

## PTUC0524PA – ESD Protection Diode

### Feature

- 30 Watts peak pulse power (8/20 $\mu$ s)
- Unidirectional configurations
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ( $C_j = 0.2\text{pF typ. I/O to I/O}$ )
- IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (Air),  $\pm 12\text{kV}$  (Contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning): 3A (8/20 $\mu$ s)



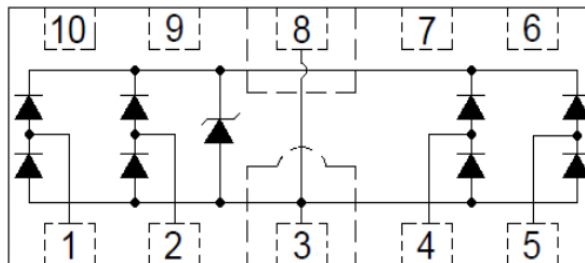
### Applications

- USB3.0, USB2.0, Ethernet
- HDMI 2.0, Displayport 1.3, eSATA
- Unified Display Interface
- Digital Video Interface
- High Speed Serial Interface

### Mechanical Data

- Tiny DFN10L(2.5mmx1.0mm) package
- Molding compound flammability rating: UL94V-0
- Tape and Reel Packaging
- RoHS/WEEE Compliant

### Schematic and PIN Configuration



### Maximum Rating

Parameter	Symbol	Value	Unit
IEC61000-4-2 ESD Voltage – Air Mode	$V_{ESD}^{(1)}$	$\pm 15$	kV
IEC61000-4-2 ESD Voltage – Contact Mode		$\pm 12$	
Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )	$P_{PP}$	30	W
Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ ) (note1)	$I_{PP}$	3	A
Lead Solder Temperature (10 seconds duration)	$T_L$	260	$^{\circ}\text{C}$
Junction Temperature	$T_J$	-55~125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55~125	$^{\circ}\text{C}$

Note:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20 $\mu$ s exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of  $T_A = 25^{\circ}\text{C}$  unless otherwise noted.

## PTUC0524PA – ESD Protection Diode

### Electrical Characteristics

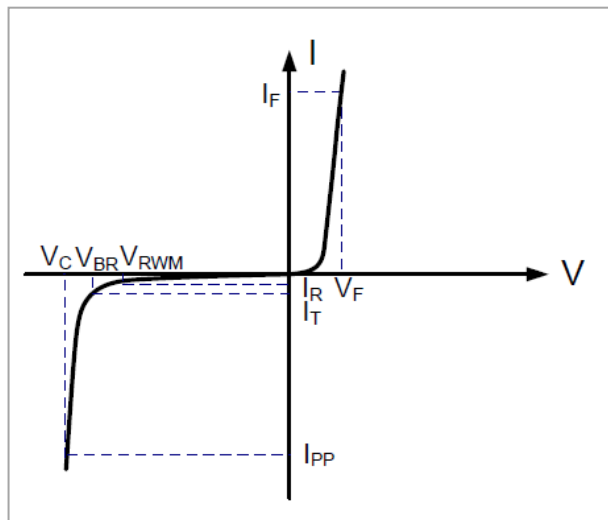
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				5.0	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	6.0	7.2	9.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V$		0.02	0.50	$\mu A$
Peak Pulse Current	$I_{PP}$				3	A
Clamping Voltage	$V_C^{(2)}$	$I_{PP} = 3.0A$		10	11	V
	$V_{CL}$	$I_{PP} = 16A, t_p=TLP$			15	V
Junction Capacitance	$C_J$	$V_R = 0V, f = 1MHz, I/O \text{ to } I/O$		0.20		pF
		$V_R = 0V, f = 1MHz, I/O \text{ to } GND$		0.36		pF

Note:

1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20 $\mu s$  exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of  $T_A = 25^\circ C$  unless otherwise noted.

### Electrical Parameters

Symbol	Parameter
$V_C$	Clamping Voltage @ $I_{PP}$
$I_{PP}$	Peak Pulse Current
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{RWM}$	Reverse Stand-off Voltage
$V_F$	Forward Voltage @ $I_F$



