

Surface Mount Polymeric ESD Suppressor

PE0603N12G01B

Description

PE0603N12G01B 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).

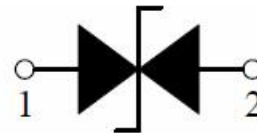
(EIA Size) 0603



Features

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

Equivalent Circuit



Applications

- ◆ Smart Phone/Mobile Internet Device.
- ◆ Laptop/Desktop Computer.
- ◆ Antennas (Cell Phones, GPS...).
- ◆ USB 3.0, USB 3.1 and high speed interface.

General Characteristics

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

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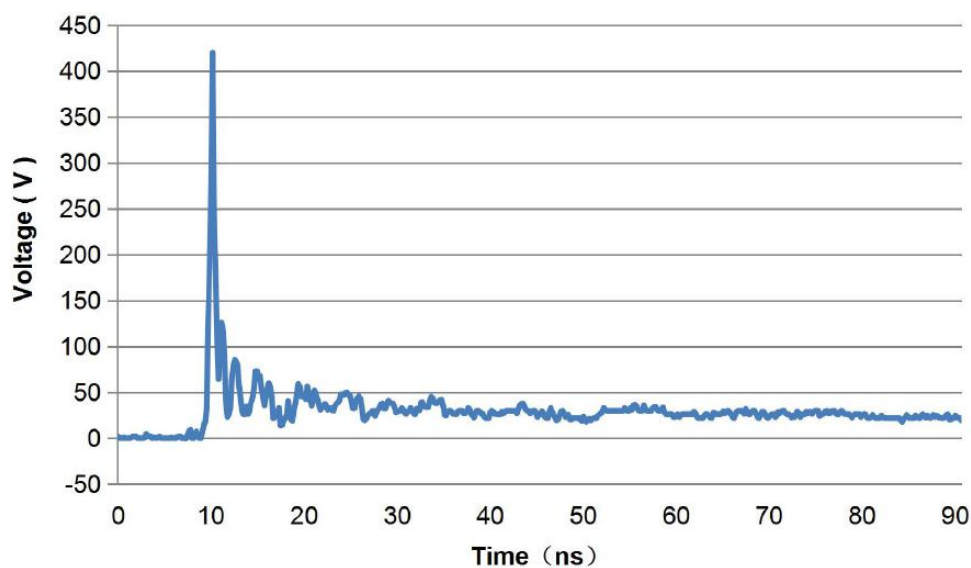
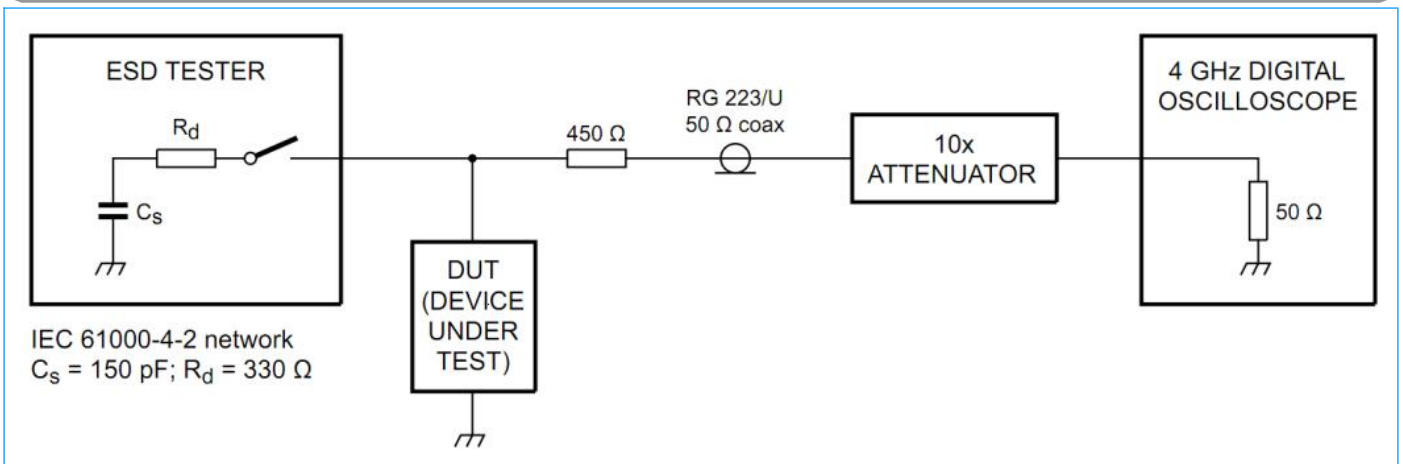
Electrical Characteristics ($T_A = 25^\circ\text{C}$)

