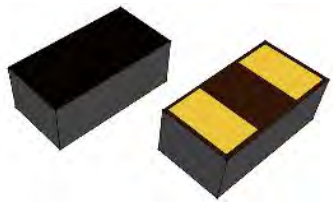
PESD1421U005

Ultal Low Capacitance ESD Protection Diode in 0201

1. Features

- Ultra-Low capacitance:0.05pF(typ.)
- Low leakage current(<100nA)
- Fast response time(<1ns)
- Bi-directional,single line protection
- IEC 61000-4-2 (Air): 15kV
  IEC 61000-4-2 (Contact): 8kV

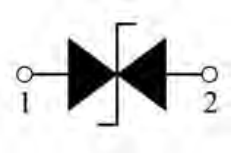
2. Pin Description



3. Applications

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

4. Schematic Diagram



5. Order Information

Type	Package	Size (mm)	Delivery Form	Delivery Quantity
PESD1221U005	0201	0.60x0.30x0.32	7" T&R	15,000

6. Limiting Values(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
V_{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	8	kV
		IEC 61000-4-2; Air Discharge	-	15	kV
T_A	Operating Temperature Range	-	-55	125	℃
T_{stg}	Storage Temperature Range	-	-40	85	℃

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

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{DC}	Continuous Operating Voltage	-	-	-	14.0	V
V_T	Trigger Voltage	IEC61000-4-2 8kV contact discharge	-	450	-	V
V_C	Clamping Voltage	IEC61000-4-2 8kV contact discharge	-	40	-	V
I_L	Leakage Current	DC 12V shall be applied on component	-	-	100	nA
C_J	Capacitance	Measured at 10MHz	-	0.05	-	pF

