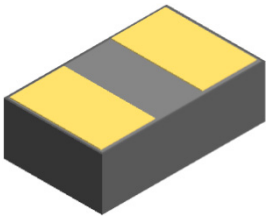
Prisemi®

PESD0201-03

1 Channel Ultra-low Capacitance ESD Protection

Feature

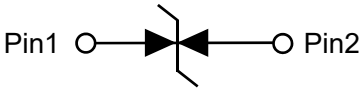
- Ultra-Low capacitance:0.05pF(typ.)
- Low leakage current(<0.1μA)
- Fast response time(<1ns)
- Bi-directional, single line protection
- Transient protection for data lines to IEC 61000-4-2(ESD) 25kV(air), 15kV(contact);



Bottom View

Applications

- USB 3.0/3.1
- HDMI 1.3/1.4/2.0
- RF Antenna
- SATA and eSATA Interface



Circuit Diagram

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Operating Temperature Range	T_{OPEN}	-55~+125	℃
Storage Temperature Range	T_{STG}	-55~+125	℃
Maximum Lead Temperature for Soldering During 10s	T_L	260	℃
ESD Protection-Contact Discharge	V_{ESD}	15	kV
ESD Protection-Air Discharge	V_{ESD}	25	kV

Electrical characteristics per line@25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Rated Voltage	V_R	-	-	-	3.3	V
Trigger Voltage	V_T	V_{ESD} = 8kV	-	300	-	V
Clamping Voltage	V_C	V_{ESD} = 8kV	-	35	-	V
Leakage Current	I_L	V_{DC} = 3.3V	-	0.01	0.1	μA
Junction Capacitance	C_J	V_R =0V,f=1MHz	-	0.05	-	pF

Note:
1. Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.
2. After reliability tests such as high temp storage, temp cycles, continuous ESD strike etc, the maximum leakage current is less than 10μA.

