

ESD Protection Diode in 0603

Features:

- 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

Applications:

- Smart phone/Mobile internet device
- Laptop/Desktop computer
- Antennas (Cell Phones, GPS...)
- USB 3.0, USB 3.1 and high speed interface

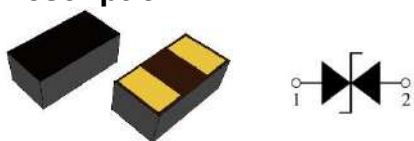
Description:

KPESD2463U005 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).

Device Information

Model	Package	Size
KPESD2463U005	0603-2	1.60 mm × 0.80 mm × 0.30 mm

Pin Description



General Characteristics

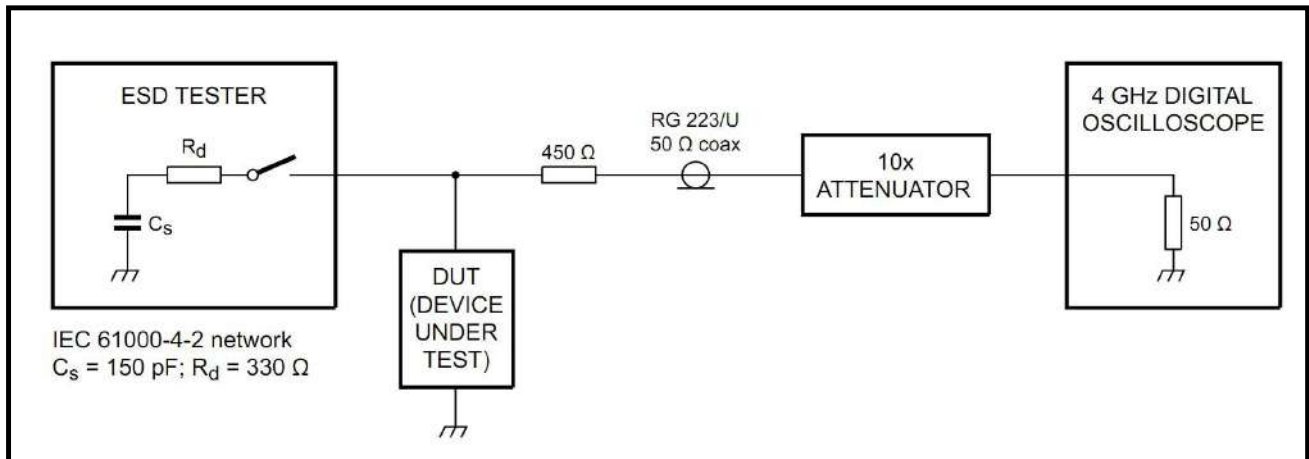
Parameter	Value	Unit
Contact Discharge Voltage Per IEC61000-4-2	8	KV
Air Discharge Voltage Per IEC61000-4-2	15	KV
Operating Temperature	-55 to +125	°C
Storage Temperature	-40 to +85	°C

Electrical Characteristics (T_A = 25°C)

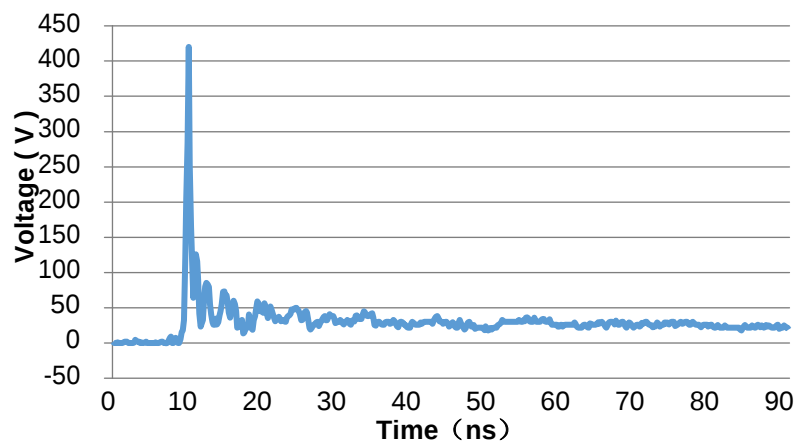
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Continuous Operating Voltage	V _{DC}	---	---	---	24	V
Trigger Voltage	V _T	IEC61000-4-2 8KV contact discharge	---	450	---	V
Clamping Voltage	V _C	IEC61000-4-2 8KV contact discharge	---	40	---	V
Leakage Current	I _L	DC 24V shall be applied on component	---	---	10	nA
Capacitance	C _P	Measured at 10MHz	---	0.05	---	pF
ESD Pulse Withstand	Pulses	IEC61000-4-2 8KV contact discharge	1000	---	---	---

