Leiditech

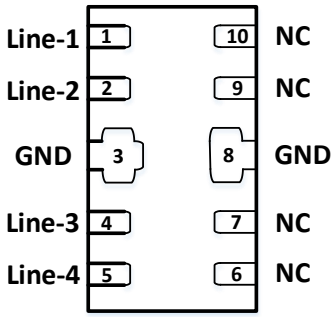
PUSB3FR4

ULTRA LOW CAPACITANCE TVS DIODE ARRAY

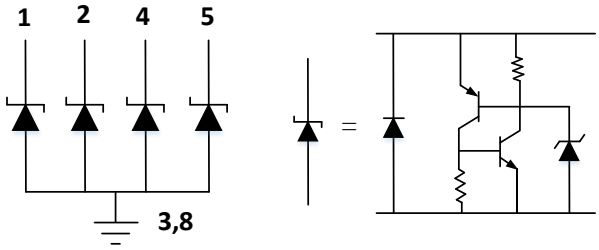
Features

- Ultra low leakage: nA level
- Low operating voltage: 3.3V
- 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: ±15kV
    - Contact discharge: ±15kV
  - – IEC61000-4-5 (Lightning) 7A (8/20μs)
- RoHS Compliant

Dimensions DFN2510P10



Pin Configuration



Applications

- High Definition Multi-Media Interface (HDMI) 1.3 & 1.4 version
- Display Port interface
- SATA and eSATA interface
- USB 3.0
- Digital Visual Interface (DVI)
- USB 2.0 up to 480Mb/s
- IEEE 1394 up to 3.2 Gb/s
- Ethernet port : 10/100/1000 Mb/s
- Desktop and Notebooks PCs
- Consumer Electronics
- Set Top Box

Mechanical Characteristics

- Package: DFN2510-10 (2.5×1.0×0.5mm)
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below
- Device Marking: 33U

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	28	W
Peak Pulse Current (8/20μs)	I_{PP}	7	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±15 ±15	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Reverse Working Voltage	V_{RWM}		3.3	5.0	V	Any I/O to Ground
Reverse Breakdown Voltage	V_{BR}	6.0			V	I_T=1mA, Any I/O to Ground
Holding Voltage	V_H		1.6		V	I_T=I_H
Holding Current	I_H		5		mA	
Reverse Leakage Current	I_R			100	nA	V_{RWM}=5V, Any I/O to Ground
Trigger Voltage	V_T	7			V	Any I/O to Ground
Diode Forward Voltage	V_F			1.2	V	I_F=15mA, Ground to Any I/O
Clamping Voltage	V_C		2.5		V	$_{PP}$=1A, tp=8/20μs, Any I/O to Ground
			4		V	$_{PP}$=7A, tp=8/20μs, Any I/O to Ground
Clamping Voltage	V_C		3.7		V	I_{PP}=4A, tp=TLP(Note1) Any I/O to Ground
			8.3		V	I_{PP}=16A, tp=TLP(Note1) Any I/O to Ground
			2.9		V	I_{PP}=4A, tp=TLP(Note1) Ground to Any I/O
			7.0		V	I_{PP}=16A, tp=TLP(Note1) Ground to Any I/O
Junction Capacitance	C_J		0.7		pF	V_R=1.5V, f=1MHz, Any I/O to Ground
			0.35		pF	V_R=1.5V, f=1MHz, between I/O pins

Note1: Non-repetitive current pulse, Transmission Line Pulse (TLP) tr=0.2ns, tp = 100 ns; square pulse

