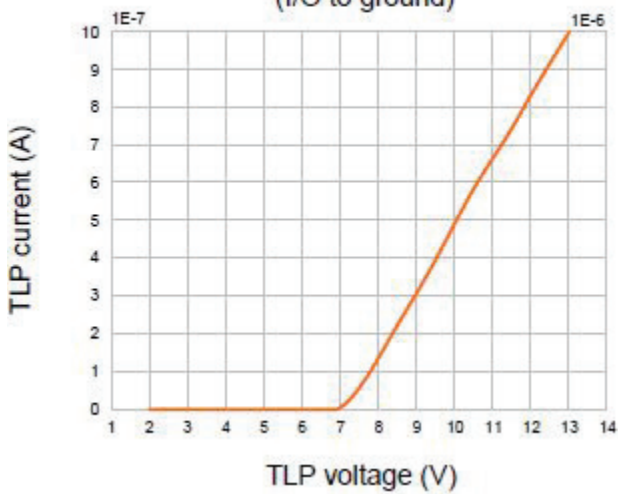
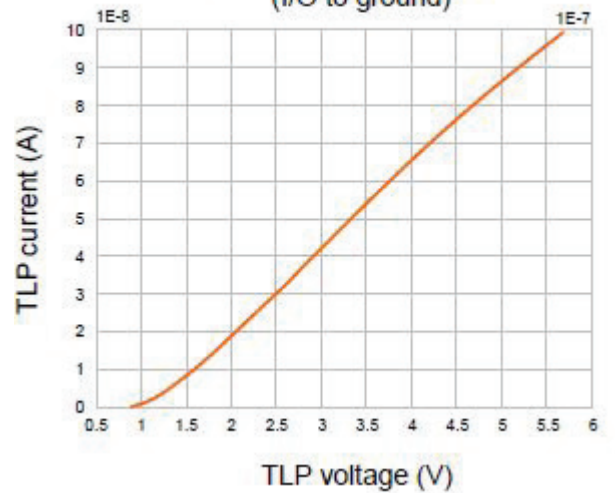


FIGURE 4

Negative transmission line pulse
 (I/O to ground)



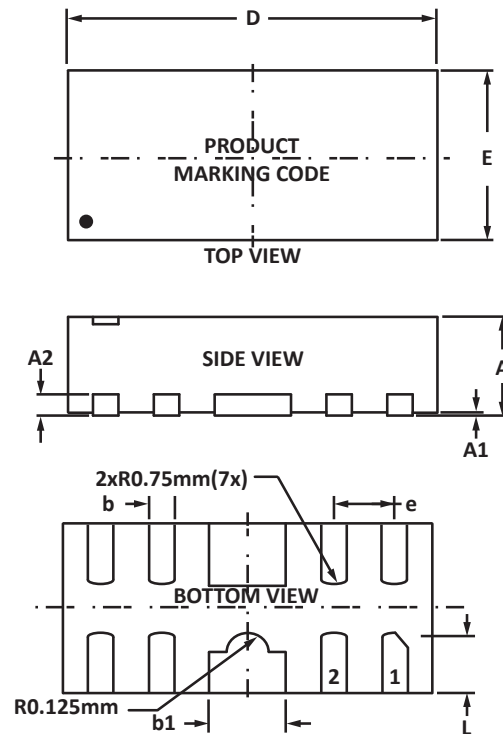
DFN-10 PACKAGE INFORMATION

OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.65	0.018	0.026
A1	0.00	0.05	0.000	0.002
A2	0.13	0.21	0.005	0.008
b	0.15	0.25	0.006	0.010
b1	0.35	0.45	0.014	0.018
D	2.40	2.60	0.094	0.102
E	0.89	1.12	0.035	0.044
e	0.50 Nominal		0.020 Nominal	
L	0.36	0.46	0.014	0.018

NOTES

1. Controlling dimension: millimeters.

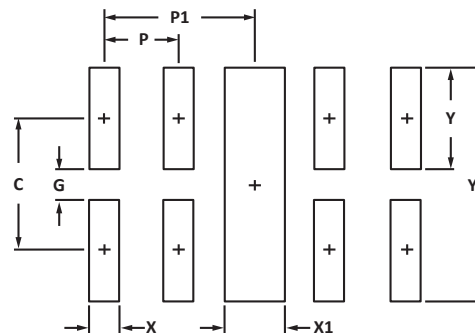


PAD LAYOUT

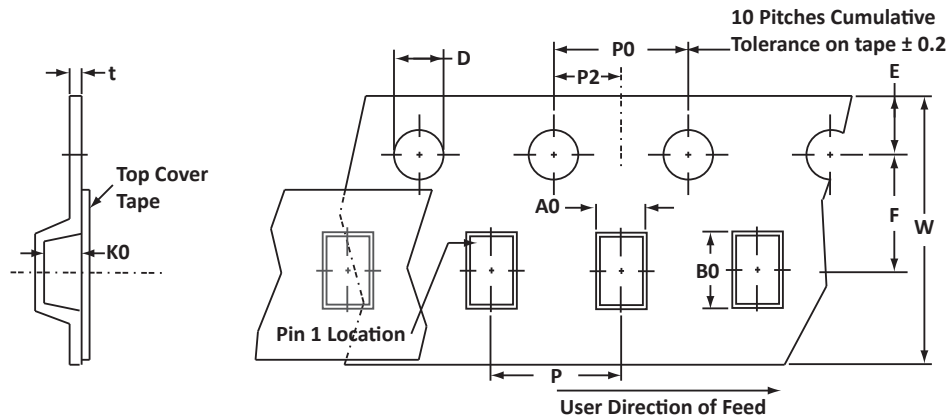
DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
C	0.875	0.34
G	0.20	0.008
P	0.50	0.020
P1	1.00	0.039
X	0.25	0.010
X1	0.46	0.018
Y	0.675	0.027
Y1	1.55	0.061

NOTES

1. Controlling dimension: millimeters.



TAPE AND REEL



SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	1.20 ± 0.10	2.70 ± 0.10	0.75 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	8.00 ± 0.30	4.00 ± 0.10	2.00 ± 0.05	4.00 ± 0.10	0.25

NOTES

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T73 = 7" Reel - 3,000 pieces per 8mm tape.
4. Marking on Part - marking code (see page 2).

ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PLR0514LC	n/a	-T73	3,000	7"	n/a

This device is only available in a Lead-Free configuration.

COMPANY INFORMATION

COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products.

CONTACT US

Corporate Headquarters

2929 South Fair Lane
Tempe, Arizona 85282
USA

By Telephone

General: 602-431-8101
Sales: & Marketing: 602-414-5109
Customer Service: 602-414-5114
Product Technical Support: 602-414-5107

By Fax

General: 602-431-2288

By E-mail:

Asia Sales: asiasales@protekdevices.com
Europe Sales: europesales@protekdevices.com
U.S. Sales: ussales@protekdevices.com
Distributor Sales: distysales@protekdevices.com
Customer Service: service@protekdevices.com
Technical Support: support@protekdevices.com

ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19
Zervex
Singapore - 408538
Tel: +65-67488312
Fax: +65-67488313

Web

www.protekdevices.com

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