

## ULTRA LOW CAPACITANCE TVS ARRAY



### DESCRIPTION

The PLR2512H is an ultra low capacitance TVS array designed to protect high speed applications such as Gigabit Ethernet and other computer interfaces. The device is available in the space-saving DFN-8 package configuration, which minimizes lead inductance to prevent overshoot voltages during high ESD current events. The PLR2512H meets the IEC 61000-4-2 and 61000-4-4 requirements.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air  $\pm 15\text{kV}$ , Contact  $\pm 8\text{kV}$
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- 100 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu\text{s}$ )
- ESD Protection > 25 kilovolts
- Protects Two Line Pairs
- Low Leakage Current: 10nA
- Ultra Low Capacitance: 3pF Typical
- Low Stand-Off Voltage: 2.5V
- RoHS Compliant
- REACH Compliant

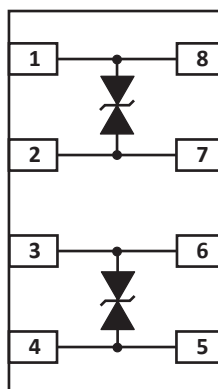
### APPLICATIONS

- Gigabit Ethernet
- Integrated Magnetics/RJ-45 Connectors
- LAN/WAN Equipment
- Security Cameras
- Industrial Controls
- Notebooks and Desktop Computers

### MECHANICAL CHARACTERISTICS

- Molded DFN-8 Package
- Approximate Weight: 3 milligrams
- Lead-Free Nickel Paladium Gold Plating
- Solder Reflow Temperature - 260-270°C
- Flammability Rating UL 94V-0
- 8mm Tape and Reel per EIA Standard 481

### PIN CONFIGURATION



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

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 8/20μs) - See Figure 1	$P_{PP}$	100	Watts
Peak Pulse Current (tp = 8/20μs)	$I_{PP}$	12	Amps
Operating Temperature	$T_L$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C

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

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE $V_{WM}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 2μA $V_{(BR)}$ VOLTS	MAXIMUM BREAKDOWN VOLTAGE @ 2μA $V_{(BR)}$ VOLTS	MINIMUM SNAPBACK VOLTAGE $I_{SB}$ @ 50mA $V_{SB}$ VOLTS	MAXIMUM CLAMPING VOLTAGE @ $I_P = 10A$ $V_C$ VOLTS	MAXIMUM CLAMPING VOLTAGE @ $I_P = 1A$ $V_C$ VOLTS	MAXIMUM LEAKAGE CURRENT @ $V_{WM}$ $I_D$ μA	TYPICAL CAPACITANCE @ 2.5V, 1MHz C pF
PLR2512	512H	2.5	2.7	4.6	2.8	8.0	4.8	0.05	3.0