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

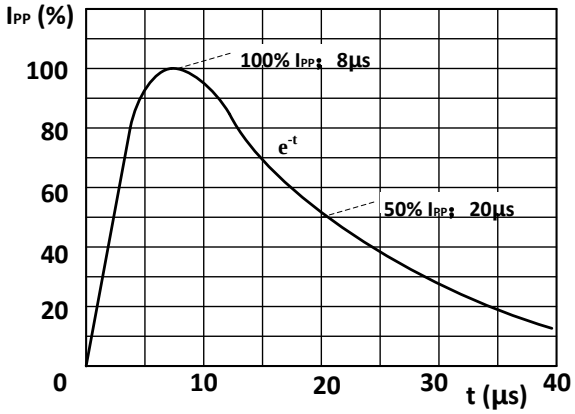


Fig. 1. 8/20 μs pulse waveform according to IEC 61000-4-5 and IEC 61643-321

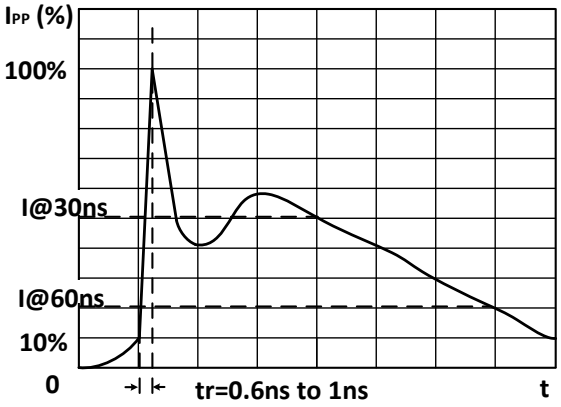


Fig. 2. ESD pulse waveform according to IEC 61000-4-2

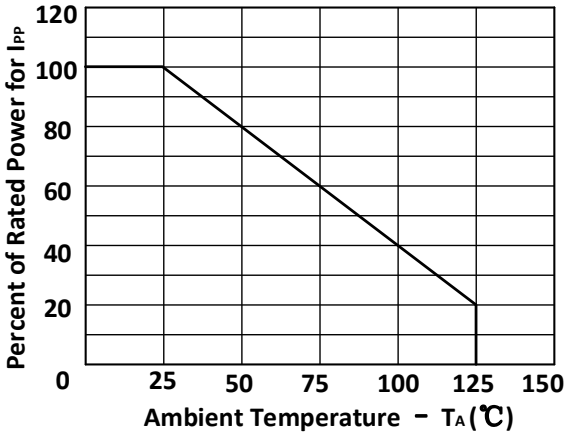


Fig. 3. Power Derating Curve

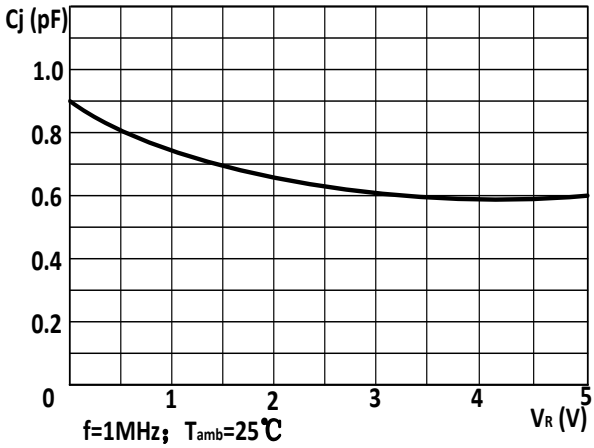


Fig. 4. Junction Capacitance vs V_R

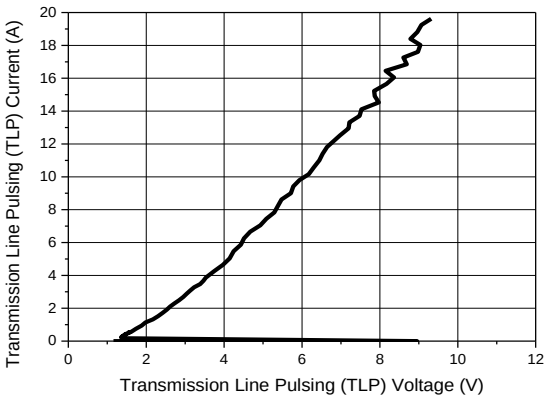


Fig. 5. Any I/O to Ground TLP Curve

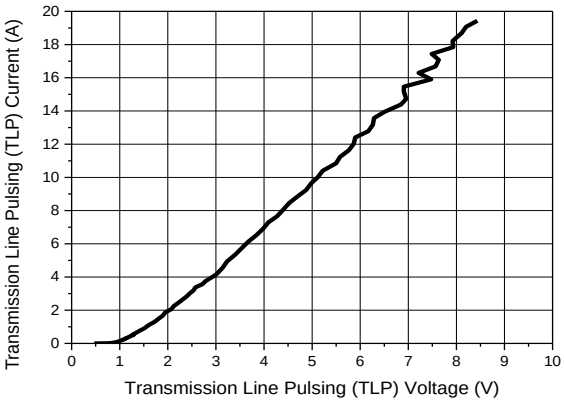
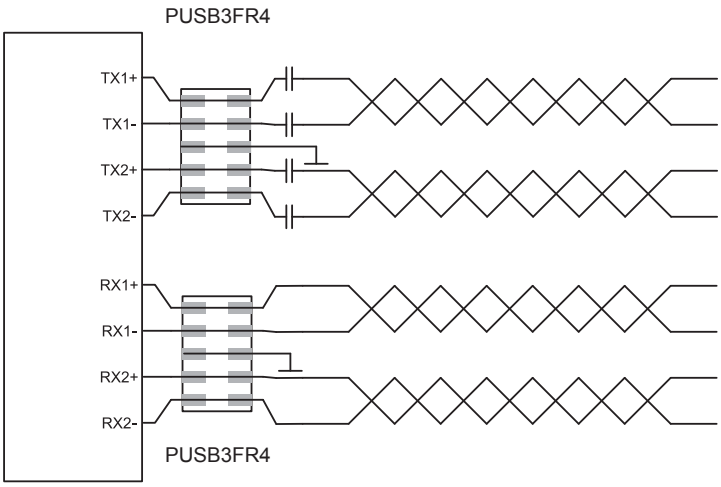
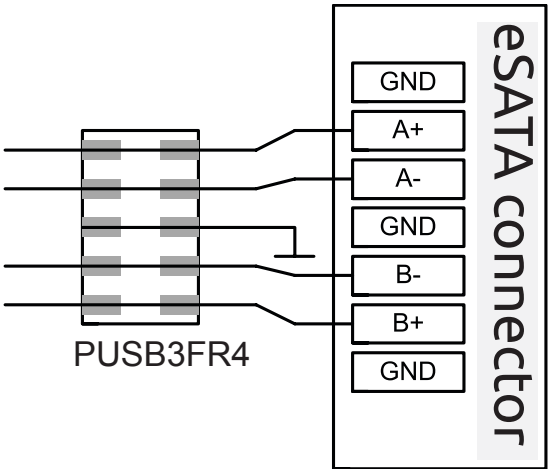


Fig. 6. Ground to Any I/O TLP Curve

High data-rate: USB 3.1

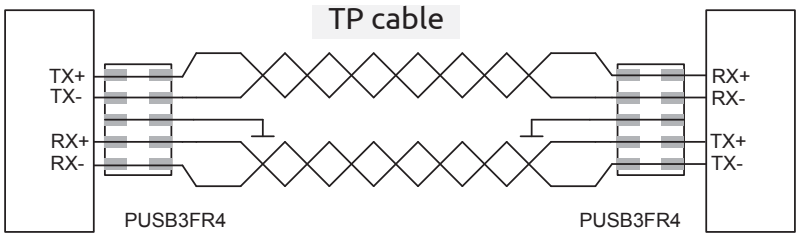


