

## 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).

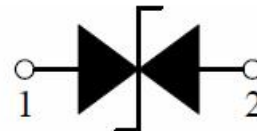
(EIA Size) 0603



#### 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	-55 to +125	°C
Storage Temperature	-40 to +85	°C

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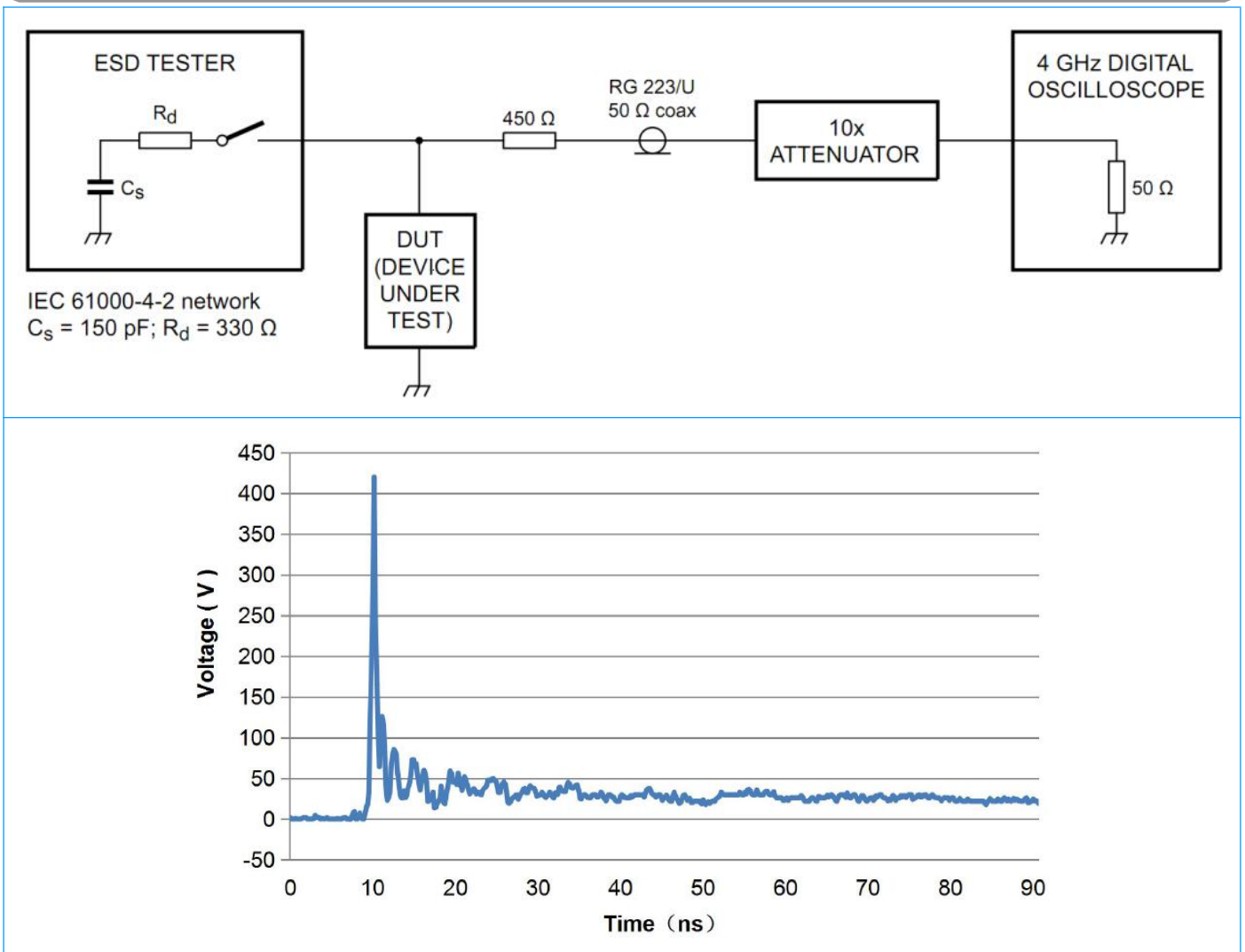
### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ )

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.

