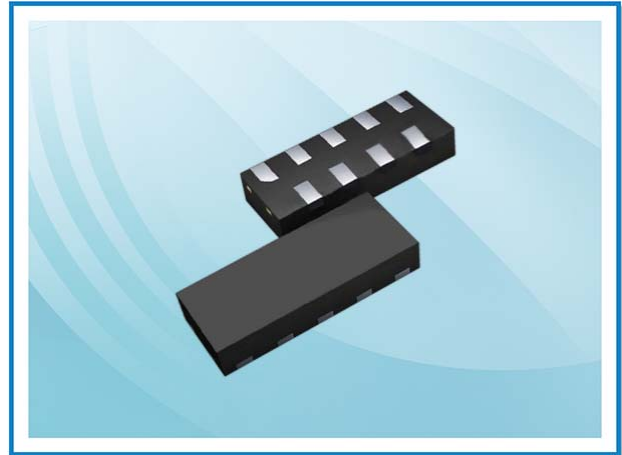


PTUC0518N – ESD Protection Diode

Feature

- 30 Watts peak pulse power (8/20μs)
- Tiny DFN3810 package
- Protect up to eight lines
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance (C_j = 0.2 pF typ. I/O to I/O)
- IEC61000-4-2 (ESD) ±15kV (Air), ±8kV (Contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning): 3A (8/20μs)



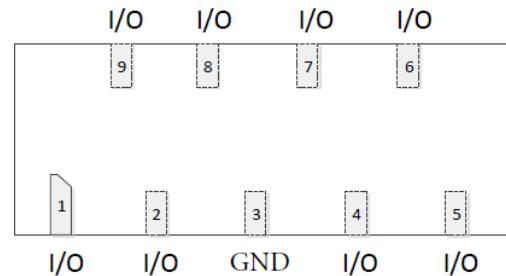
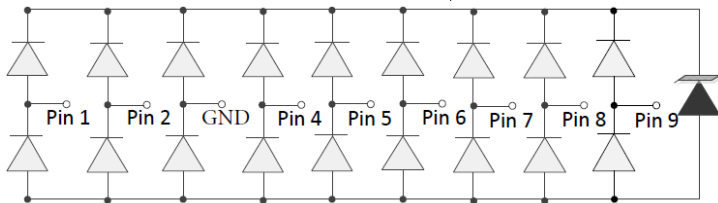
Applications

- USB3.0/3.1, Type C
- HDMI1.4/2.0, Display Port 1.3
- Unified Display Interface
- Digital Video Interface

Mechanical Data

- DFN3810 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		±8	
Peak Pulse Power	P _{pp} ⁽²⁾	30	W
Peak Pulse Current	I _{pp} ⁽²⁾	3	A
Maximum Lead Solder Temperature (10 seconds duration)	T _L	260	°C
Junction Temperature	T _J	-55~125	°C
Storage Temperature Range	T _{stg}	-55~125	°C

Note:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of TA = 25 °C unless otherwise noted.

PTUC0518N – ESD Protection Diode

Electrical Characteristics

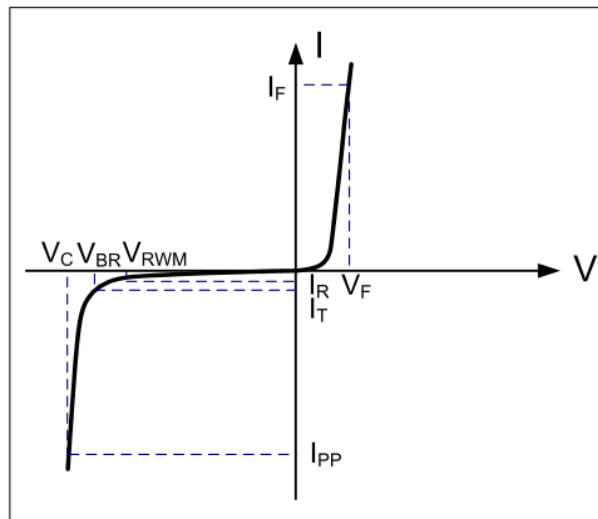
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.0	7.2	9.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$		0.1	0.5	μA
Peak Pulse Current	I_{PP}				3	A
Clamping Voltage	$V_C^{(2)}$	$I_{PP} = 3\text{A}$			10	V
Junction Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}, I/O \text{ to } I/O$		0.2		pF
		$V_R = 0\text{V}, f = 1\text{MHz}, I/O \text{ to } \text{GND}$		0.2		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



