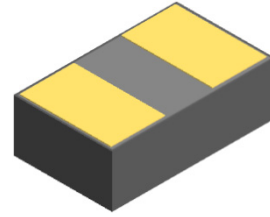


# 1 Channel Ultra-low Capacitance ESD Protection

## Feature

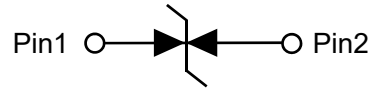
- Ultra-Low capacitance:0.05pF(typ.)
- Low leakage current(<0.1μA)
- Fast response time(<1ns)
- Bi-directional, single line protection
- Transient protection for data lines to IEC 61000-4-2(ESD) 25kV(air), 15kV(contact);



**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°C

Rating	Symbol	Value	Units
Operating Temperature Range	T <sub>OPEN</sub>	-55~+125	°C
Storage Temperature Range	T <sub>STG</sub>	-55~+125	°C
Maximum Lead Temperature for Soldering During 10s	T <sub>L</sub>	260	°C
ESD Protection-Contact Discharge	V <sub>ESD</sub>	15	kV
ESD Protection-Air Discharge	V <sub>ESD</sub>	25	kV

## Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Rated Voltage	V <sub>R</sub>	-	-	-	5.0	V
Trigger Voltage	V <sub>T</sub>	V <sub>ESD</sub> = 8kV	-	300	-	V
Clamping Voltage	V <sub>C</sub>	V <sub>ESD</sub> = 8kV	-	35	-	V
Leakage Current	I <sub>L</sub>	V <sub>DC</sub> = 5V	-	0.01	0.1	μA
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 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

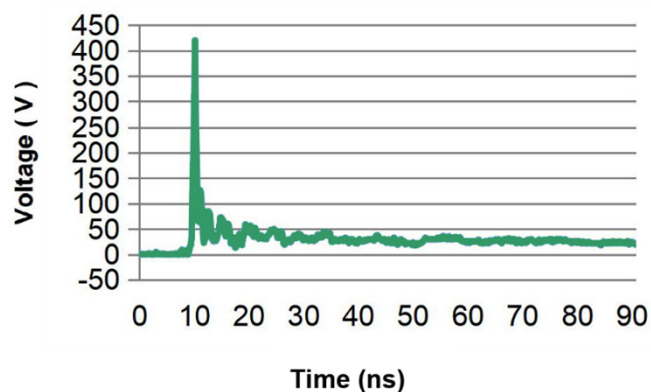


Fig.1 Typical ESD Response  
(IEC 61000-4-2, 8kV contact discharge)

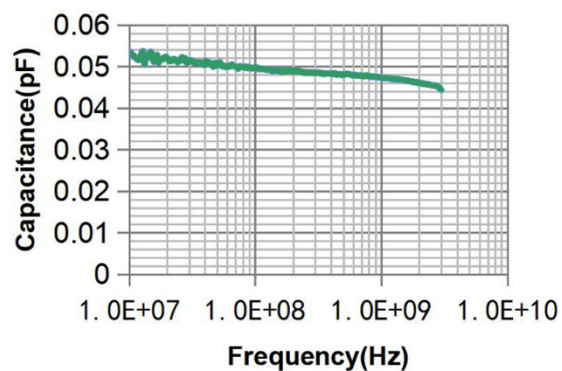


Fig.2 Typical Device Capacitance VS. Frequency

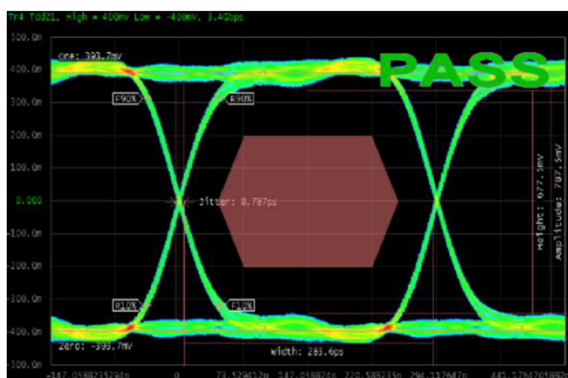


Fig.3 HDMI 1.4 Mask at 3.4 Gbps



Fig.4 USB 3.0 Mask at 5.0 Gbps

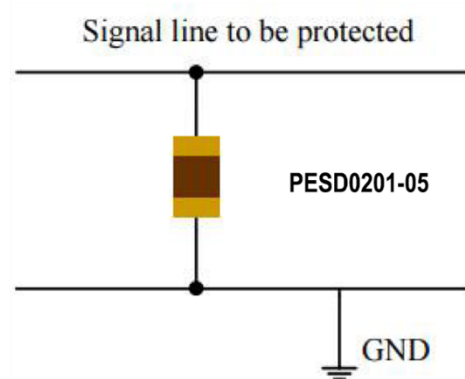
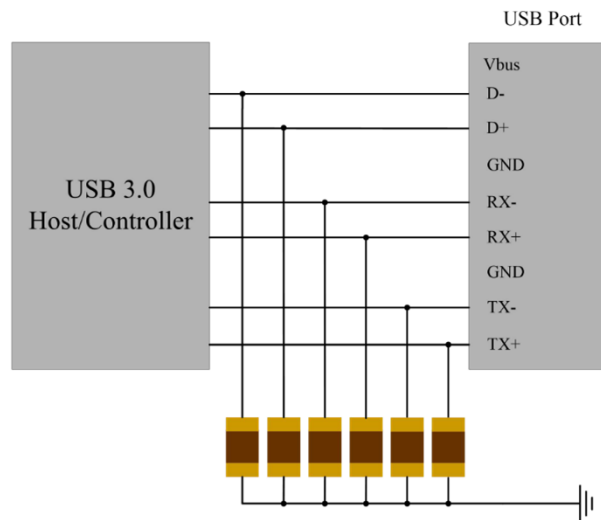


