PESD1242U005

Surface Mount Polymeric ESD Suppressor

Feature

- Ultra-low capacitance:0.05pF(Typ.)
- Low leakage current(<10nA)
- Fast response time(<1ns)
- IEC61000-4-2(Contact) : 8KV
  IEC61000-4-2(Air) : 15KV
- Bi-directional, single line protection

Description

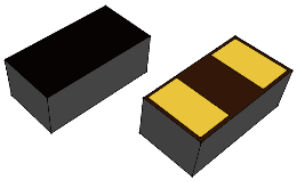
PESD1242U005 polymeric ESD suppressor help protect sensitive electronic equipment against electrostatic discharge (ESD) without distorting data signals. This protection is a result of its ultra-low capacitance of only 0.05 pF (I/O to GND), and it can be used to help equipment to pass IEC61000-4-2 level 4 test (15KV air, 8KV contact discharge).

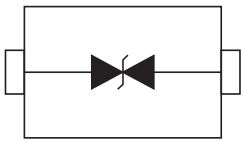
Caution: This component is designed for signal line protection only, not intended to be used on power lines or for power bus applications.

Application

- HDTV/Smart TV
- Set-Top Box
- Laptop/Desktop Computer
- HDMI 、USB 3.0
- USB3.1 、Lightning 、Thunderbolt
- Antennas (Cell Phones, GPS...)

0402





Schematic Diagram

General Characteristics

Parameter	Value	Unit
Contact Discharge Voltage Per IEC61000-4-2	8	KV
Air Discharge Voltage Per IEC61000-4-2	15	KV
Operating Temperature	-55 to +125	℃
Storage Temperature	-40 to +85	℃

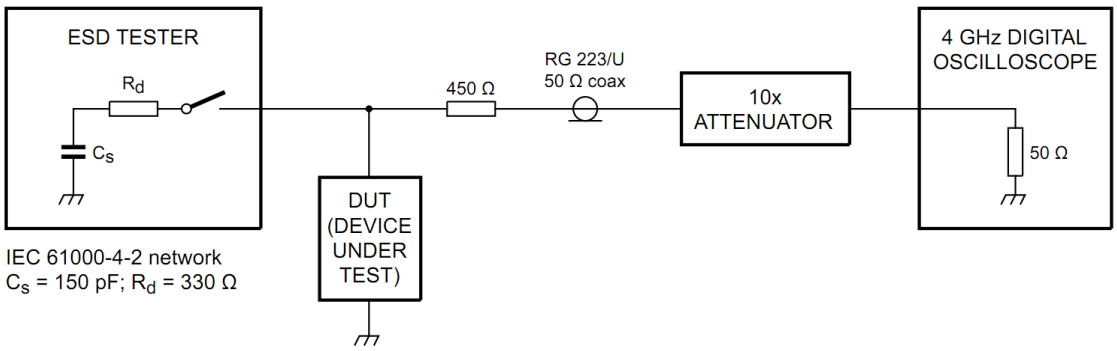
Electrical Characteristics（T_A =25°C）

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Continuous Operating Voltage	V_{DC}	---	---	---	12	V
Trigger Voltage	V_T	IEC61000-4-2 8KV contact discharge	---	450	---	V
Clamping Voltage	V_C	IEC61000-4-2 8KV contact discharge	---	40	---	V
Leakage Current	I_L	DC 12V shall be applied on component	---	---	10	nA
Capacitance	C_P	Measured at 10MHz	---	0.05	---	pF
ESD Pulse Withstand	Pulses	IEC61000-4-2 8KV contact discharge	1000	---	---	---

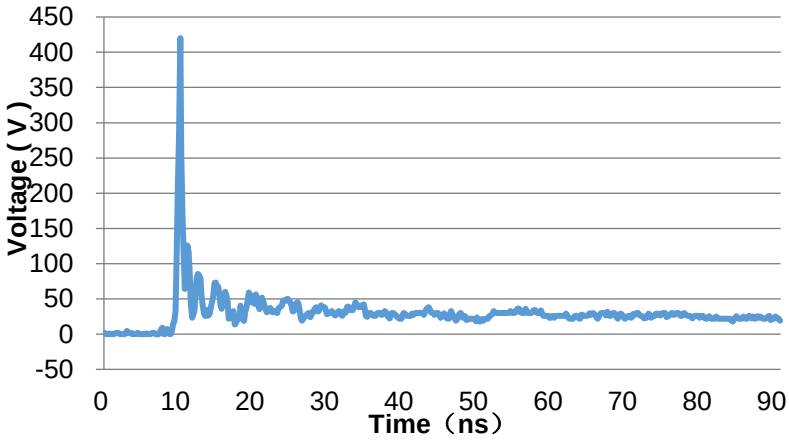
Notes: 1.Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.