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8. Typical Characteristics

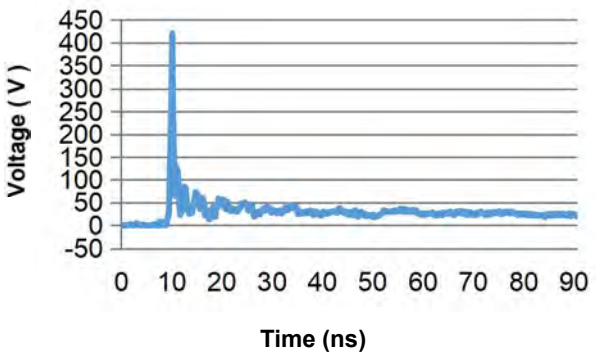


Fig.1 Typical ESD Response
（IEC 61000-4-2, 8kV contact discharge）

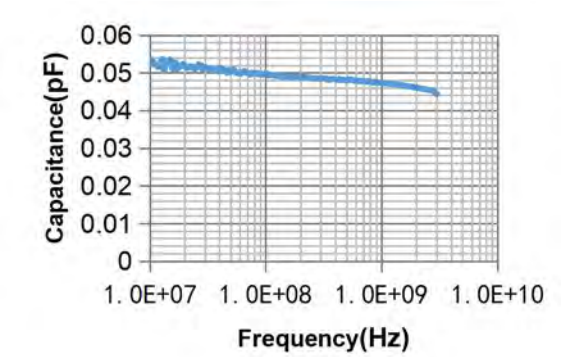


Fig.2 Typical Device Capacitance VS. Frequency

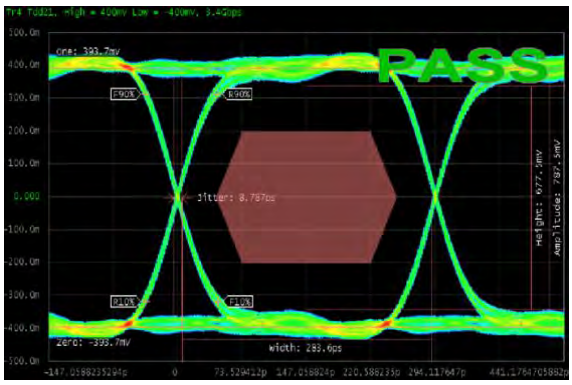


Fig.3 HDMI 1.4 Mask at 3.4 Gbps

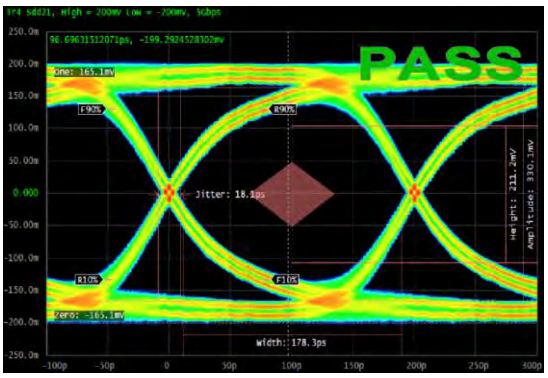


Fig.4 USB 3.0 Mask at 5.0 Gbps



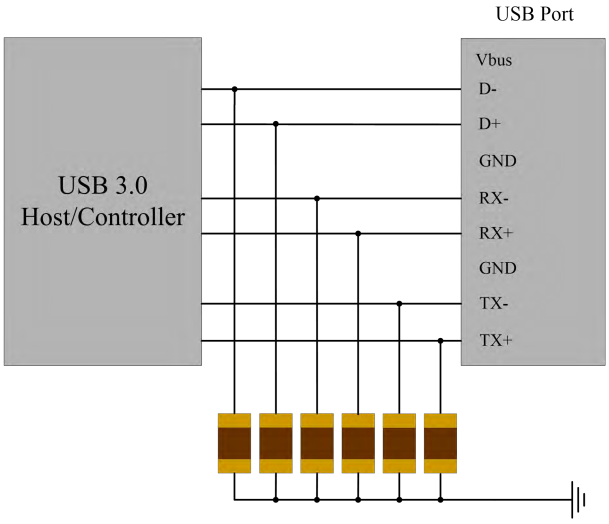
Fig.5 HDMI 2.0 Mask at 6.0 Gbps

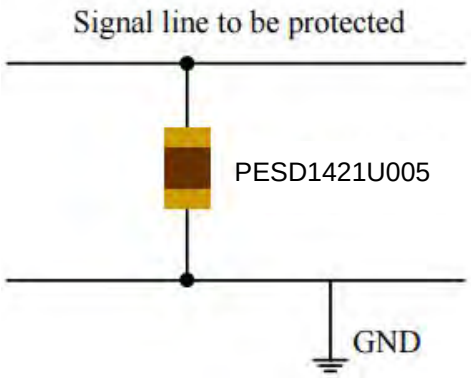
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9. ESD Protection for Signal Line

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

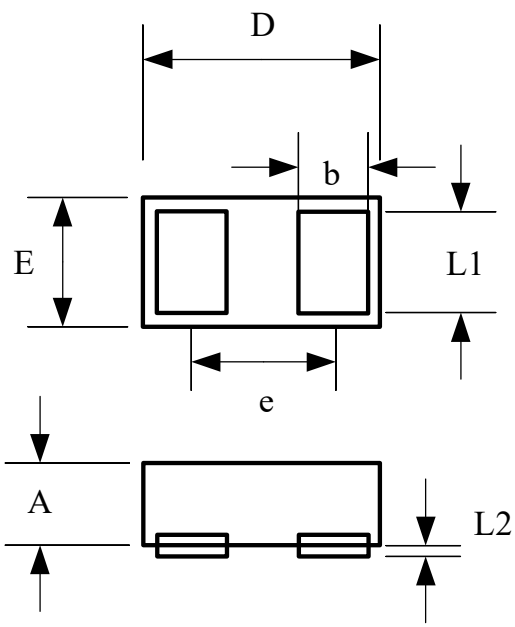
- Place the PESD as close to the input terminal or connector as possible.
- Minimize the path length between the PESD and the protected signal line.
- Use ground planes whenever possible.