Fig.5 HDMI 2.0 Mask at 6.0 Gbps

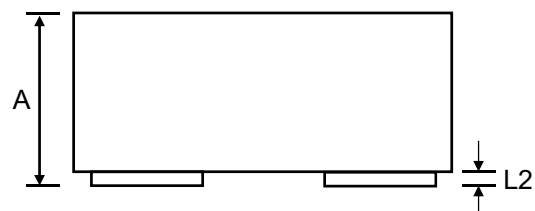
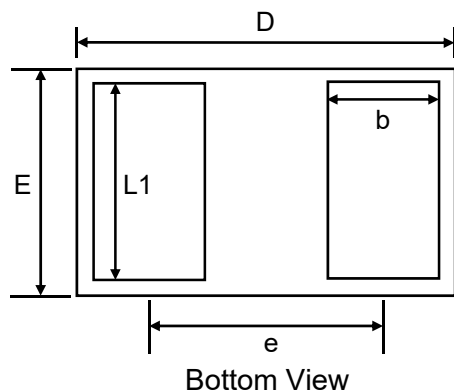
## ESD Protection for Signal Line

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

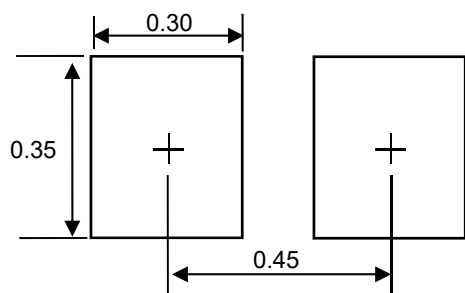
- Place the PESD as close to the input terminal or connector as possible.
- Minimize the path length between the PESD and the protected signal line.
- Use ground planes whenever possible.



## Product Dimension (0201)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.25	0.40	0.010	0.016
b	0.15	0.25	0.006	0.010
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



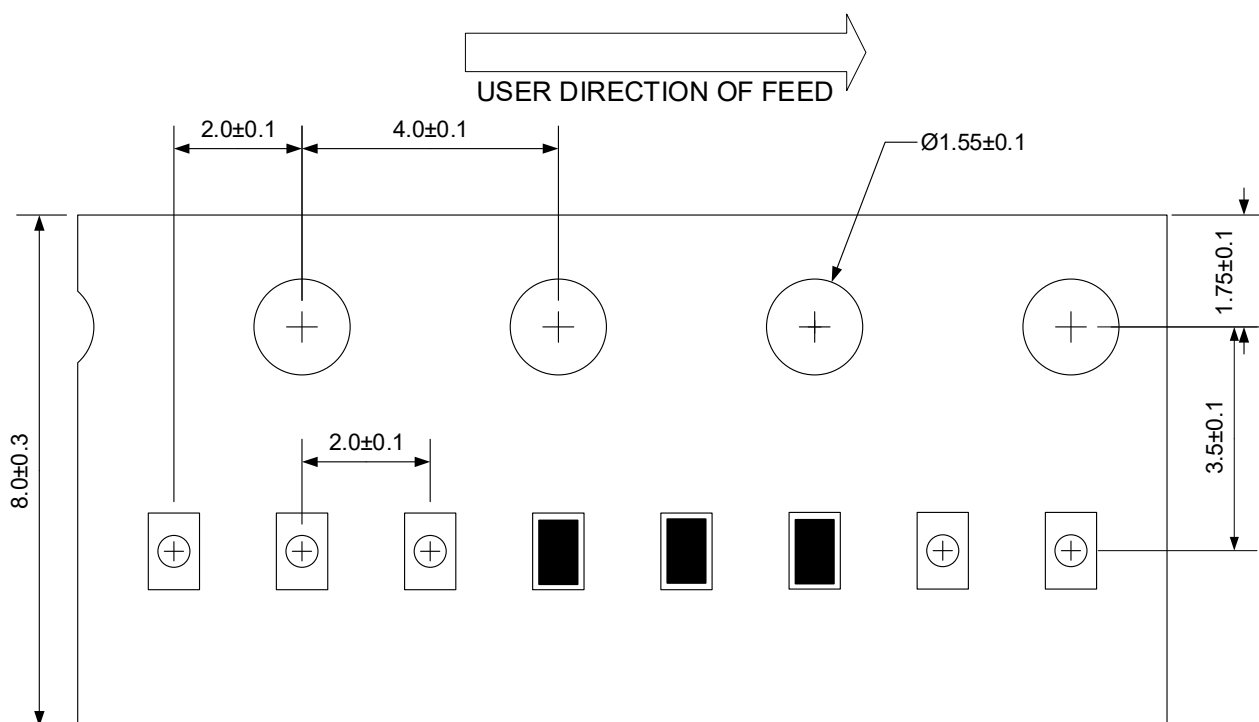
Unit:mm

Suggested PCB Layout

## Ordering information


Device	Package	Reel	Shipping
PESD0201-05	0201	7"	15000 / Tape & Reel

## Load with information



Unit:mm


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