Typical Characteristics

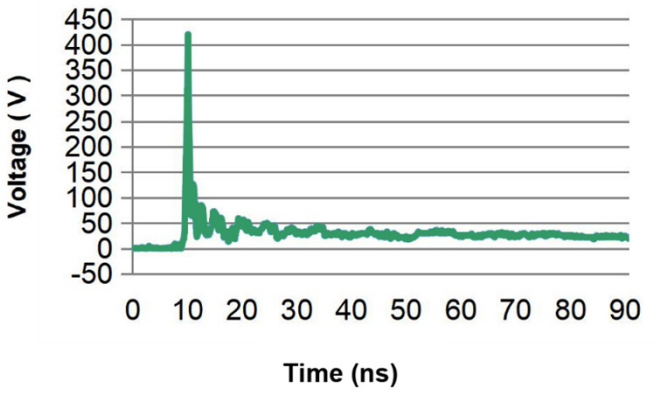


Fig.1 Typical ESD Response
（IEC 61000-4-2, 8kV contact discharge）

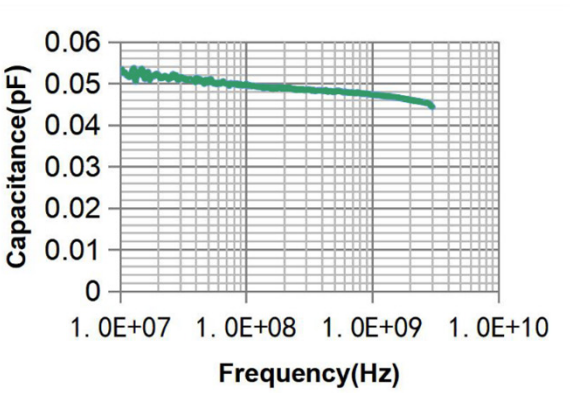


Fig.2 Typical Device Capacitance VS. Frequency

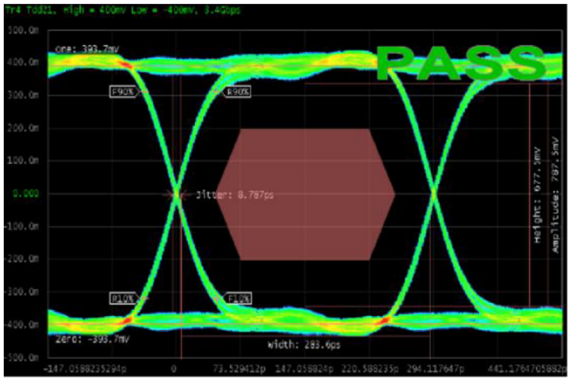


Fig.3 HDMI 1.4 Mask at 3.4 Gbps

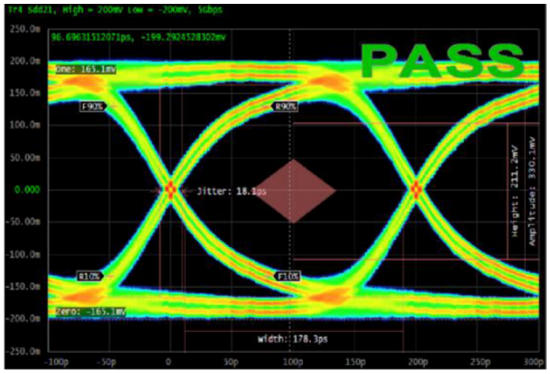


Fig.4 USB 3.0 Mask at 5.0 Gbps

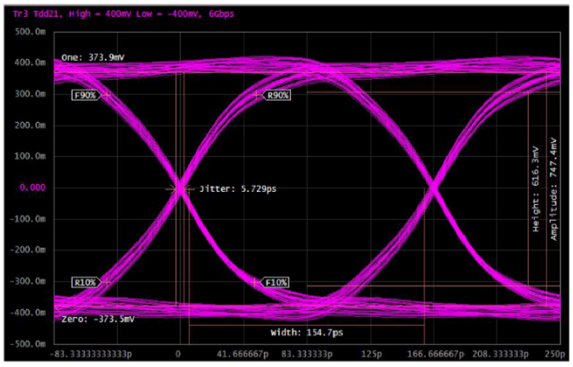
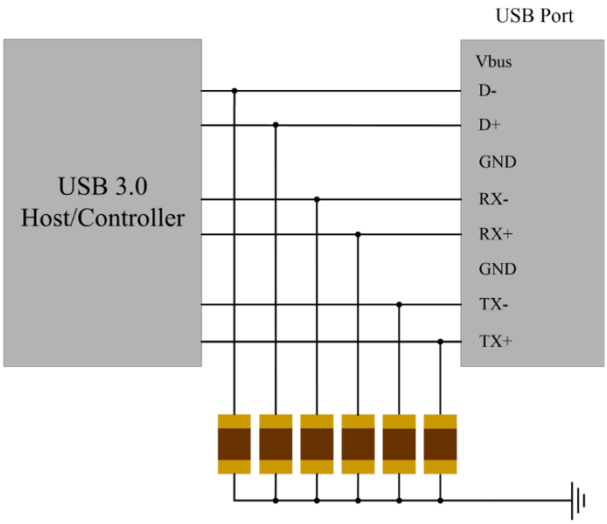


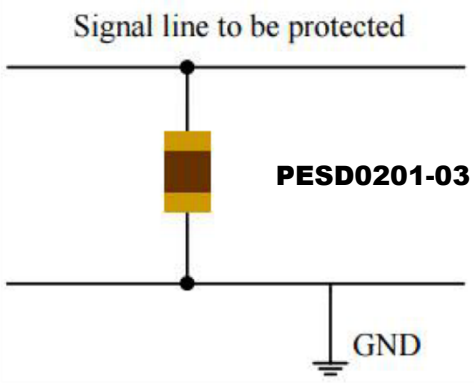
Fig.5 HDMI 2.0 Mask at 6.0 Gbps

ESD Protection for Signal Line

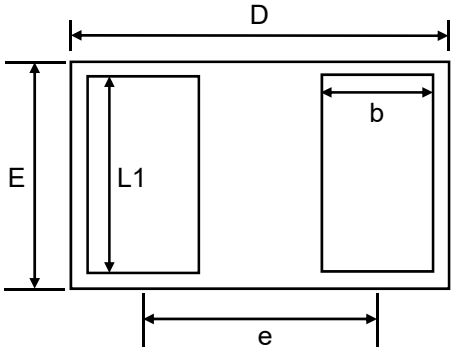
The PESD is designed for the protection of one bidirectional data line from ESD damage.

- Place the PESD as close to the input terminal or connector as possible.
- Minimize the path length between the PESD and the protected signal line.
- Use ground planes whenever possible.