Parameter	Symbol	Test 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	--	--	--

Note:

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

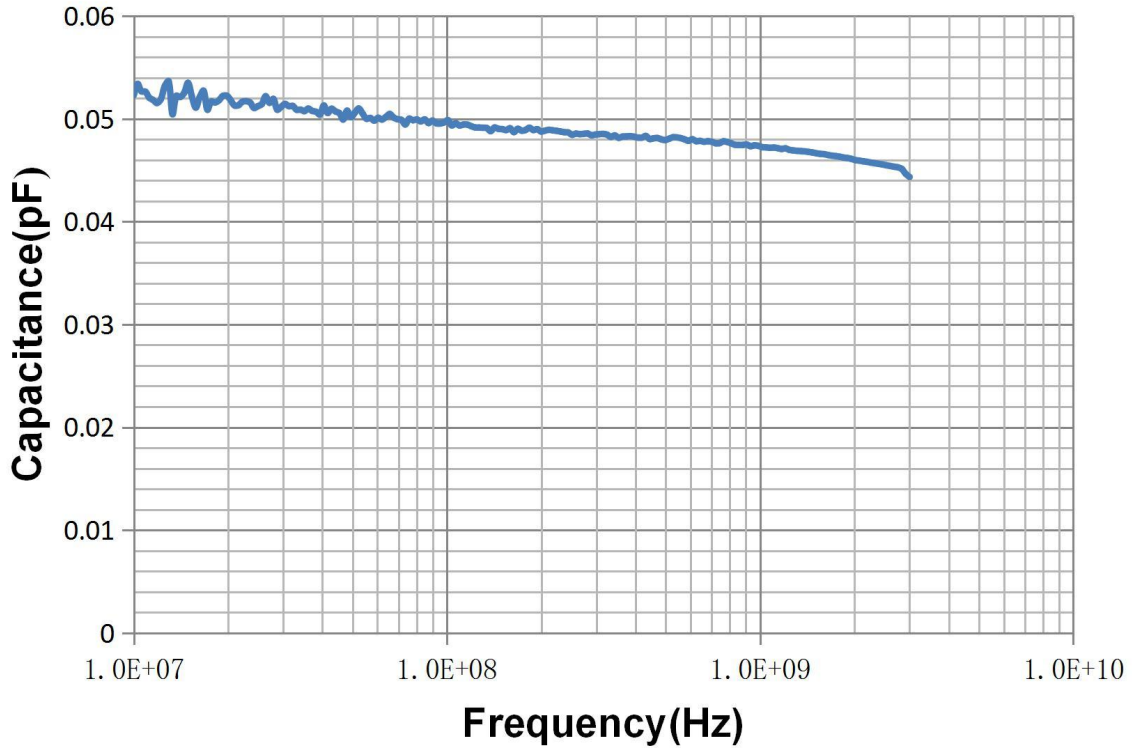
Typical ESD Response (IEC 61000-4-2, 8KV contact discharge)



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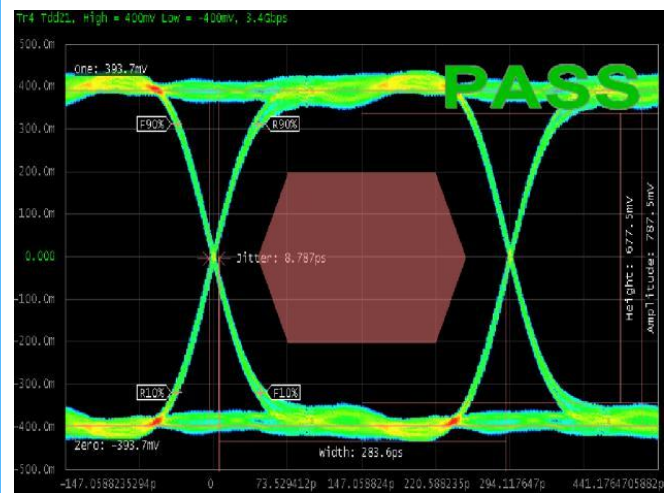
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Typical Device Capacitance VS. Frequency