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

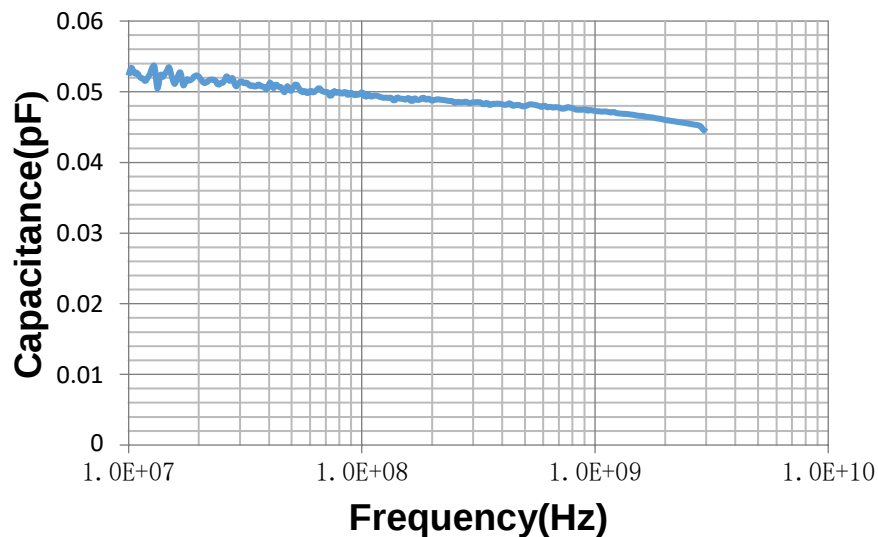
Typical ESD Response (IEC 61000-4-2, 8KV contact discharge)