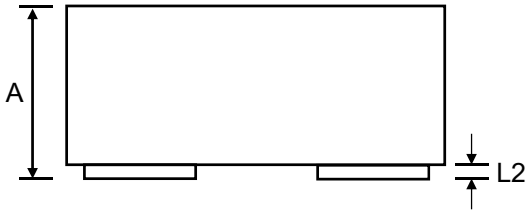




Product dimension (0201)

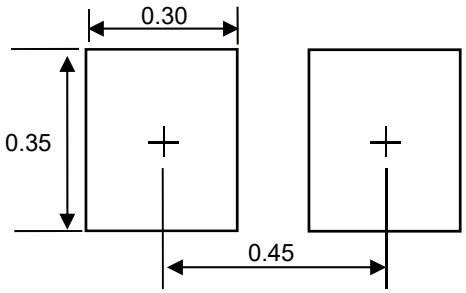


Bottom View



Side View

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.25	0.40	0.010	0.016
b	0.15	0.20	0.006	0.008
D	0.50	0.70	0.020	0.028
E	0.25	0.35	0.010	0.014
e	0.35 BSC		0.014 BSC	
L1	0.20	0.30	0.008	0.012
L2	0.00	0.05	0.000	0.002



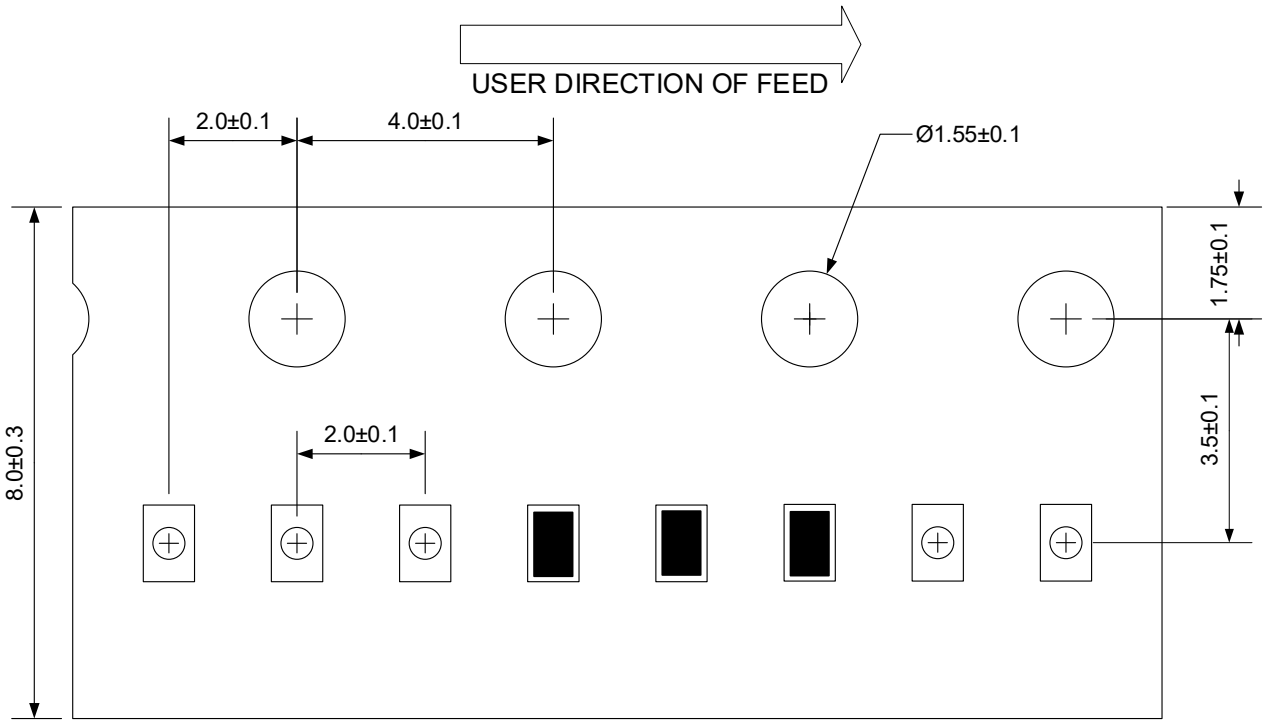
Unit:mm

Suggested PCB Layout

Ordering information

Device	Package	Reel	Shipping
PESD0201-03	0201	7"	15000 / Tape & Reel

Load with information



Unit:mm

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