2.After reliability tests such as high Temp storage, Temp cycles, continuous ESD strike etc, the maximum leakage current is less than 1uA maximum leakage current is less than 1uA.

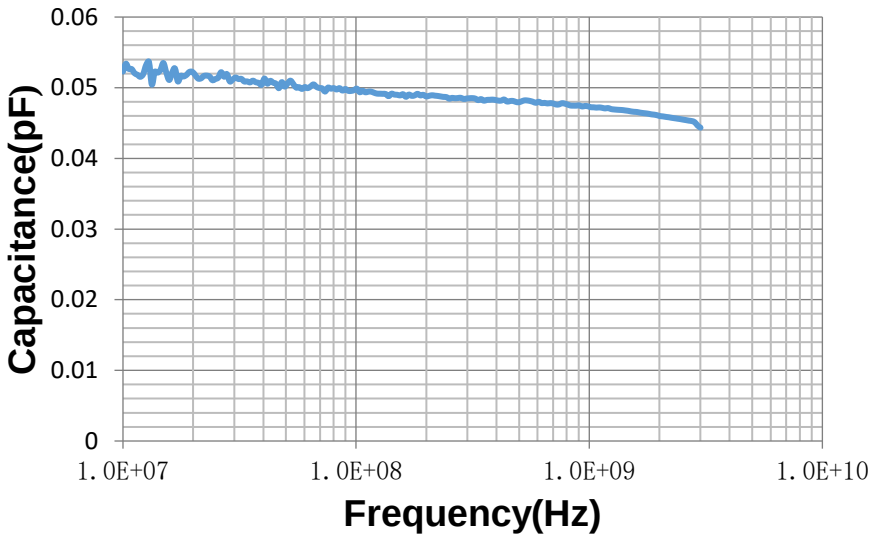
Typical ESD Response（IEC 61000-4-2, 8KV contact discharge）



