

## ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY



**DFN-10 PACKAGE**

### DESCRIPTION

The PLR0524 is an ultra low capacitance steering diode/TVS array. This device is designed to protect computing applications such as gigabit Ethernet, HDMI, USB and DVI interfaces as well as telecommunication equipment and systems. The PLR0524 is available in the space-saving DFN-10 package configuration.

This device meets the IEC 61000-4-2 (ESD), 61000-4-2 (EFT) and 61000-4-4 (Surge) 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): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- Compatible with IEC 61000-4-5 (Lightning): 6A - 8/20 $\mu$ s
- ESD Protection > 25 kilovolts
- **Ultra Low Clamping Voltage: 9V @6A**
- **Low Leakage Current < 0.5 $\mu$ A**
- Protects 4 Lines
- Ultra Low Capacitance : 0.3pF Typical(I/O to I/O)
- RoHS Compliant
- REACH Compliant

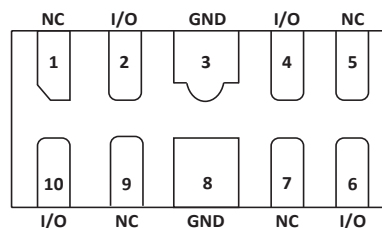
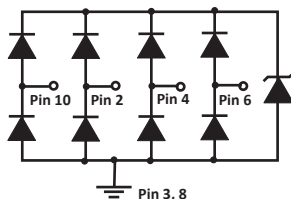
### APPLICATIONS

- Gigabit Ethernet
- DVI, USB and HDMI Interfaces
- High-Speed Data Line ESD Protection
- FireWire, SATA & PCIe Interfaces
- IEEE 1394 to 3.2Gbps

### MECHANICAL CHARACTERISTICS

- Molded JEDEC 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

## CIRCUIT DIAGRAM & PIN CONFIGURATION



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

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Current	$I_{PP}$	6	Amps
Operating Temperature	$T_L$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1	$P_{PP}$	50	Watts

**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified**

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE  @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ $I_p = 1A$ $V_C$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ $I_p = 6A$ $V_C$ VOLTS	MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ $\mu A$	TYPICAL CAPACITANCE I/O - GND  @ 0V, 1MHz C pF
PLR0524	24D	5.0	6.0	8.5	9.0	0.5	0.7

**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified**

TYPICAL DIFFERENTIAL REVERSE RESISTANCE  $R_{DIFF-R}$ OHMS	TYPICAL DIFFERENTIAL FOWARD RESISTANCE  $R_{DIFF-F}$ OHMS	MAXIMUM TRIGGER VOLTAGE  $V_{TRIG}$ VOLTS	MAXIMUM HOLDING VOLTAGE  $V_H$ VOLTS	TYPICAL CAPACITANCE I/O - I/O  @ 0V, 1MHz C pF
0.25	0.35	9.5	5.5	0.3

## TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

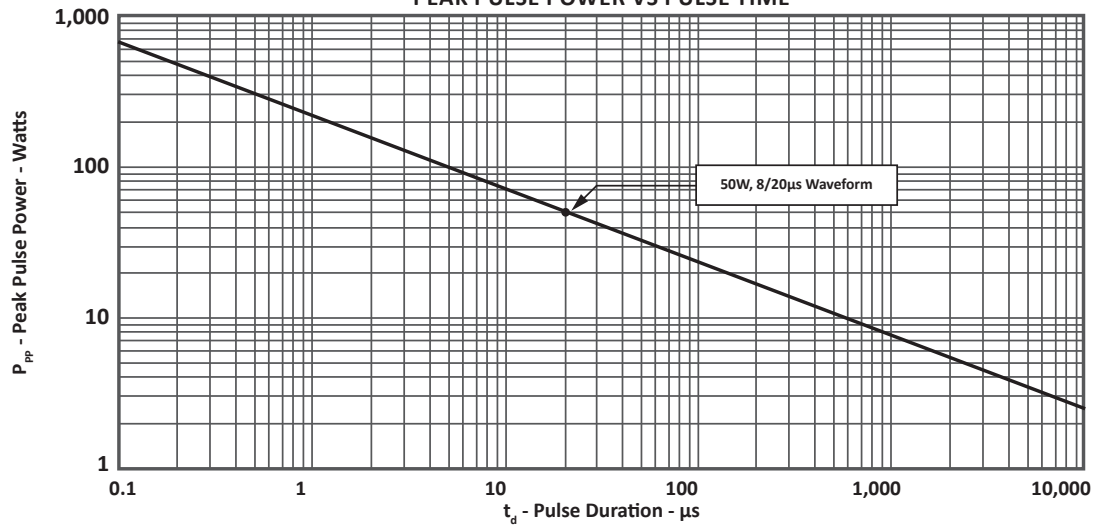
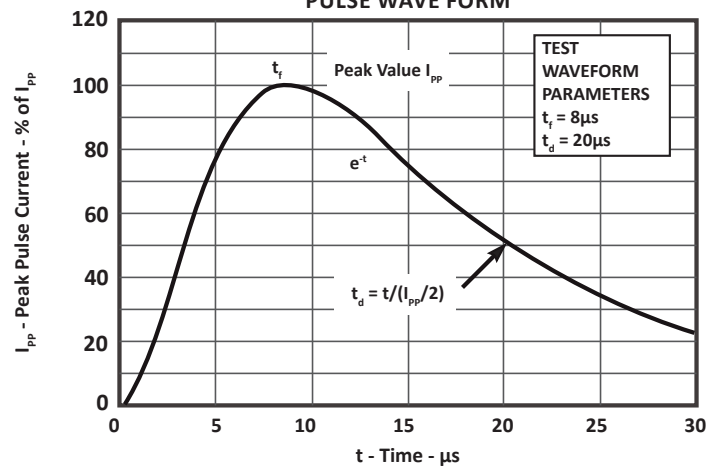


