

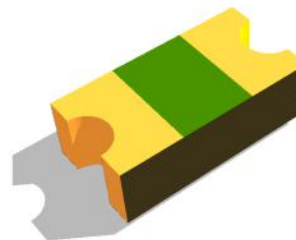
Surface Mount Polymeric ESD Suppressor

PE12VP05R-16

Description

PE12VP05R-16 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).

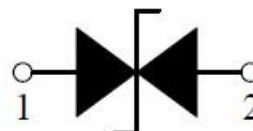
(EIA Size) 0402



Features

- ◆ Ultra-low capacitance:0.05pF(typ.).
- ◆ Fast response time(<1ns).
- ◆ Low leakage current(<10nA).
- ◆ 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	℃
Storage Temperature	-40 to +85	℃

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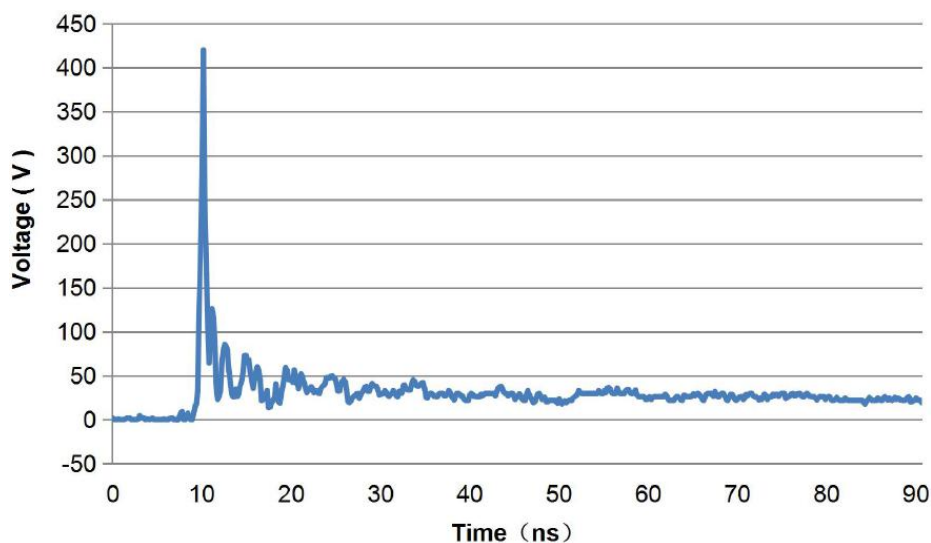
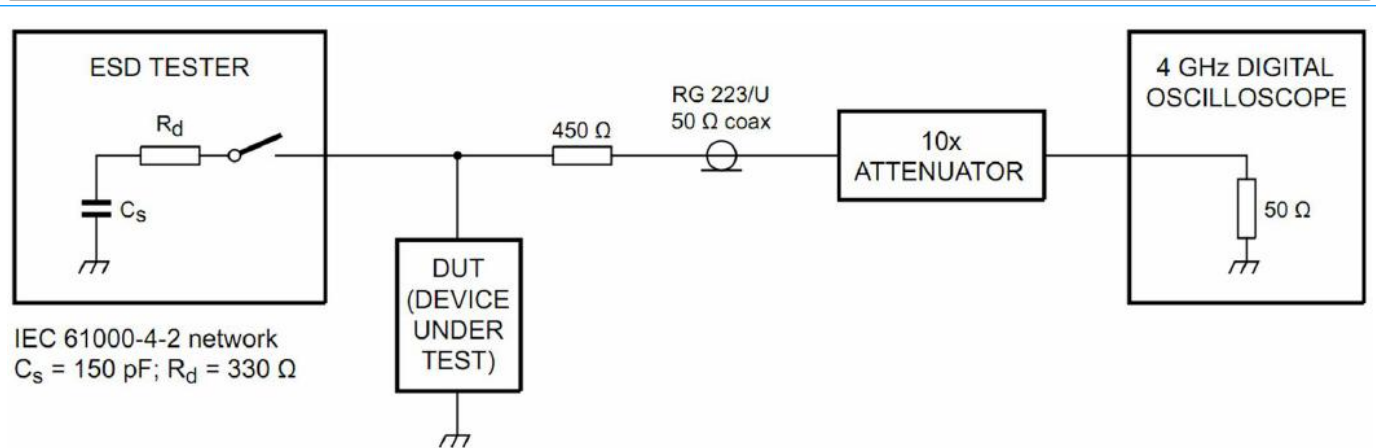
Electrical Characteristics (T_A = 25°C)