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

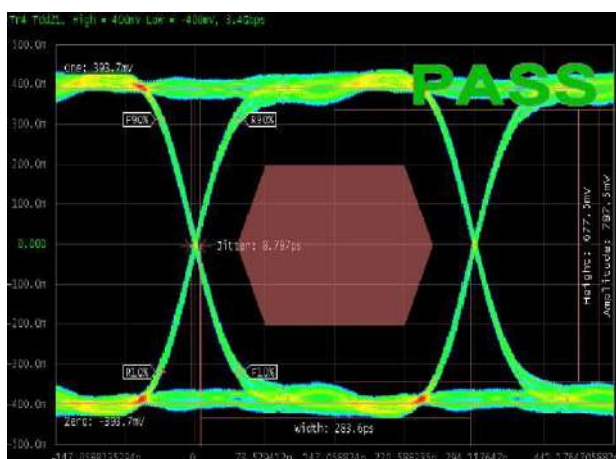


Typical Device Capacitance VS. Frequency

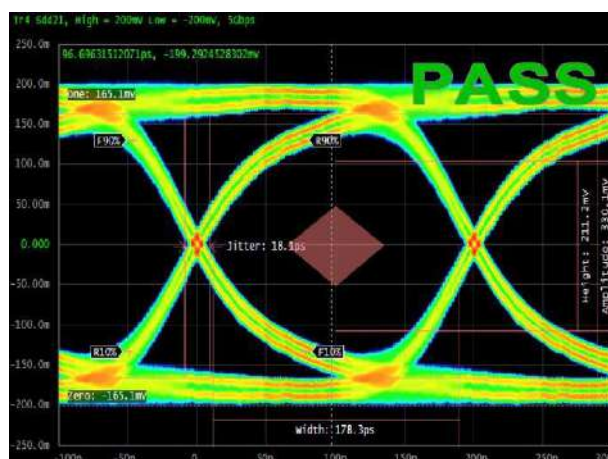


Eye Diagram Measurement

HDMI Mask at 3.4 Gbps



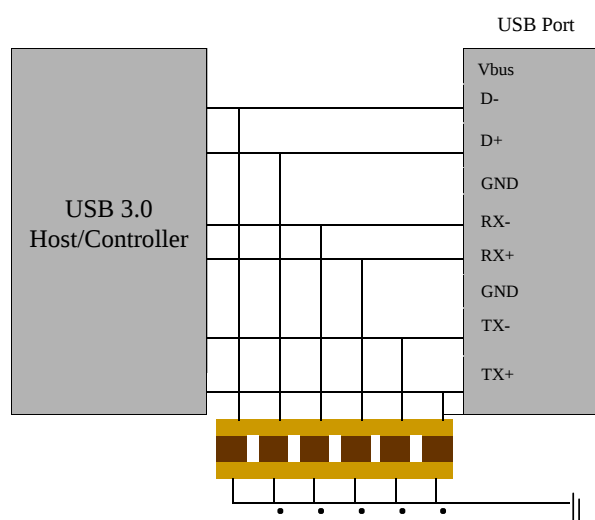
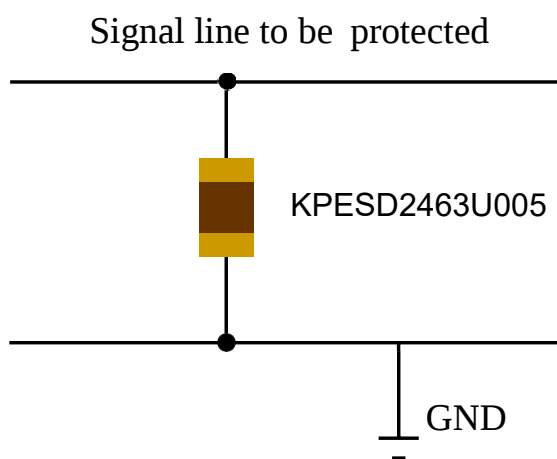
USB3.0 Mask at 5.0 Gbps



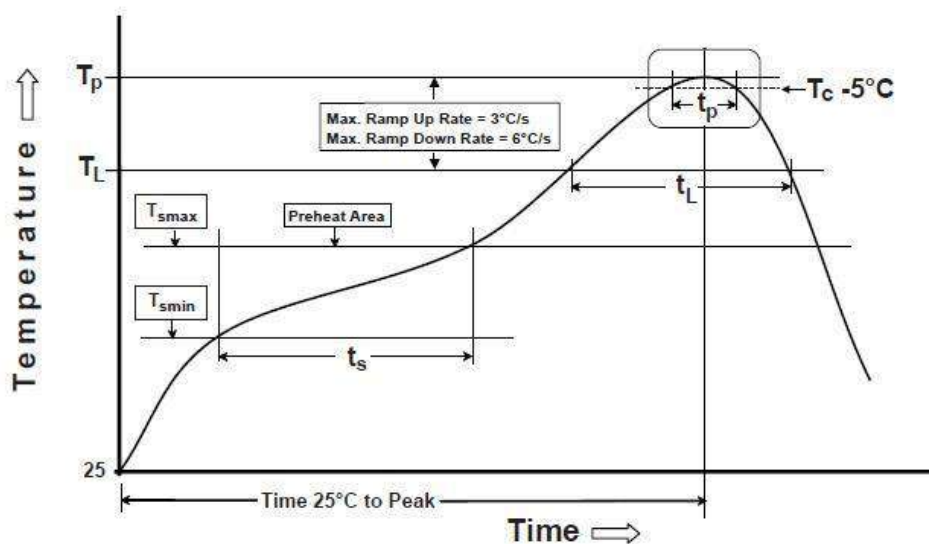
ESD Protection for Signal Line

The KPESD 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 KPESD and the protected signal line.
- Use ground planes whenever possible.

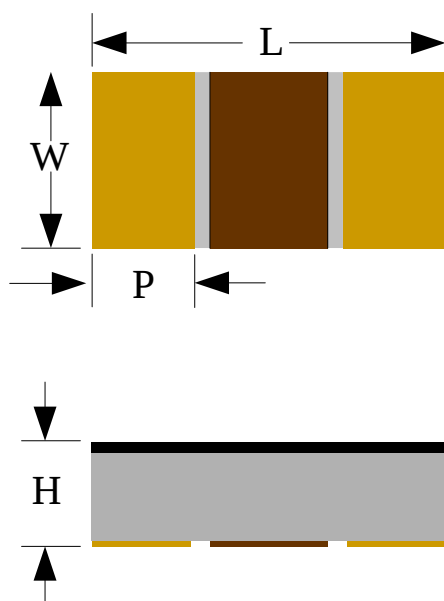


Soldering Parameters

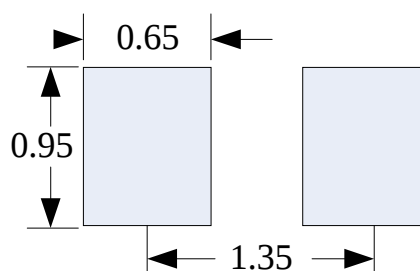


Profile Feature	Pb-Free Assembly
Pre Heat	
Temperature Min (T_{smin})	150 °C
Temperature Max (T_{smax})	200 °C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds
Ramp-up Rate (T_L to T_p)	3 °C/second max.
Liquidus temperature (T_L)	217 °C
Time (t_L) maintained above T_L	60-150 seconds
Peak package 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.	