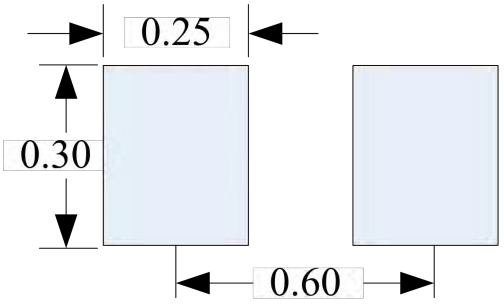


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10. Package Dimension



Recommended Solder Pad Footprint



***Sizes in mm**

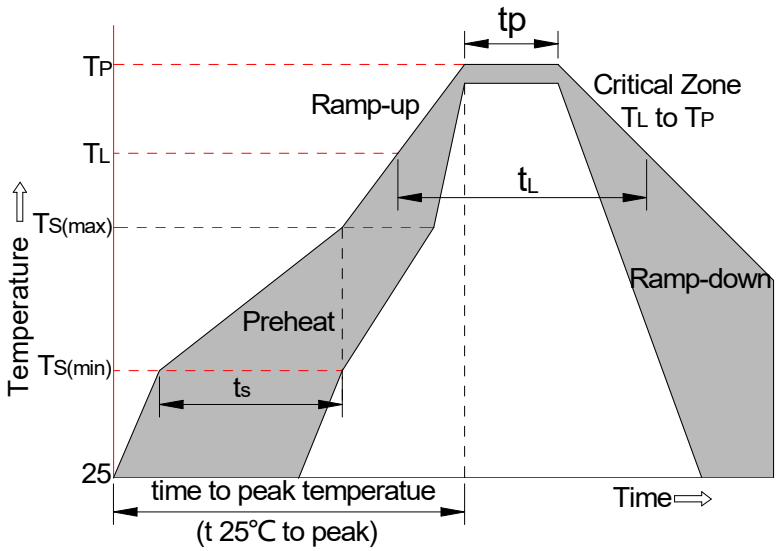
Notes：

This solder pad layout is for reference purposes only.

Dimension	Unit: Millimeters	
	Min.	Max.
A	0.25	0.40
b	0.15	0.20
D	0.50	0.70
E	0.25	0.35
e	0.45BSC	
L1	0.20	0.30
L2	0.00	0.05

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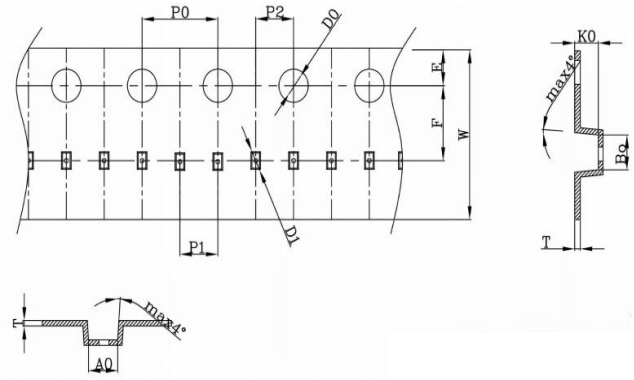
11. Soldering Parameters



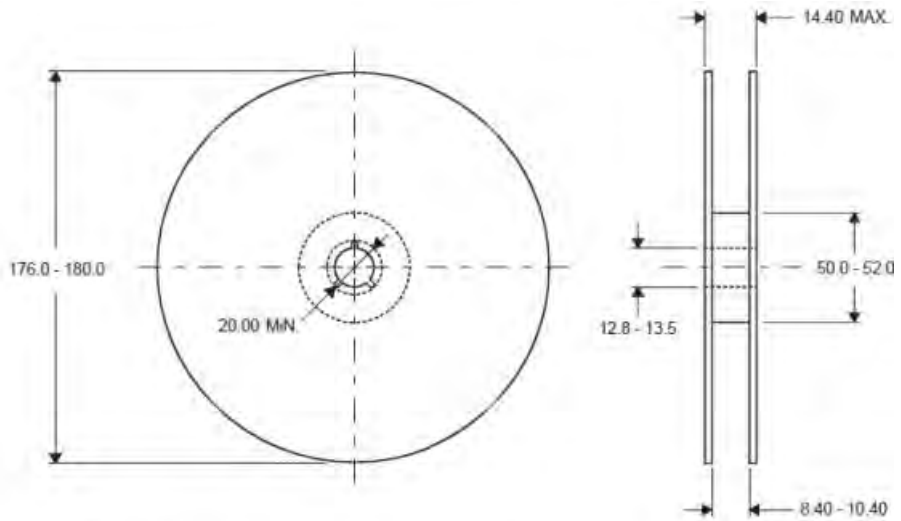
Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

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12. Package Information



Dimension	Typical	Unit
A0	0.38	mm
B0	0.68	
K0	0.32	
P0	4.00	
P1	2.00	
P2	2.00	
T	0.20	
E	1.75	
F	3.50	
D0	1.55	
D1	0.20	
W	8.00	



DIMENSIONS ARE: MILLIMETERS

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