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	--	--	--

Notes:

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

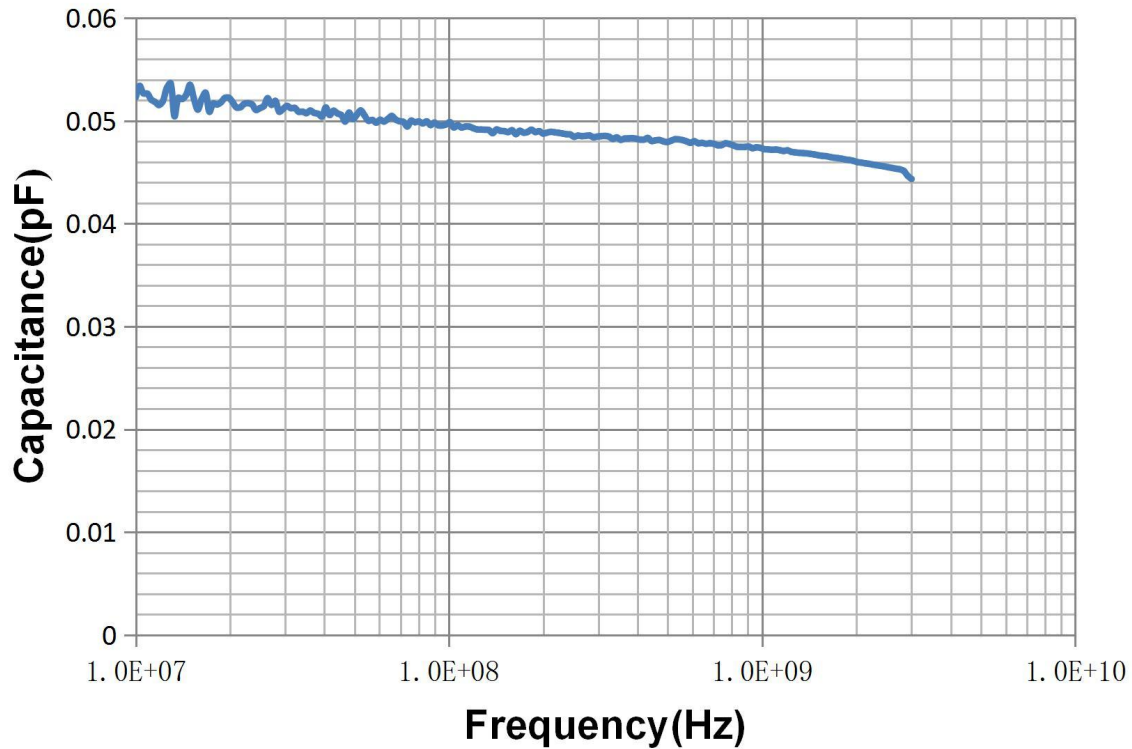
Typical ESD Response (IEC 61000-4-2, 8KV contact discharge)



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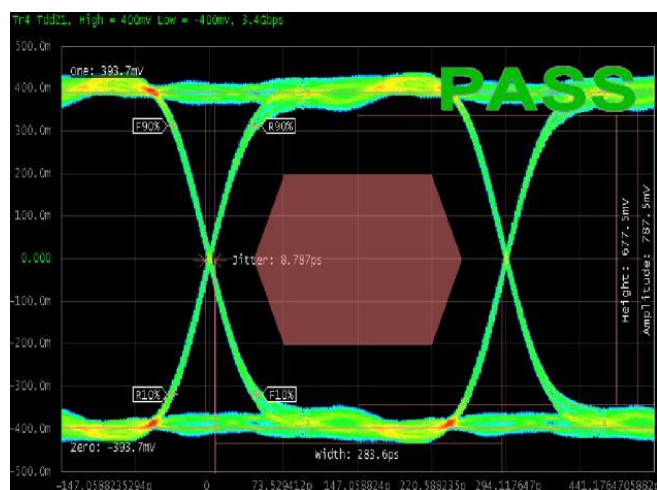
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Typical Device Capacitance VS. Frequency

