ULTRA LOW CAPACITANCE STEERING DIODE/TVS ARRAY

DFN-10 PACKAGE

DESCRIPTION

The PLR0524P 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 PLR0524P is available in the space-saving DFN-10 package configuration and is rated at 60 Watts peak pulse power per line for a 8/20µs waveshape.

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): 4A - 8/20µs
- ESD Protection > 25 kilovolts
- 60 Watts Peak Pulse Power per Line (tp=8/20µs)
- Low Leakage Current < 0.5µA
- Protects 4 Lines
- Ultra Low Capacitance : 0.4pF Typical(I/O to I/O)
- RoHS Compliant
- REACH Compliant

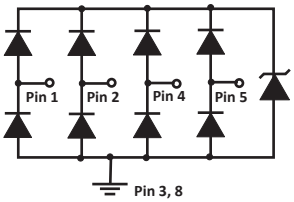
APPLICATIONS

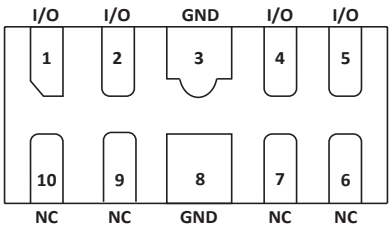
- Gigabit Ethernet
- DVI, USB and HDMI Interfaces
- High-Speed Data Line ESD Protection
- FireWire, SATA & PCIe Interfaces
- IEEE 1394 to 3.2Gbps

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

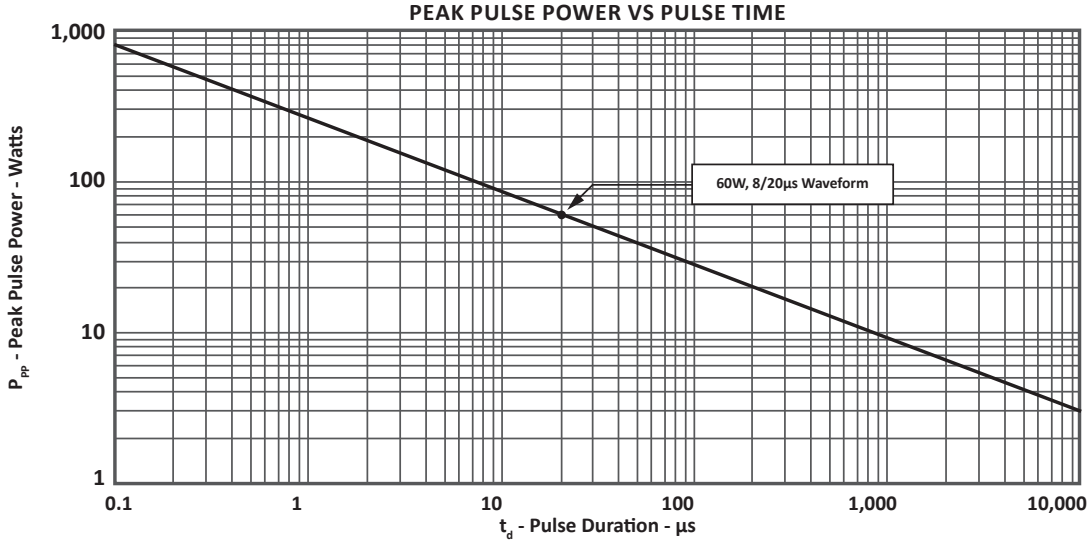
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	T_L	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Peak Pulse Power (tp = 8/20µs) - See Figure 1	P_{PP}	60	Watts

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) (Note 1) @ I_P = 1A V_C VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) (Note 1) @ I_P = 4A V_C VOLTS	MAXIMUM LEAKAGE CURRENT @V_{WM} I_D µA	TYPICAL CAPACITANCE (Note 1) @0V, 1MHz C pF
PLR0524P	524	5.0	6.0	12.5	16.5	0.5	0.8