Typical ESD Response（IEC 61000-4-2, 8KV contact discharge）

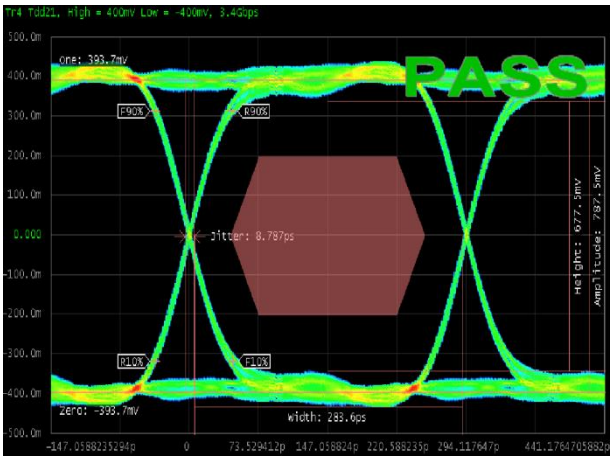


Typical Device Capacitance VS. Frequency



Eye Diagram Measurement

HDMI Mask at 3.4 Gbps



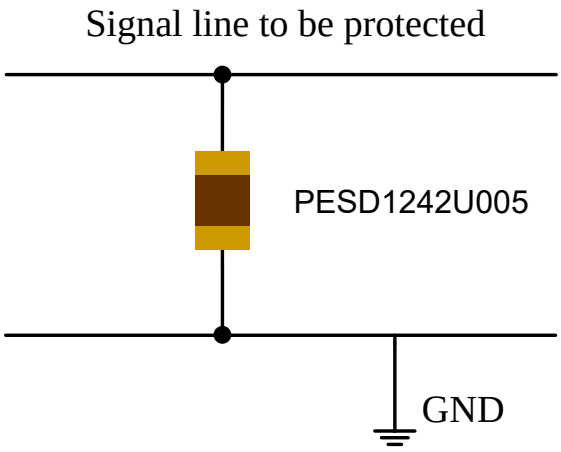
USB3.0 Mask at 5.0 Gbps

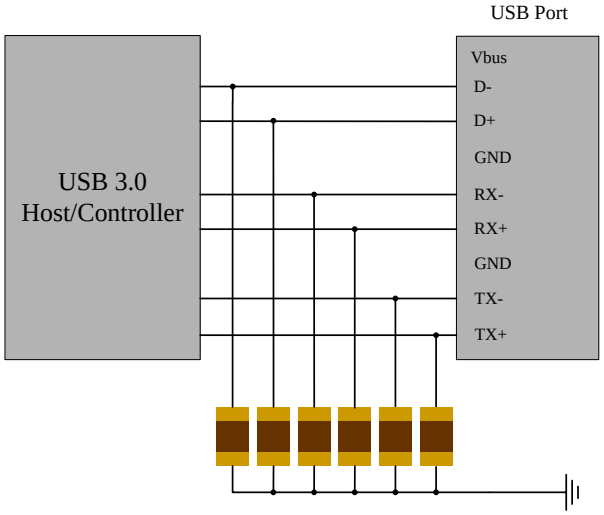


ESD Protection for Signal Line

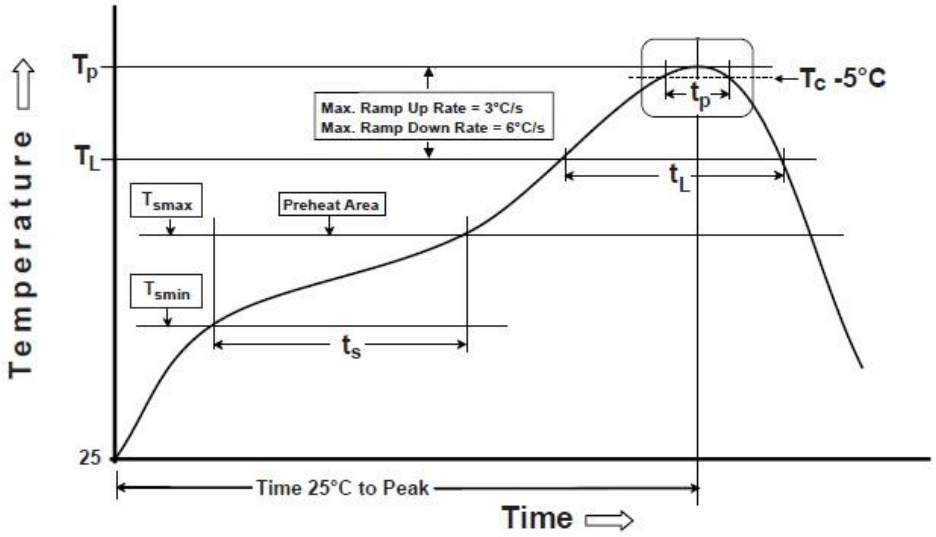
The PESD is designed for the protection of one bidirectional data line from ESD damage.

- 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.



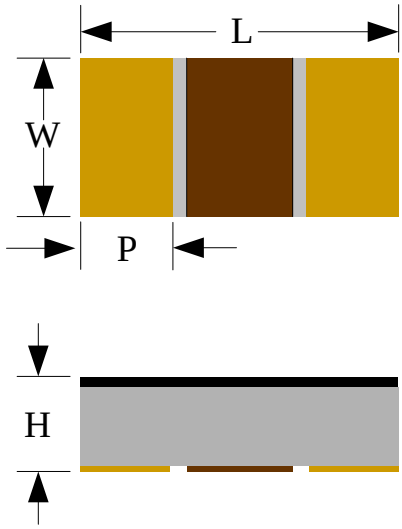


Soldering Parameters



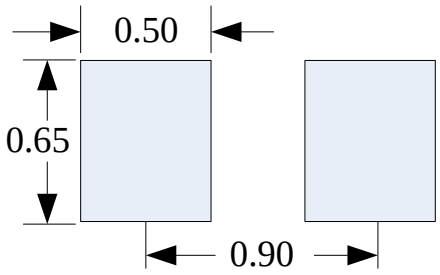
Profile Feature	Pb-Free Assembly
Pre Heat Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	 150 °C 200 °C 60-120 seconds
Ramp-up Rate (T_L to T_p)	3 °C/second max.
Liquidus temperature (T_L) Time (t_L) maintained above T_L	217 °C 60-150 seconds
Peak package body temperature (T_p)	$260^{+0/-5}$ °C
Time (t_p)* within 5 °C of the specified classification temperature (T_c)	30* seconds
Ramp-down Rate (T_p to T_L)	6 °C/second max.
Time 25 °C to peak temperature	8 minutes max.
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.	

Package Dimension



Dimension	Unit: Millimeters		
	Min.	Typ.	Max.
L	0.90	1.00	1.10
W	0.42	0.52	0.62
P	0.15	0.25	0.35
H	0.25	0.38	0.45

Recommended Solder Pad Footprint



***Sizes in mm**

Notes: This solder pad layout is for reference purposes only.

Ordering & Contact Information

Ordering Code	Package	Net Weight	Delivery Form	Delivery Quantity
PESD1242U005	0402	0.62 mg / 1 pce	Mini T&R (7”)	10,000 pcs/reel

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Shanghai Leiditech Electronic Technology Co., Ltd.
Email: sale1@leiditech.com
Tel : +86- 021 50828806
Fax : +86- 021 50477059