

## 4-Line Ultra Low Capacitance TVS Array

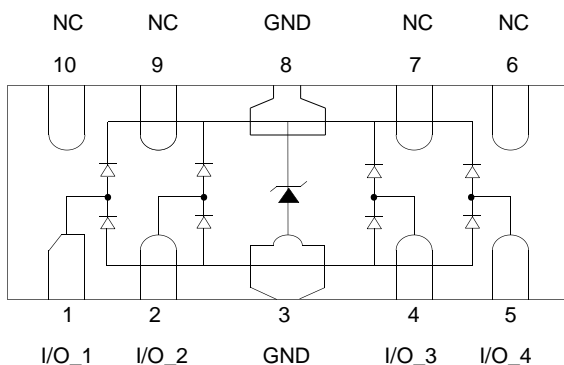
### Description

The PESDR0524P is an ultra-low capacitance TVS array, it is designed 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 PESDR0524P has an ultra-low capacitance with a typical value at 0.6pF, and complies with the IEC61000- 4-2(ESD) standard with ±20kV air and ±20kV contact discharge. It is assembled into a 10 pin 2.5x1.0x0.5mm lead-free DFN package. The flow through style package allows for easy PCB layout and matched trace length necessary to maintain consistent impedance between high speed differential lines such as USB 3.0 and HDMI. The small size, ultra-low capacitance and high ESD protection make PESDR0524P an ideal choice to protect HDMI, DDI, MDDI, USB3.0 and other highspeed ports.

### Features

- Ultralow capacitance: 0.6pF typical (I/O to I/O)
- Low operating voltage: 5V
- Low clamping voltage
- Up to 4 lines protects
- Leadless flow-through package
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±20kV
    - Contact discharge: ±20kV
  - IEC61000-4-5 (Lightning) 3.5A (8/20µs)
- RoHS Compliant

### Dimensions and Pin Configuration



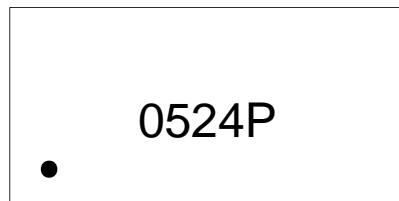
### Mechanical Characteristics

- Package: DFN2510-10 (2.5x1.0x0.5mm)
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below

### Applications

- HDMI 1.4 & 2.0, USB 3.0 & 3.1 and MDDI ports
- Monitors and flat panel displays
- Set-top box and Digital TV
- Video graphics cards
- Digital Video Interface (DVI)
- Notebook Computers
- PCI Express and Serial SATA Ports