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

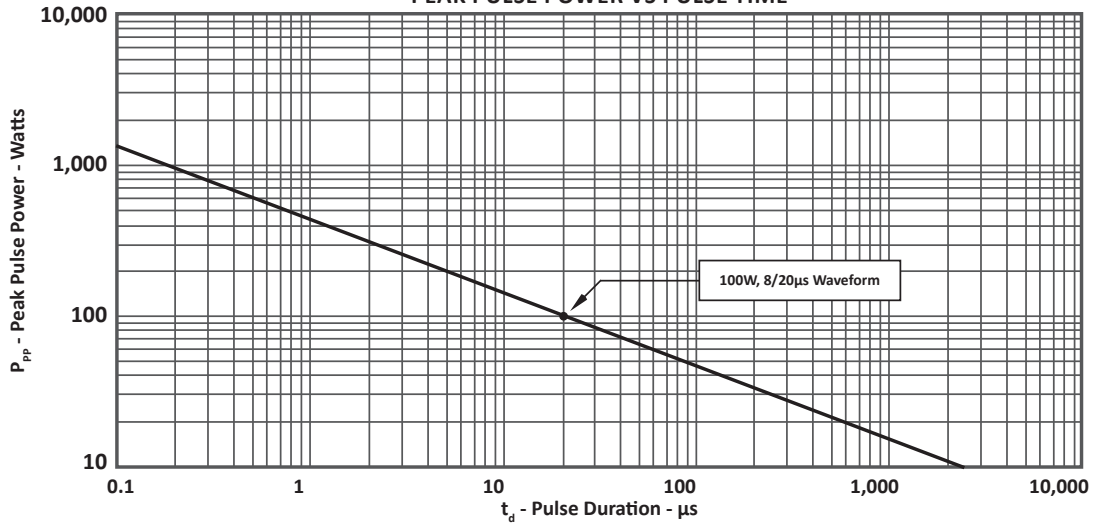


FIGURE 2  
PULSE WAVE FORM

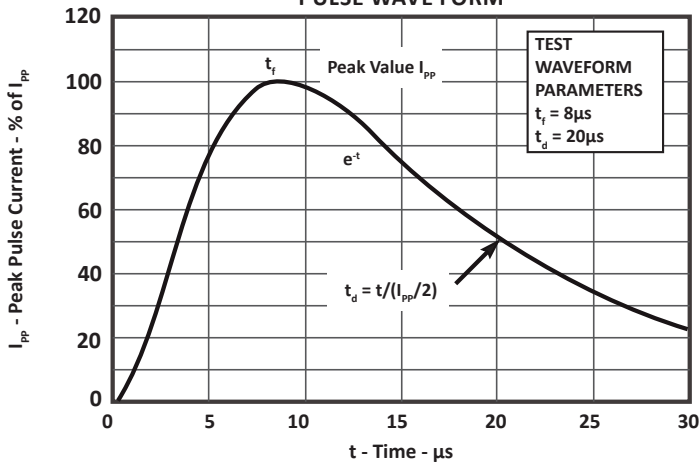
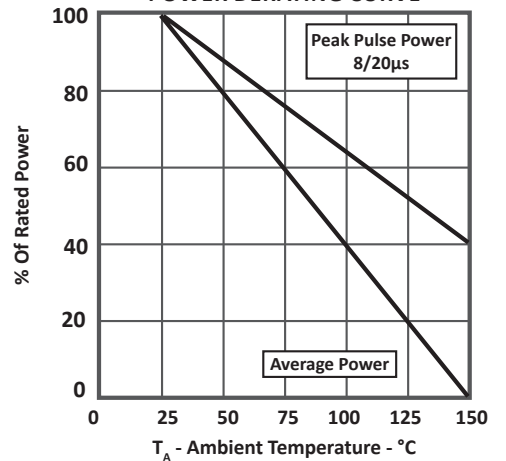


FIGURE 3  
POWER DERATING CURVE



## SPICE MODEL

FIGURE 1  
SPICE MODEL



TABLE 1 - SPICE PARAMETERS

PARAMETER	UNIT	D1(TVS)	D2(TVS)
BV	V	2.2	2.2
IBV	A	1E-3	1E-3
C <sub>jo</sub>	F	12E-13	12E-13
I <sub>s</sub>	A	1E-20	1E-20
V <sub>j</sub>	V	0.7	0.7
M	-	0.05	0.05
N	-	1.1	1.1
R <sub>s</sub>	Ohms	0.3	0.3
TT	s	2.541E-9	2.541E-9
EG	eV	1.11	1.11

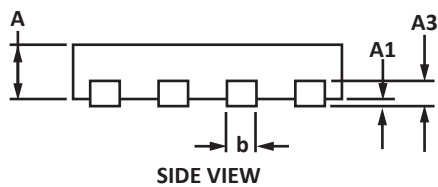
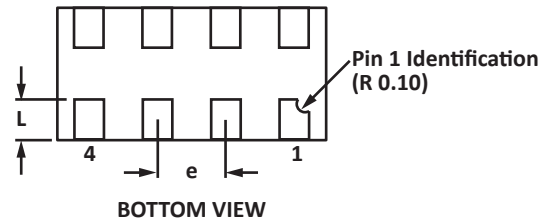
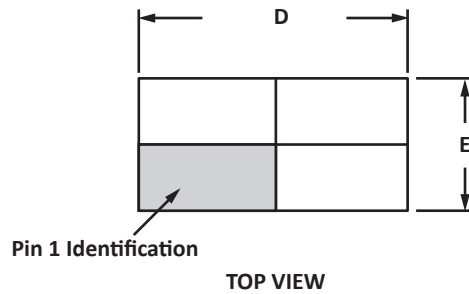
## DFN-8 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

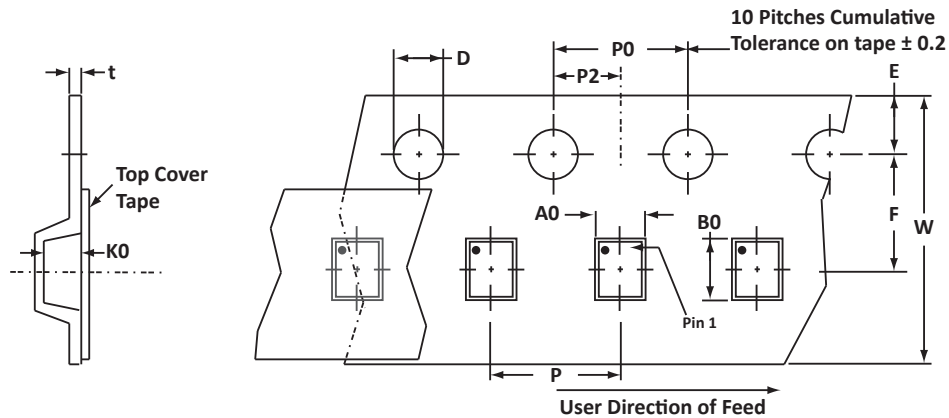
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.36	0.42	0.014	0.017
A1	0.00	0.05	0.00	0.002
A3	0.127 REF		0.005 REF	
b	0.20	0.30	0.008	0.012
D	1.90	2.10	0.074	0.082
E	0.90	1.10	0.035	0.043
R	0.05	0.015	0.002	0.006
e	0.50 BSC		0.020 BSC	
L	0.30	0.40	0.012	0.016

## NOTES

- Controlling dimension: millimeters.
- Dimensioning and tolerances per ANSI Y14.M, 1985.



## TAPE AND REEL



## SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	8mm	1.24 ± 0.01	2.28 ± 0.01	0.65 ± 0.01	1.55 ± 0.01	1.75 ± 0.01	3.50 ± 0.01	8.00 ± 0.01	4.00 ± 0.01	2.00 ± 0.01	4.00 ± 0.01	0.25

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T75 = 7" Reel - 5,000 pieces per 8mm tape.
- Marking on Part - marking code (see page 2).

## ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PLR2512H	N/A	-T75	5,000	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 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.

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