13 Package Dimension



Recommended Solder Pad Footprint



***Sizes in mm**

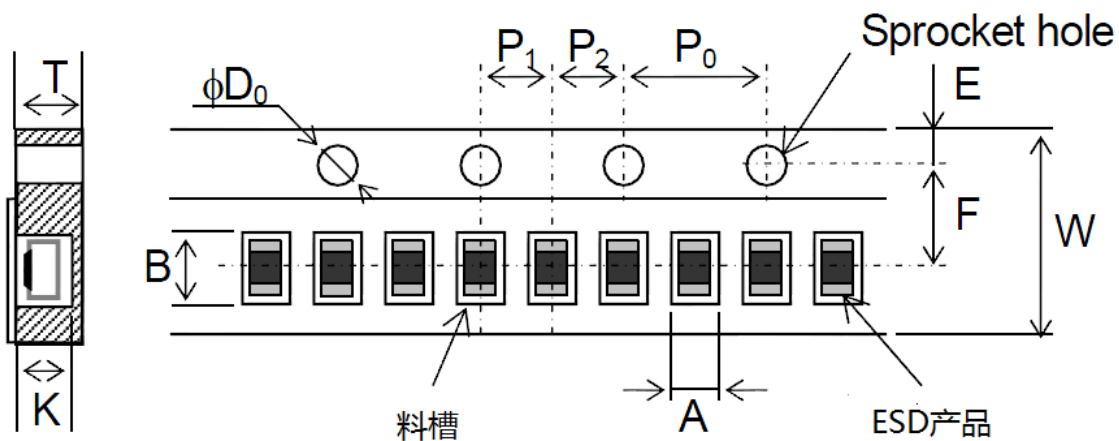
Notes:

This solder pad layout is for reference purposes only.

Dimension	Unit: Millimeters		
	Min.	Typ.	Max.
L	1.45	1.60	1.75
W	0.70	0.83	0.95
P	0.20	0.35	0.50
H	0.26	0.36	0.46

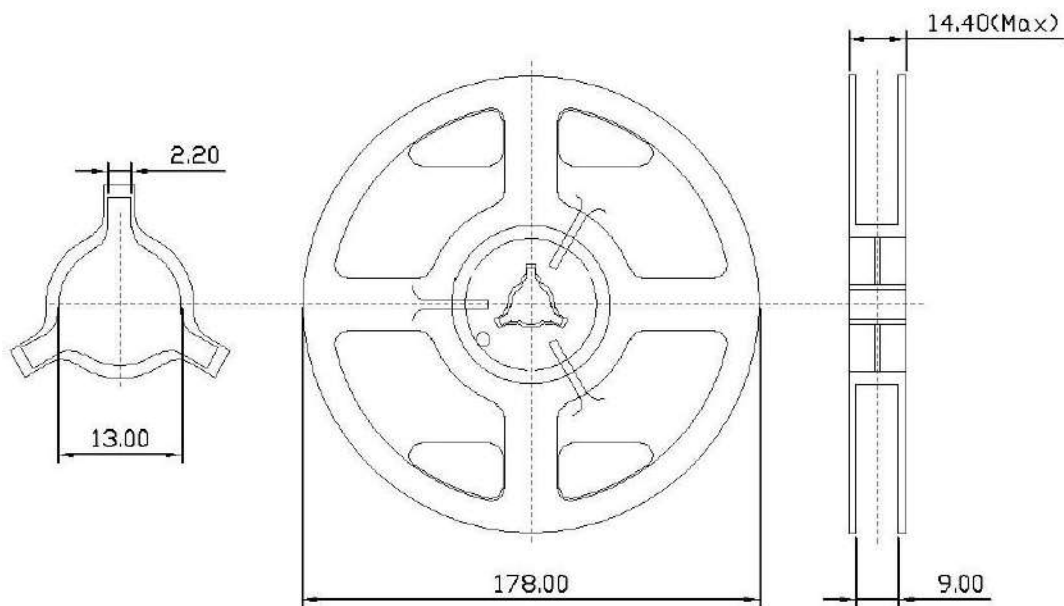
Taping Specification

Unit: Millimeters



Tape Dimension	A	B	W	F	E	P_1	P_2	P_0	ϕD_0	K	T
	1.00±0.03	1.9±0.03	8.00±0.10	3.50±0.05	1.75±0.10	2.00±0.05	2.00±0.05	4.00±0.10	1.55±0.05	0.43±0.03	0.43±0.03

Unit: Millimeters



Ordering & Contact Information

Ordering Code	Package	Net Weight	Delivery Form	Delivery Quantity
KPESD2463U005	0603-2	1.0 mg / 1 pce	Mini T&R (7")	5,000 pcs/reel