### Marking Information



**0524P** = Device Marking Code

### Ordering Information

Part Number	Shipping	Reel Size
PESDR0524P	3000/Tape & Reel	7 inch

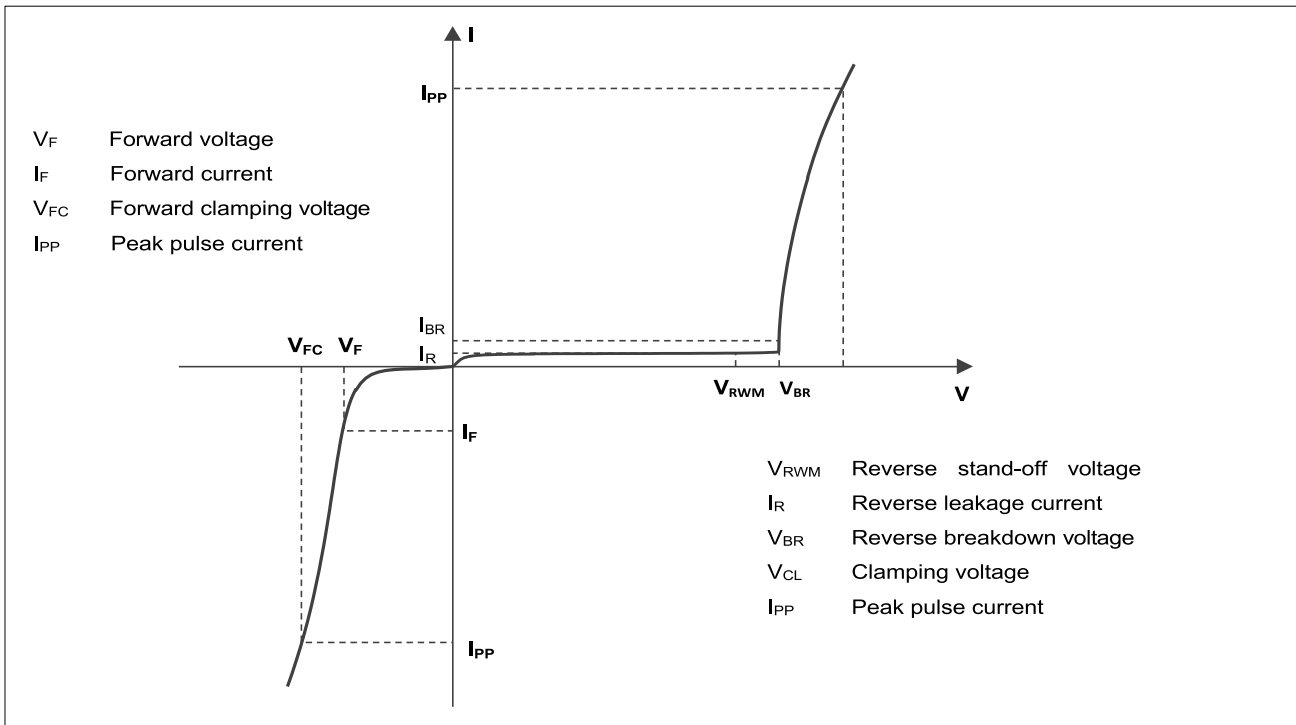
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	$P_{PK}$	52	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	$I_{PP}$	3.5	A
ESD per IEC 61000-4-2 (Air)	$V_{ESD}$	$\pm 20$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 20$	
Lead temperature	$T_L$	260	$^{\circ}\text{C}$
Operating Temperature Range	$T_{OP}$	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

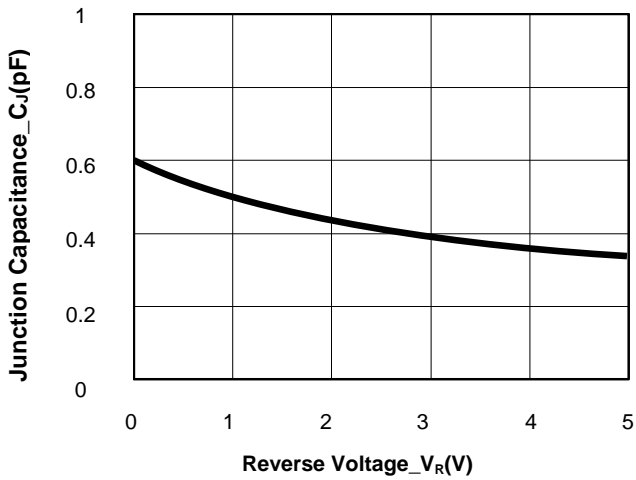
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	$V_{RWM}$			5.5	V	
Breakdown Voltage	$V_{BR}$	5.8	6.0		V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.1	$\mu\text{A}$	$V_{RWM} = 5\text{V}$
Clamping Voltage	$V_C$			10	V	$I_{PP} = 1\text{A}$ (8/20 $\mu\text{s}$ pulse)
Clamping Voltage	$V_C$			15	V	$I_{PP} = 3.5\text{A}$ (8/20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$		0.6		pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

