

PTLC0524P – ESD Protection Diode

Feature

- 80 Watts peak pulse power (8/20 μ s)
- Bidirectional configurations
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ($C_j = 0.5$ pF typ.)
- IEC61000-4-2 (ESD) ± 15 kV (Air), ± 10 kV (Contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning): 6A (8/20 μ s)



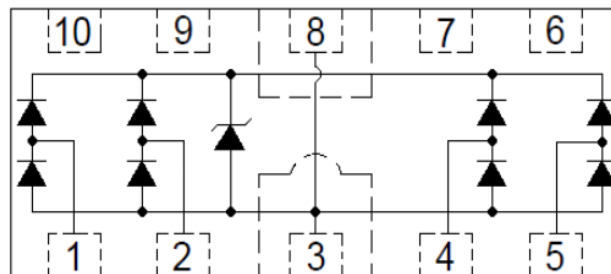
Applications

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

Mechanical Data

- Tiny DFN10L(2.5mmx1.0mm) package
- Molding compound flammability rating: UL94 V-0
- Tape and Reel Packaging
- RoHS/WEEE Compliant

Schematic and PIN Configuration



Maximum Rating

Parameter	Symbol	Limit	Unit
IEC61000-4-2 ESD Voltage – Air Mode	$V_{ESD}^{(1)}$	± 15	kV
IEC61000-4-2 ESD Voltage – Contact Mode		± 10	
Peak Pulse Power	$P_{PP}^{(2)}$	80	W
Peak Pulse Current	$I_{PP}^{(2)}$	6	A
Maximum Lead Solder Temperature (10 seconds duration)	T_L	260	$^{\circ}$ C
Junction Temperature	T_J	-55~125	$^{\circ}$ C
Storage Temperature Range	T_{stg}	-55~125	$^{\circ}$ C

Note:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20 μ 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.

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Electrical Characteristics

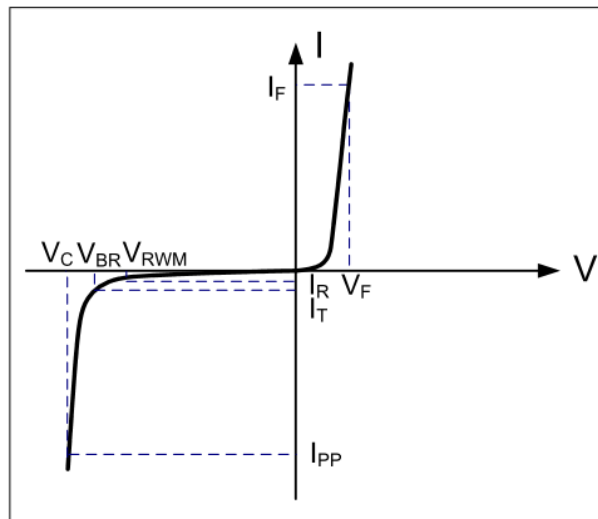
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.0	7.0	8.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$		0.02	0.50	μA
Peak Pulse Current	I_{PP}				6	A
Clamping Voltage	$V_C^{(2)}$	$I_{PP} = 6.0\text{A}$		14	16	V
Junction Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}, I/O \text{ to } I/O$		0.3	0.4	pF
		$V_R = 0\text{V}, f = 1\text{MHz}, I/O \text{ to } \text{GND}$		0.6	0.8	pF

Note:

1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20 μs 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.