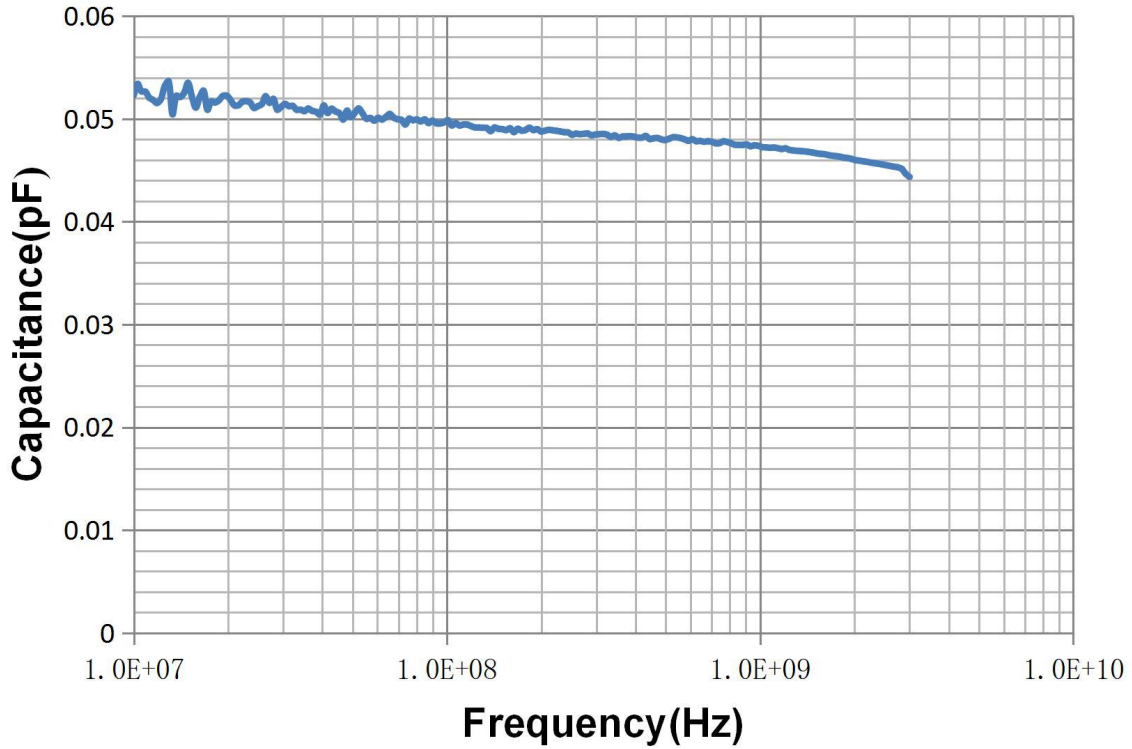
### Typical ESD Response (IEC 61000-4-2, 8KV contact discharge)



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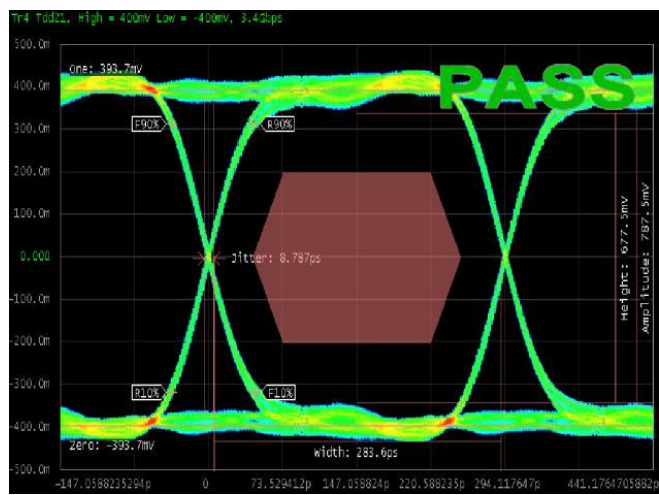
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Typical Device Capacitance VS. Frequency