**Electrical characteristics ( $T_A = 25^\circ\text{C}$ , unless otherwise noted)**

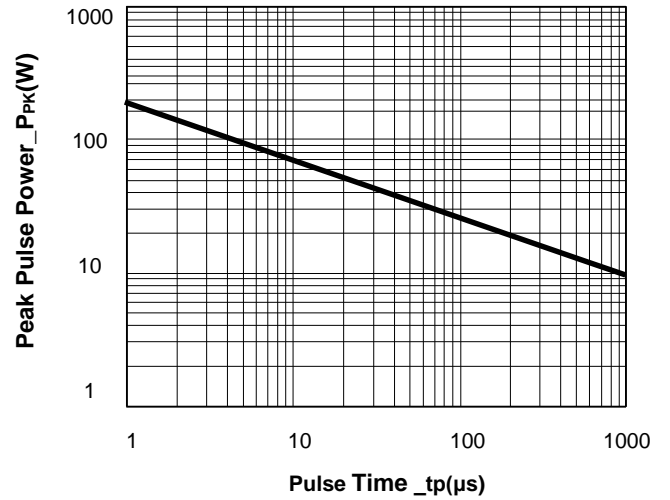


Definitions of electrical characteristics

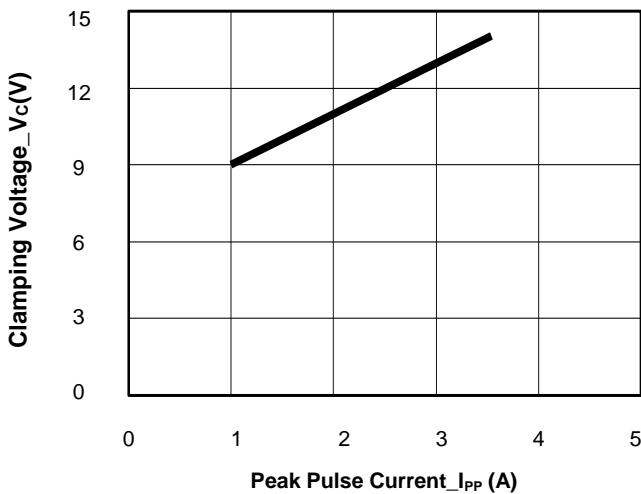
**Typical Performance Characteristics (T<sub>A</sub>=25°C unless otherwise Specified)**



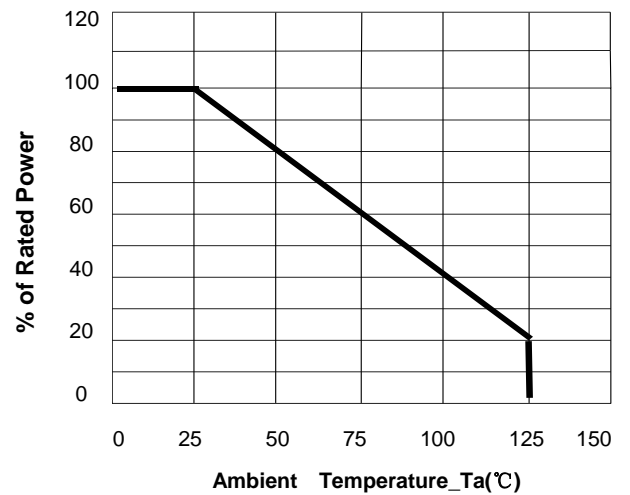
**Junction Capacitance vs. Reverse Voltage**