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



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Typical Characteristics

Fig.1 Peak Pulse Power Rating Curve

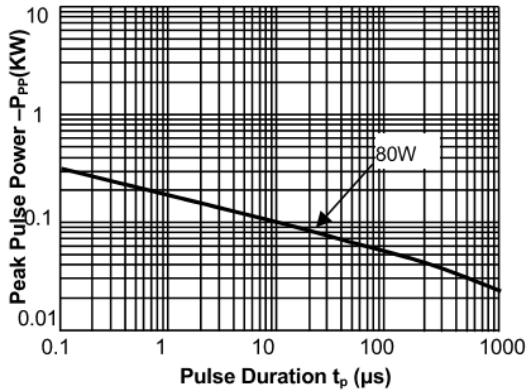


Fig.2 Pulse Derating Curve

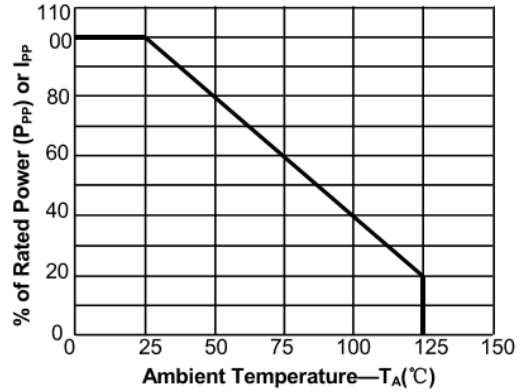


Fig.3 Pulse Waveform-8/20 μ s

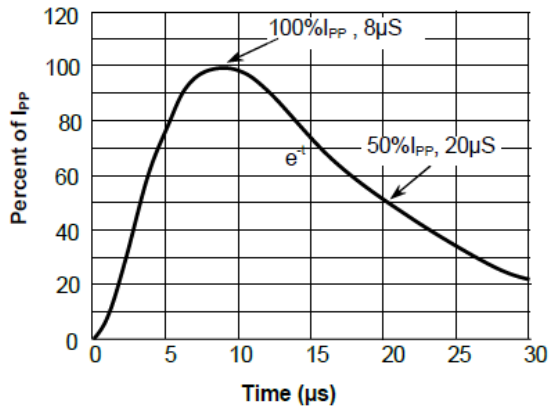


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

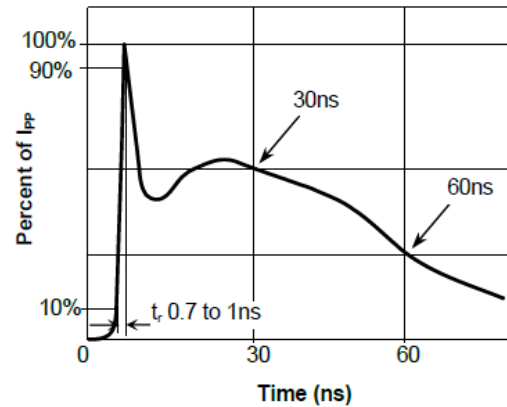


Fig.5 Eye Diagram - HDMI mask at 3.4Gbps per channel (with SESLC5VD2510-10U)

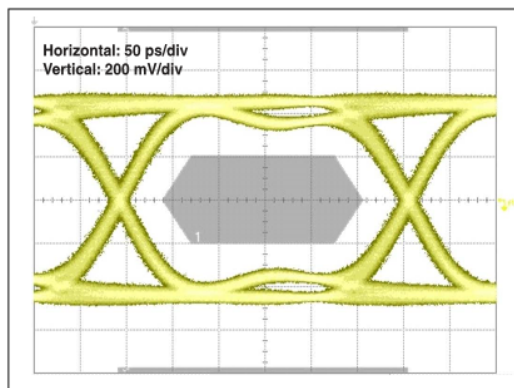
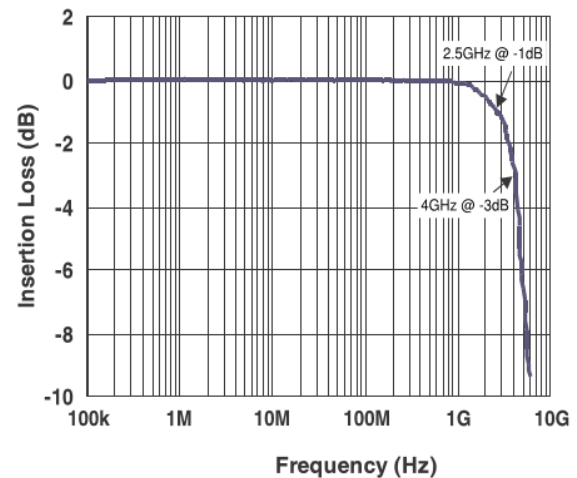
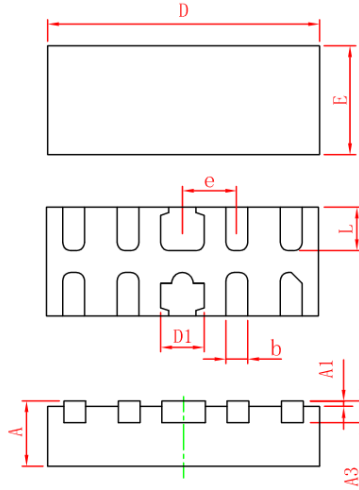


Fig.6 Insertion Loss S21 - I/O to GND



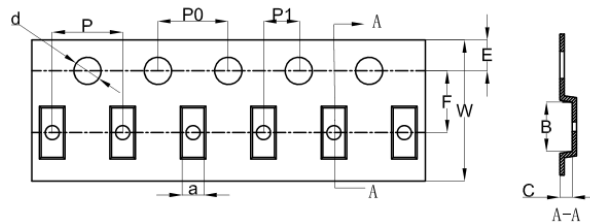
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DFN10L(2.5mmx1.0mm) Package Outline Dimensions



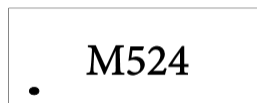
Symbol	Dimensions (mm)		
	Min	Nom	Max
A	0.45	0.50	0.55
A1	-	0.02	0.05
A3	0.10	0.15	0.20
D	2.45	2.0	2.55
E	0.95	1.00	1.05
D1	0.35	0.40	0.45
b	0.15	0.20	0.25
e	0.5BSC		
L	0.35	0.40	0.50

Package Information



Package Type	a	B	C	d	E	F	P0	P	P1	W
DFN10L	1.23	2.70	0.7	Φ1.55	1.75	3.50	4.00	4.00	2.00	8.00

Marking



Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PTLC0524P	DFN10L(2.5x1.0mm)	7 inch	3,000