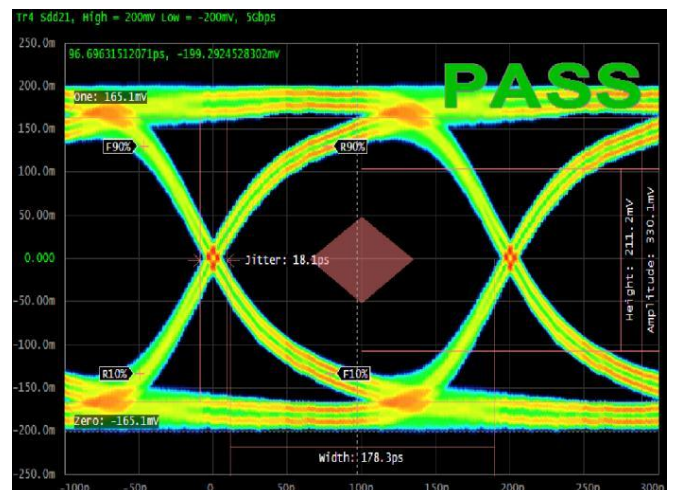


Eye Diagram Measurement

HDMI Mask at 3.4 Gbps



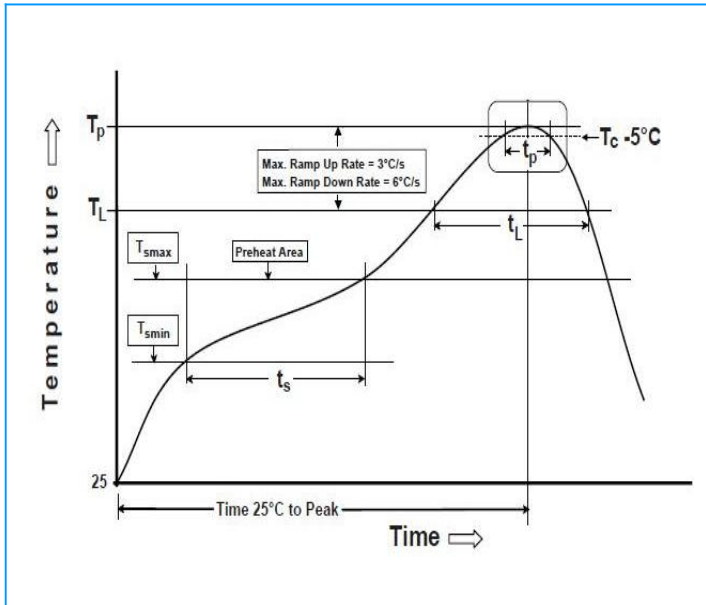
USB3.0 Mask at 5.0 Gbps



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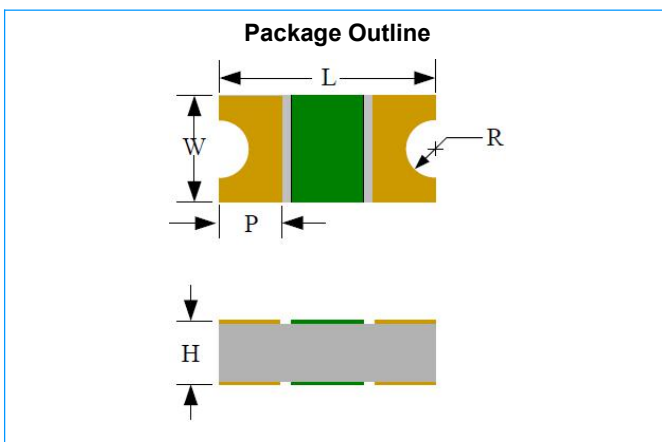
Soldering Parameters



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

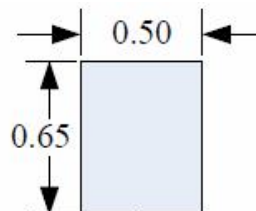
* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.

Package Dimension



Dimension	Unit: Millimeters		
	Min.	Typ.	Max.
L	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
R	0.10	0.12	0.15