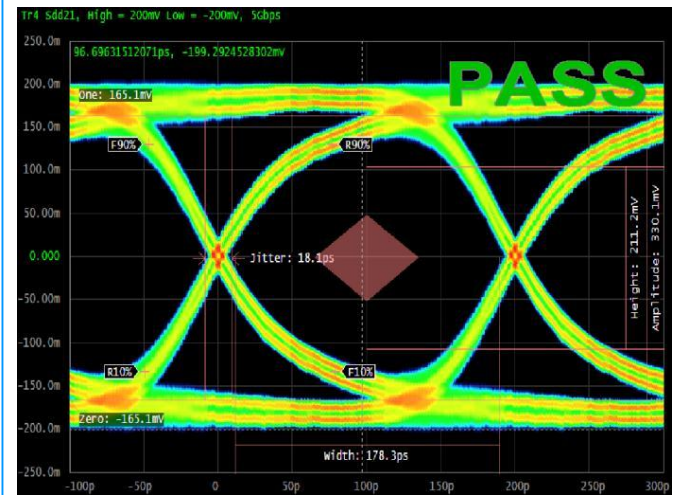


Eye Diagram Measurement

HDMI Mask at 3.4 Gbps



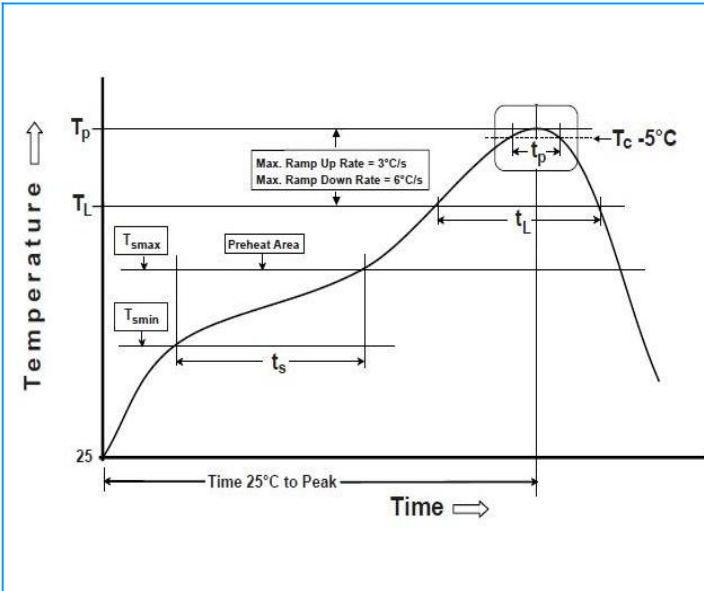
USB3.0 Mask at 5.0 Gbps



# Surface Mount Polymeric ESD Suppressor

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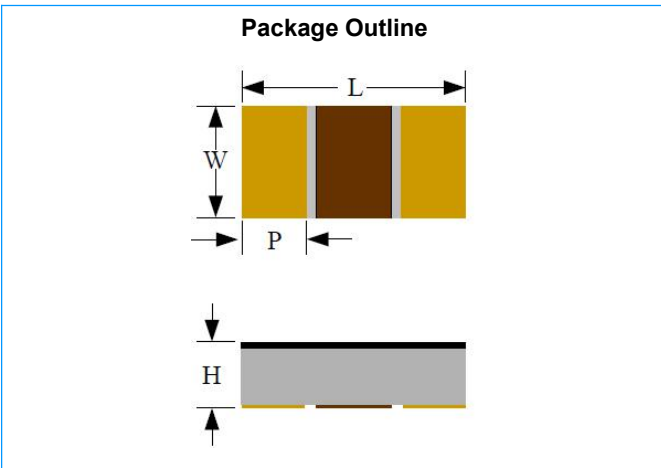
## Soldering Parameters



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 <sup>+0/-5</sup> °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

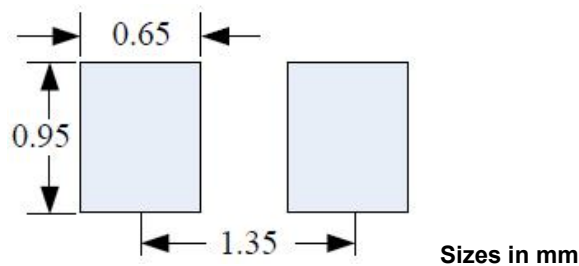
\* Tolerance for peak profile temperature ( $T_P$ ) is defined as a supplier minimum and a user maximum.