High data-rate: eSATA



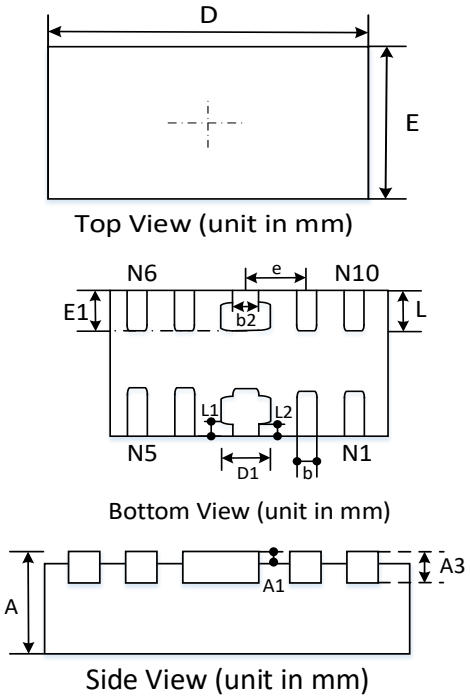
eSATA ESD protection using PUSB3FR4

High-speed differential mode signaling (LVDS, CML, TMDS, etc.)



General high-speed differential mode signaling line ESD protection (actual data rate influences device choice)

DFN2510-10 Package Outline Drawing



Symbol	Millimeters		Inches	
	min	max	min	max
A	0.40	0.55	0.016	0.022
A1	0.00	0.05	0.000	0.002
A3	0.152 REF		0.006 BSC	
D	2.45	2.55	0.096	0.100
E	0.95	1.05	0.037	0.041
D1	0.35	0.45	0.014	0.018
E1	0.35	0.45	0.014	0.018
b	0.15	0.25	0.006	0.010
e	0.05 BSC		0.019 BSC	
L1	0.075 REF		0.0029 REF	
L2	0.05 REF		0.0019 REF	
b2	0.20	0.30	0.0079	0.012
L	0.35	0.45	0.014	0.018

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