## PTUC0524PA – ESD Protection Diode

### Typical Characteristics

Fig.1 Peak Pulse Power Rating Curve

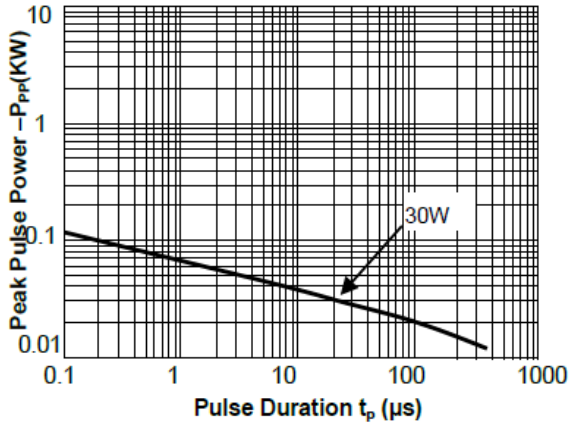


Fig.2 Pulse Derating Curve

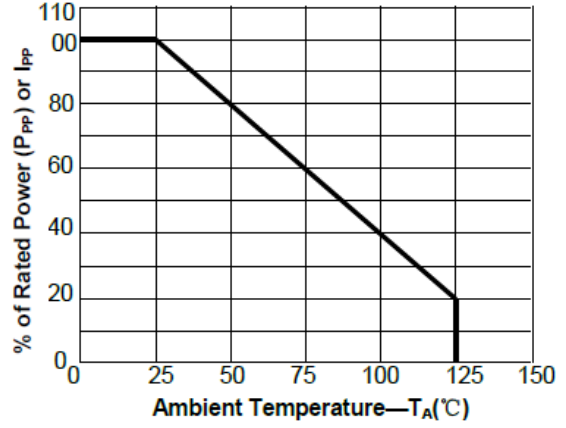


Fig.3 Pulse Waveform-8/20 $\mu s$

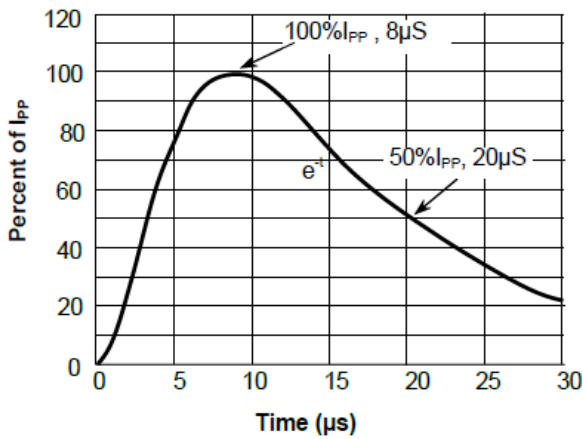


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

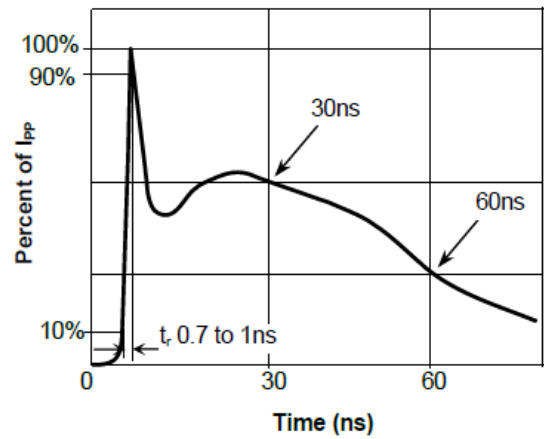


Figure5: Positive Clamping voltage (TLP)

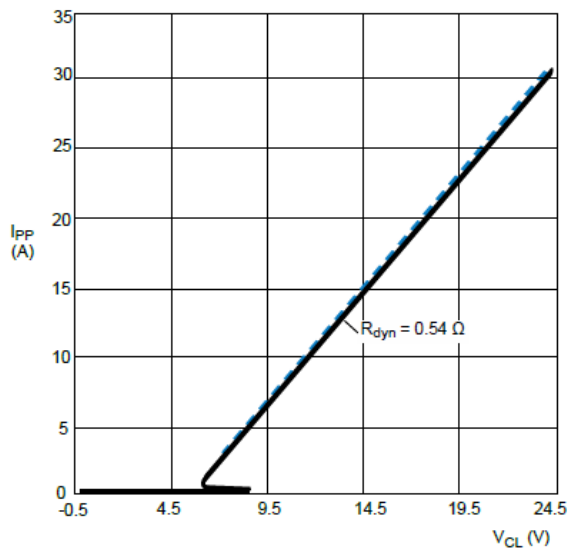
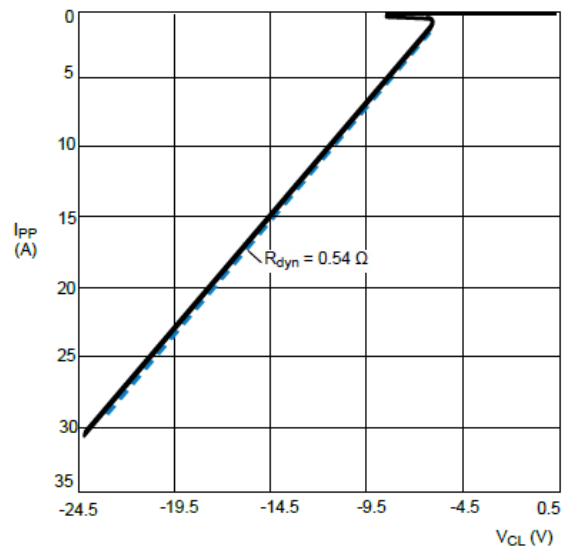
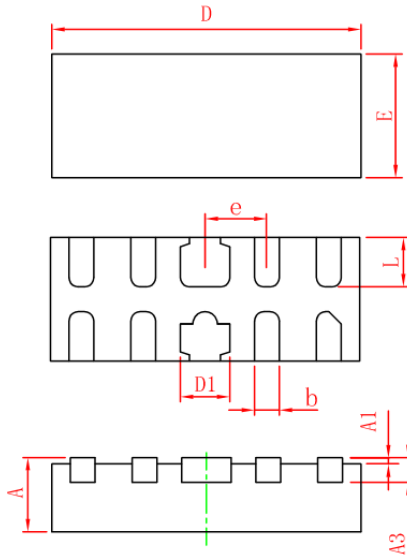


Figure6: Negative Clamping voltage (TLP)



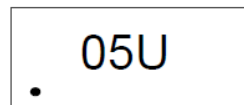
## PTUC0524PA – ESD Protection Diode

### DFN10L(2.5mmx1.0mm) Package Outline Dimensions



Symbol	Dimensions (mm)		
	Min	Nom	Max
A	0.45	0.50	0.55
A1	-	0.02	0.05
A3	0.10	0.15	0.20
D	2.45	2.50	2.55
E	0.95	1.00	1.05
D1	0.35	0.40	0.45
b	0.15	0.20	0.25
e	0.5BSC		
L	0.35	0.40	0.45

### Marking



### Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PTUC0524PA	DFN10L(2.5x1.0mm)	7 inch	3,000