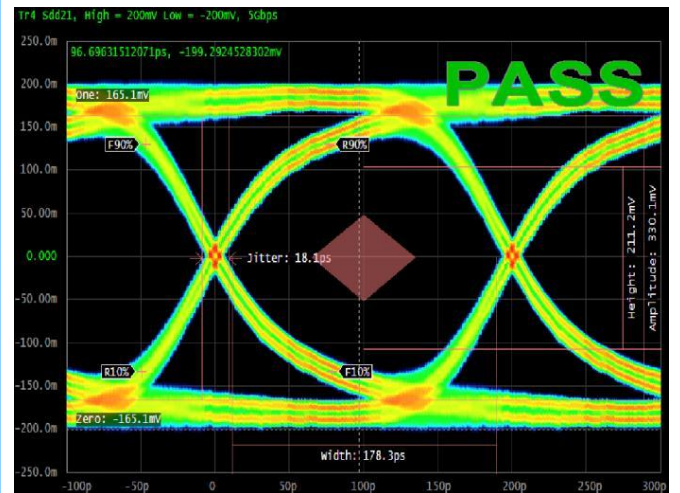


Eye Diagram Measurement

HDMI Mask at 3.4 Gbps



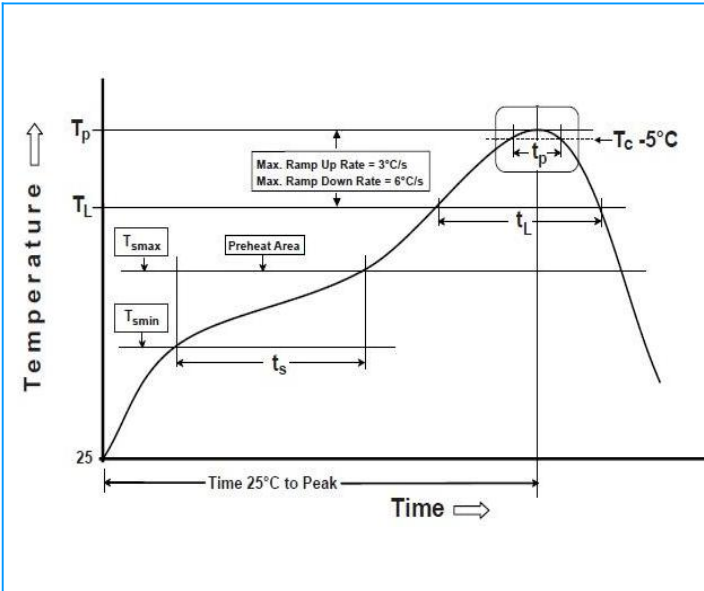
USB3.0 Mask at 5.0 Gbps



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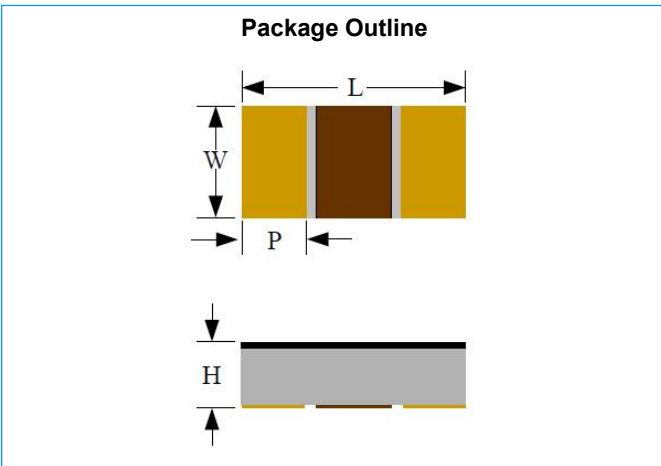
Soldering Parameters



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

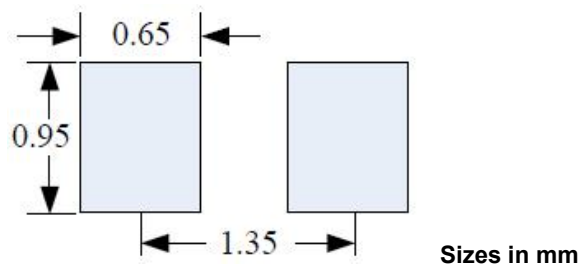
* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.