Recommended Solder Pad Footprint



Sizes in mm

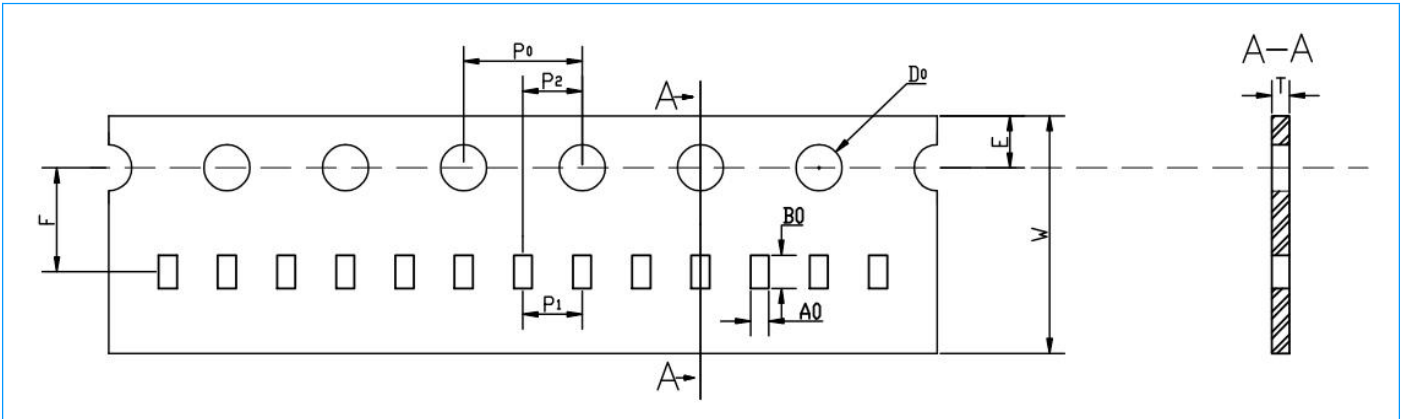
Notes:

This solder pad layout is for reference purposes only.

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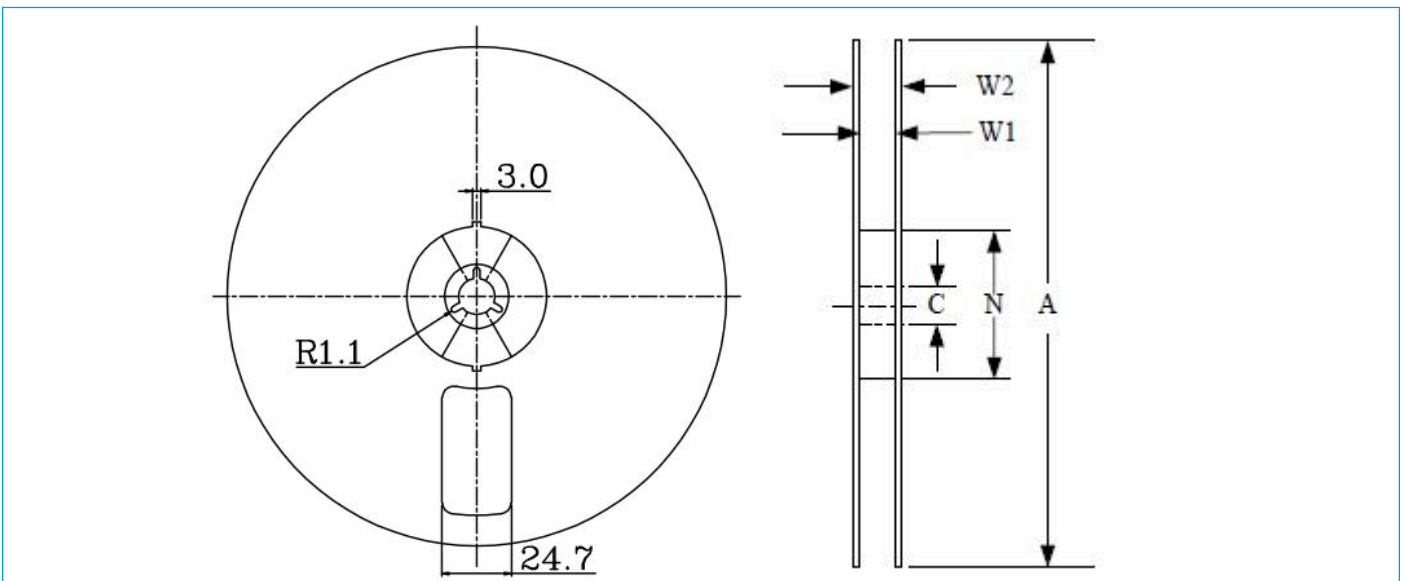
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Taping Specification (Unit: mm)



A_0	B_0	W	F	E	P_1	P_2	P_0	D_0	T
0.68 ± 0.03	1.17 ± 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

Reel Dimension (Unit: mm)



A	N Min.	C	$W2$ Max.	$W1$ Min.	$W1$ Max.
178.0 ± 2.0	50.0	13.0 ± 0.2	14.4	8.4	9.9

Order Information

Device	Package	Net Weight	Carrier	Quantity
PE12VP05R-16	(EIA Size) 0402	0.12 mg	Tape & Reel	10,000pcs/reel