NOTES
1. I/O to Ground.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME



TYPICAL DEVICE CHARACTERISTICS

FIGURE 2
PULSE WAVE FORM

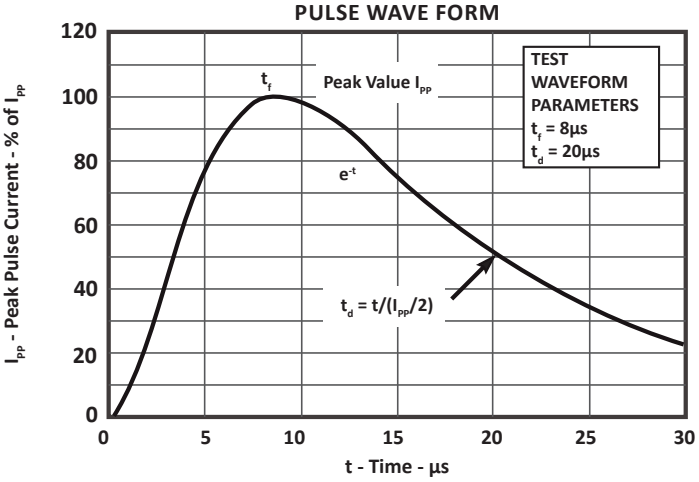


FIGURE 3
POWER DERATING CURVE

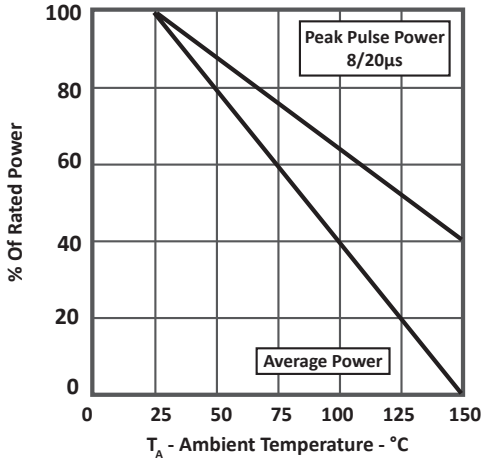
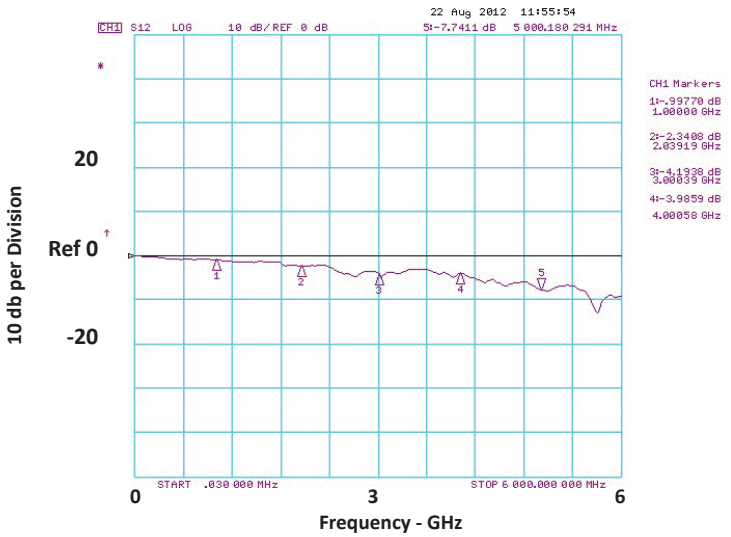