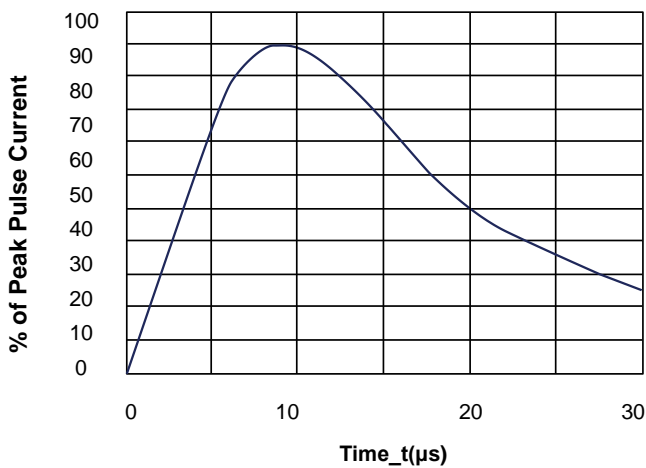
**Peak Pulse Power vs. Pulse Time**



**Clamping Voltage vs. Peak Pulse Current**

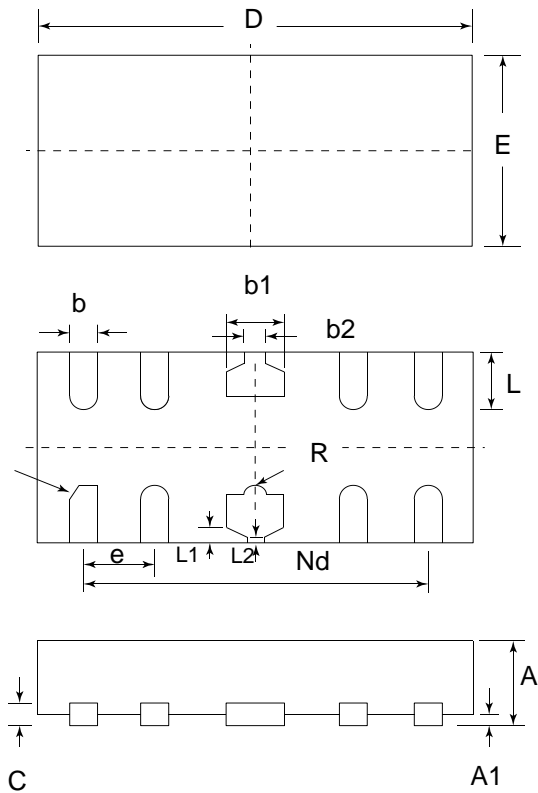


**Power Derating Curve**



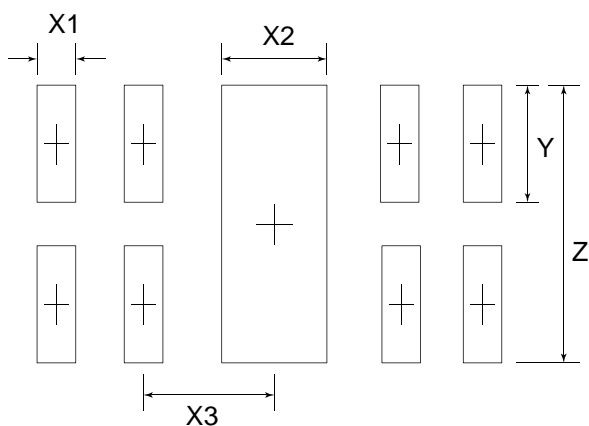
**8/20μs Pulse Waveform**

**DFN2510-10 Package Outline Drawing**



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.15	0.20	0.25	0.006	0.008	0.010
B1	0.35	0.40	0.45	0.014	0.016	0.018
B2	0.20	0.25	0.30	0.008	0.010	0.012
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.45	2.50	2.55	0.098	0.100	0.102
e	0.50BSC			0.020BSC		
Nd	2.00BSC			0.080BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018
L1	0.075REF			0.003REF		
L2	0.050REF			0.002REF		
h	0.08	0.12	0.15	0.003	0.005	0.006
R	0.05	0.10	0.15	0.002	0.004	0.006