FIGURE 2  
PULSE WAVE FORM



## TYPICAL DEVICE CHARACTERISTICS

FIGURE 3  
 CURRENT FROM I/O TO VSS  
 VS. VOLTAGE FROM I/O TO VSS

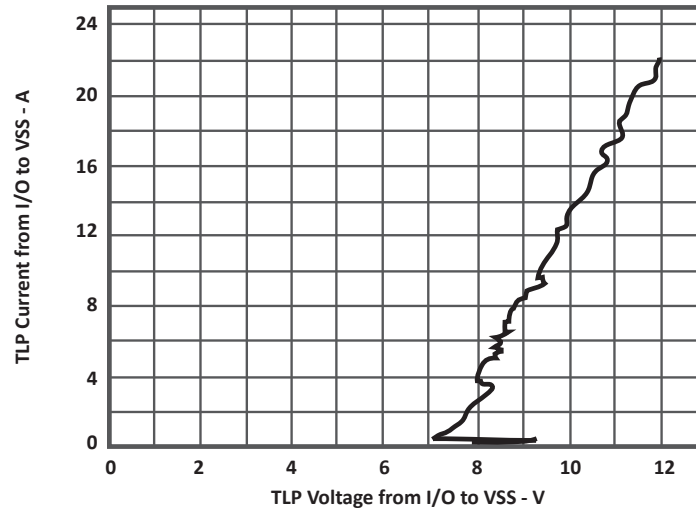
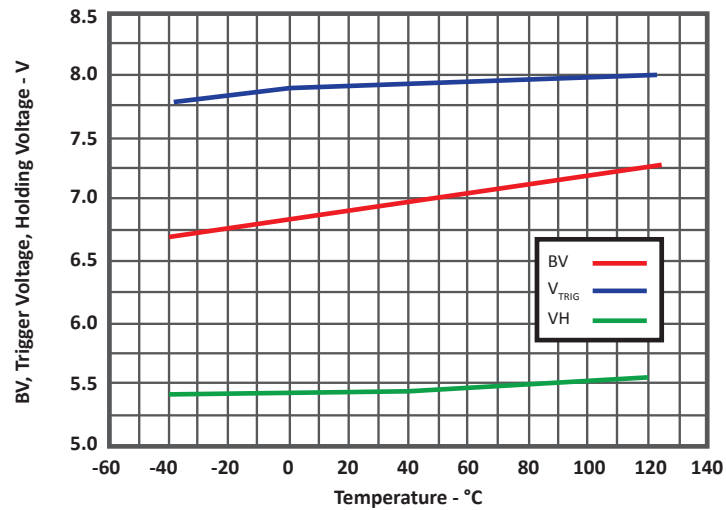
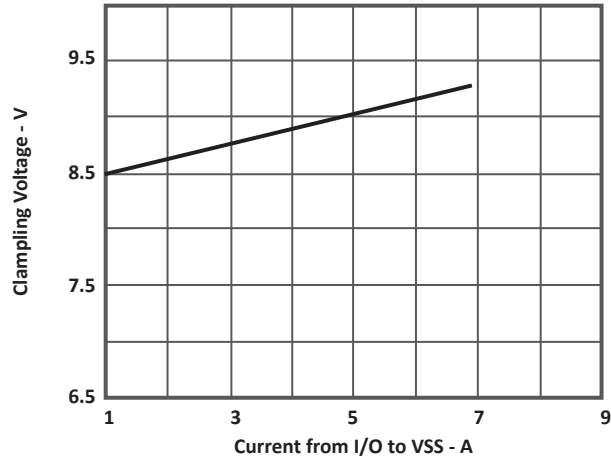


FIGURE 4  
 BV, TRIGGER VOLTAGE, HOLDING VOLTAGE  
 VS. TEMPERATURE



## TYPICAL DEVICE CHARACTERISTICS

FIGURE 5  
CLAMPING VOLTAGE VS CURRENT FROM I/O TO VSS  
8/20 $\mu$ s



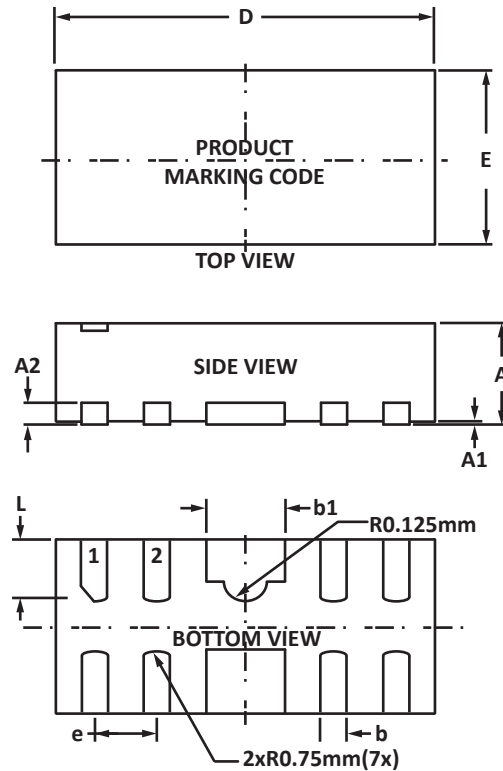
## DFN-10S1 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.56	0.65	0.22	0.026
A1	0.00	0.05	0.000	0.002
A2	0.13	0.203	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	0.90	1.10	0.035	0.043
e	0.50 Nominal		0.020 Nominal	
L	0.36	0.46	0.014	0.018