## 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



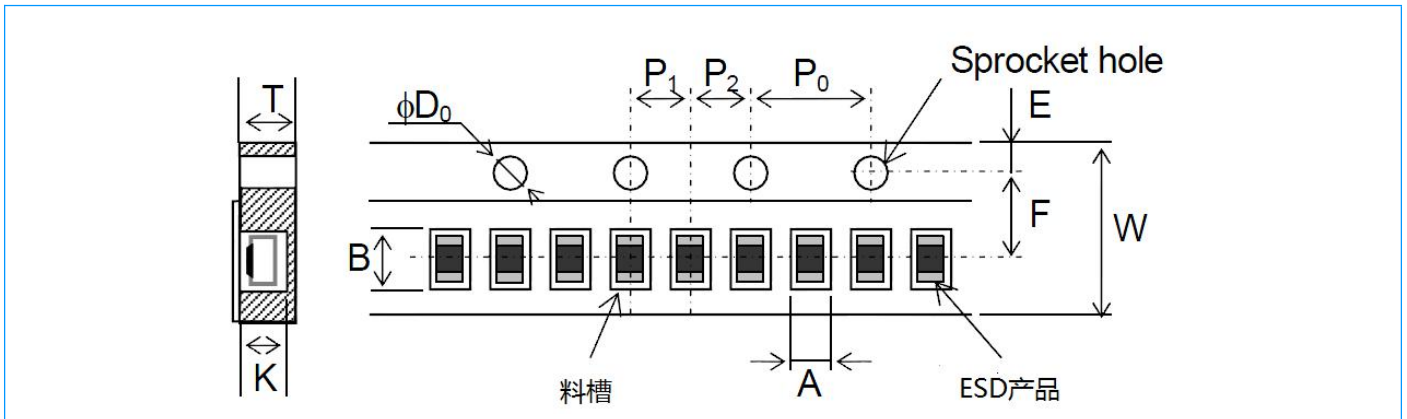
#### Notes:

This solder pad layout is for reference purposes only.

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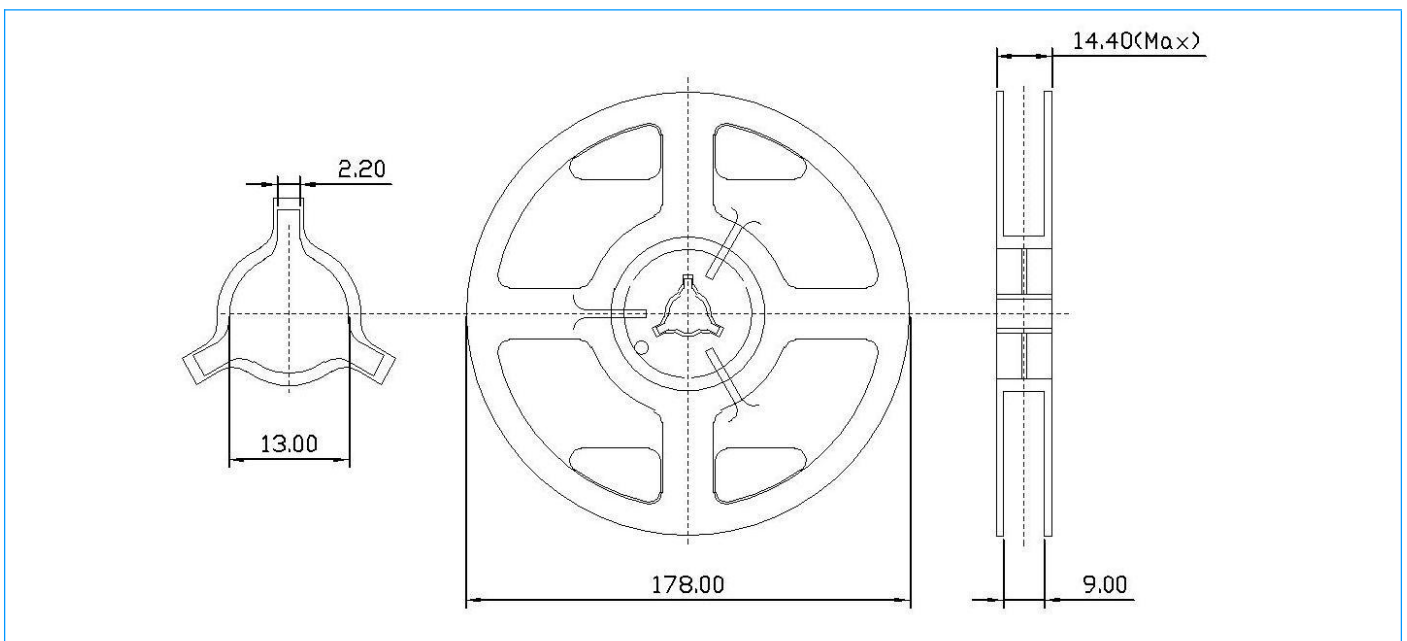
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## Tape Specification (Unit: mm)



A	B	W	F	E	P1	P2	P0	ΦD0	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