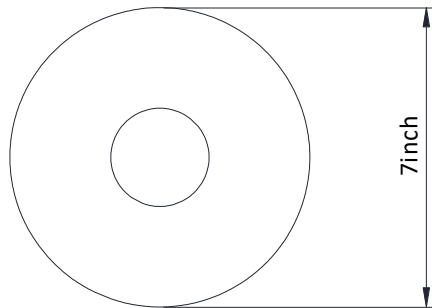
**Suggested Land Pattern**



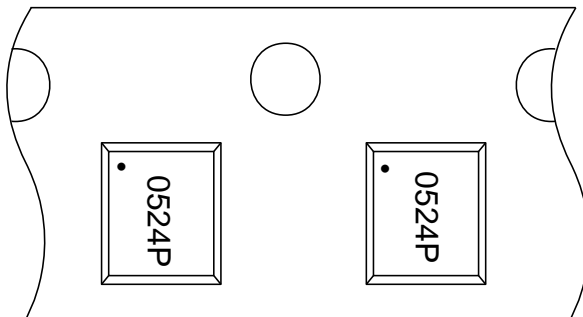
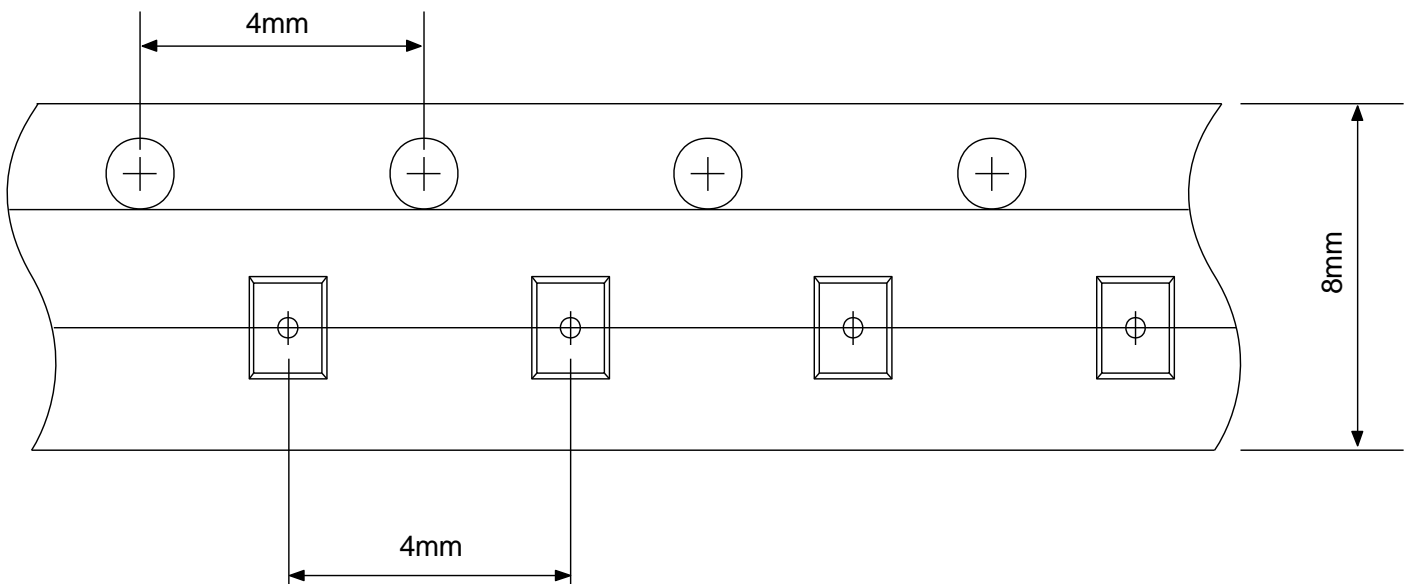
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X1	0.200	0.008
X2	0.400	0.016
X3	0.500	0.020
Y	0.600	0.024
Z	1.400	0.056

**TAPE AND REEL INFORMATION**

Reel Dimensions



Tape Dimensions




User Direction of Feed

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