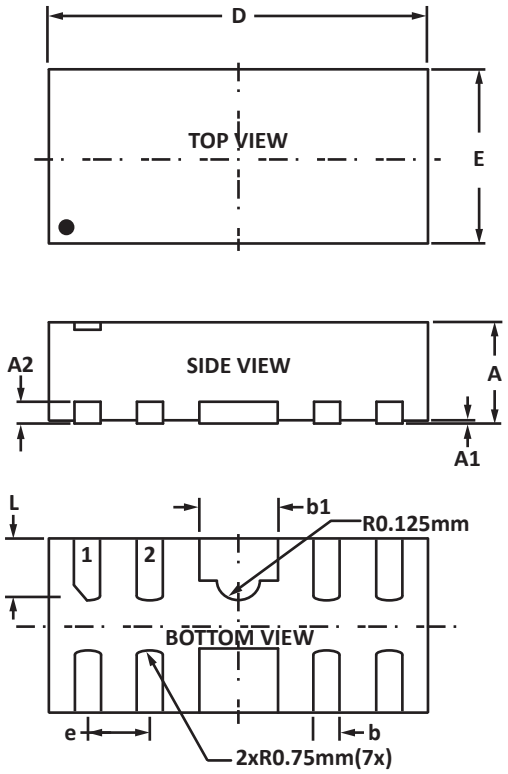
FIGURE 4
INSERTION LOSS



DFN-10S1 PACKAGE INFORMATION

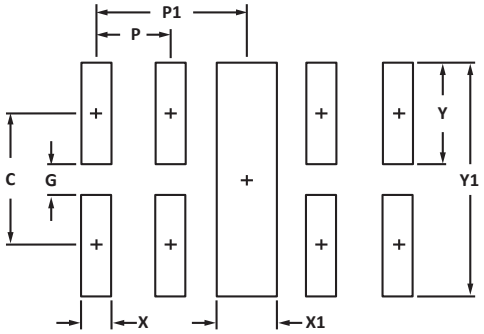
OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.56	0.65	0.22	0.026
A1	0.00	0.05	0.000	0.002
A2	0.13	0.203	0.005	0.008
b	0.15	0.25	0.006	0.010
b1	0.35	0.45	0.014	0.018
D	2.40	2.60	0.094	0.102
E	0.90	1.10	0.035	0.043
e	0.50 Nominal		0.020 Nominal	
L	0.36	0.46	0.014	0.018

NOTES
1. Controlling dimension: millimeters.

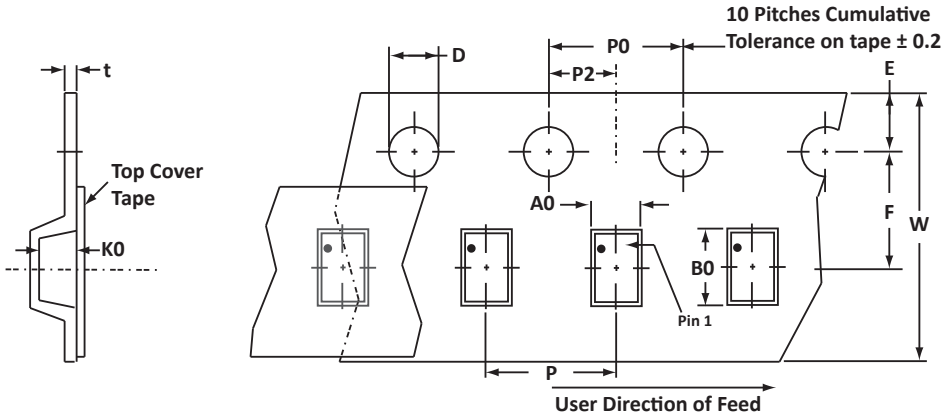


PAD LAYOUT		
DIM	MILLIMETERS	INCHES
	NOMINAL	NOMINAL
C	0.675	0.34
G	0.20	0.008
P	0.50	0.020
P1	1.00	0.039
X	0.20	0.008
X1	0.40	0.016
Y	0.675	0.027
Y1	1.55	0.061

NOTES
1. Controlling dimension: millimeters.



TAPE AND REEL



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 - T7 = 7" Reel - 3,000 pieces per 8mm tape.
4. Marking on Part - marking code (see page 2) and pin 1 dot.

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
PLR0524P	n/a	-T7	3,000	7"	n/a

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

COMPANY INFORMATION

COMPANY PROFILE

ProTek Devices, based in Tempe, Arizona USA, is a manufacturer of Transient Voltage Suppression (TVS) products designed specifically for the protection of electronic systems from the effects of lightning, Electrostatic Discharge (ESD), Nuclear Electromagnetic Pulse (NEMP), inductive switching and EMI/RFI. With over 25 years of engineering and manufacturing experience, ProTek designs TVS devices that provide application specific protection solutions for all electronic equipment/systems.

ProTek Devices Analog Products Division, also manufactures analog interface, control, RF and power management products.

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