## NOTES

1. Controlling dimension: millimeters.

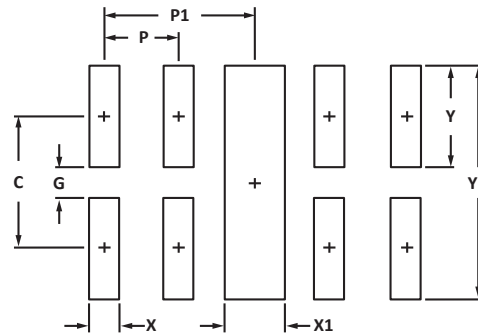


## PAD LAYOUT

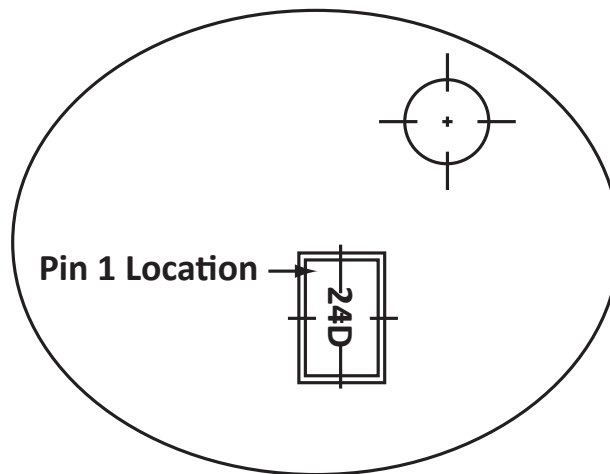
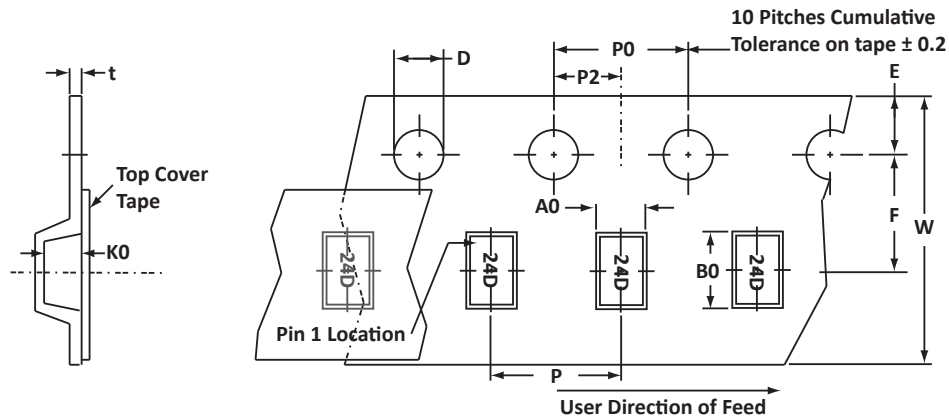
DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
C	0.675	0.34
G	0.20	0.008
P	0.50	0.020
P1	1.00	0.039
X	0.20	0.008
X1	0.40	0.016
Y	0.675	0.027
Y1	1.55	0.061

## NOTES

1. Controlling dimension: millimeters.



## TAPE AND REEL



Exploded View

## SPECIFICATIONS

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

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T7 = 7" Reel - 3,000 pieces per 8mm tape.
- Marking on Part - marking code (see page 2).

Package outline, pad layout and tape specifications per document number 06083.R0.

## ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PLR0524	n/a	-T7	3,000	7"	n/a

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

## COMPANY INFORMATION

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### COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately-held company located in Tempe, Arizona, that offers a product line of transient voltage suppressors (TVS); avalanche breakdown diodes; steering diode TVS arrays and other surge suppressor component products. These TVS devices protect electronic systems from the effects of lightning, electrostatic discharge (ESD), nuclear electromagnetic pulses (NEMP), inductive switching and EMI / RFI. ProTek Devices also offers high performance interface and linear products that include analog switches; multiplexers; LED drivers; audio control ICs; RF and related high frequency products. The analog devices work in a host of consumer; industrial; automotive and other applications.

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