Package Dimension



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

Recommended Solder Pad Footprint



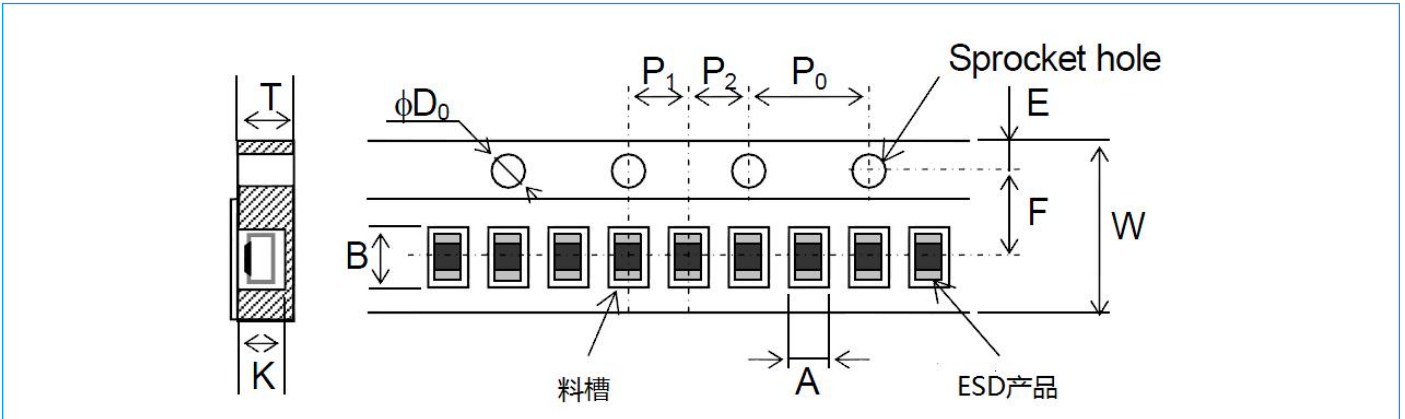
Notes:

This solder pad layout is for reference purposes only.

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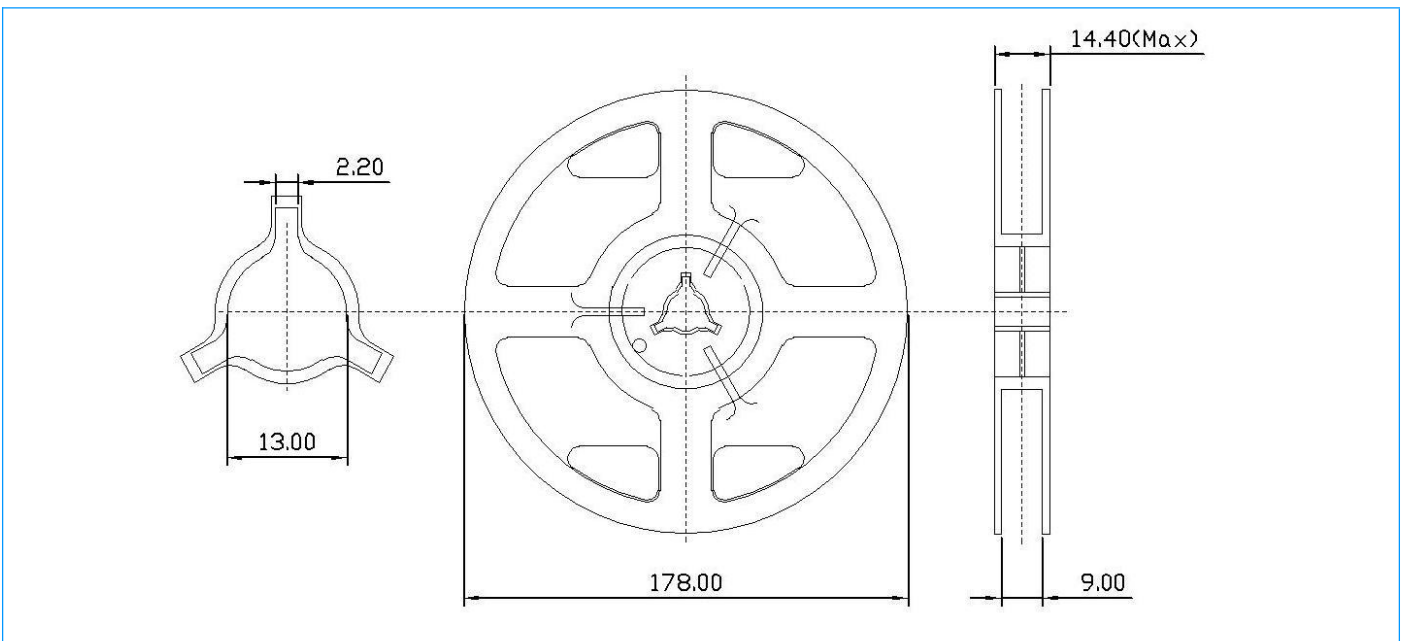
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Tape Specification (Unit: mm)



A	B	W	F	E	P1	P2	P0	ϕD_0	K	T
1.00	1.90	8.00	3.50	1.75	2.00	2.00	4.00	1.55	0.43	0.45
± 0.03	± 0.03	± 0.10	± 0.05	± 0.10	± 0.05	± 0.05	± 0.10	± 0.05	± 0.03	± 0.05

Reel Dimension (Unit: mm)



Order Information

Device	Package	Net Weight	Carrier	Quantity
PE0603N12G01B	(EIA Size) 0603	0.12 mg	Tape & Reel	15,000pcs/reel