PTUC0518N – ESD Protection Diode

Typical Characteristics

Fig.1 IEC61000-4-2 Waveform

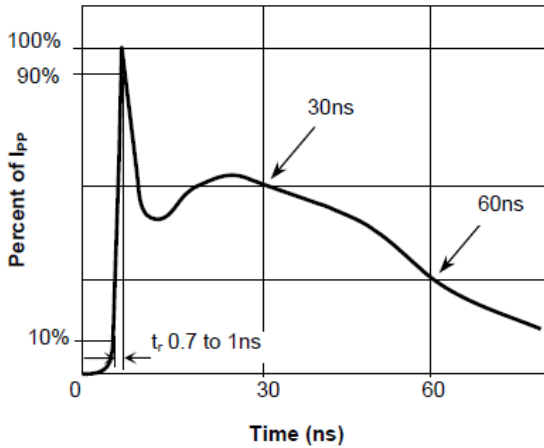


Fig.2 IEC61000-4-2 +8kV Contact ESD Clamping Waveform

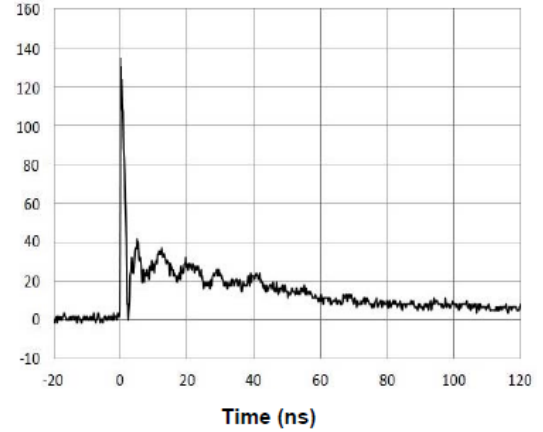


Fig.3 Eye Diagram - USB3.1 at 10Gbps per channel

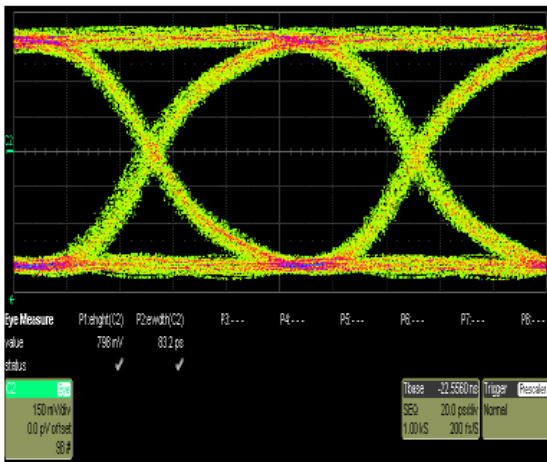
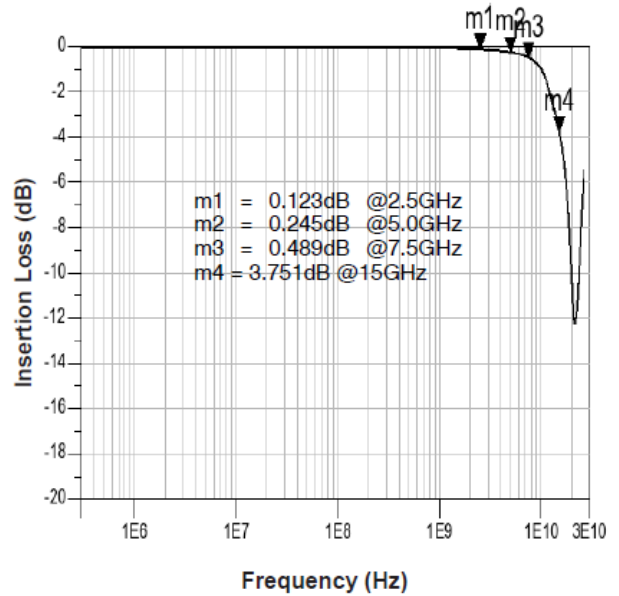
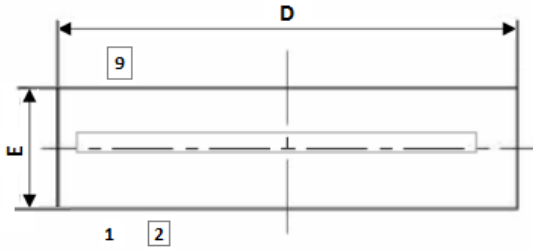


Fig.4 Insertion Loss S21 - I/O to I/O

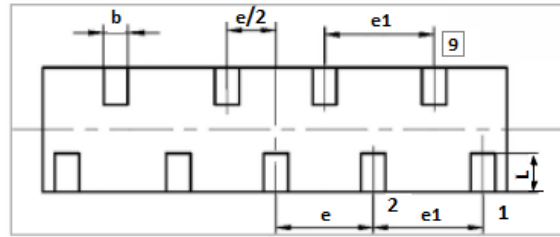


PTUC0518N – ESD Protection Diode

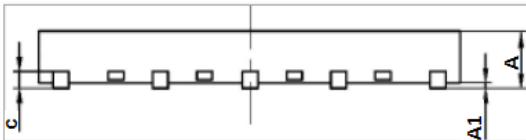
DFN3810 Package Outline Dimensions



TOP VIEW



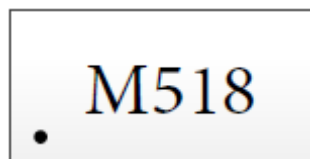
BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
b	0.15	0.20	0.25
c	0.100	0.150	0.200
D	3.75	3.80	3.90
e	0.80 BSC		
e1	0.90 BSC		
E	0.90	1.00	1.10
L	0.20	0.30	0.40

Marking



Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PTUC0518N	DFN3810	7 inch	3,000