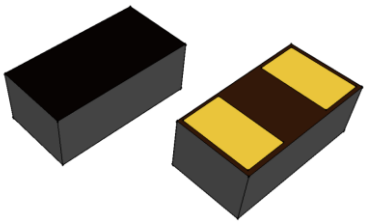
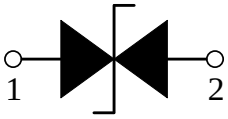
Leiditech

PESD0402MV18

Description

PESD0402MV18 polymeric ESD suppressor help protect sensitive electronic equipment against electrostatic discharge (ESD) without distorting data signals, allowing operating voltages up to 18 V. 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).





Features

- The best ESD protection for high speed applications
- High continuous operating voltage, 18V (Max.)
- RoHS compliant and halogen free
- Ultra low capacitance, 0.05 pF (typ.)
- Low leakage current (<10nA)
- Fast response time (<1ns)
- Bi-directional, single line protection
- Surface mount

Materials Information

RoHS Compliant **Halogen Free**

RoHS HF

Applications

- Smart Phone/Mobile Internet Device
- Laptop/Desktop Computer
- NFC Antenna Protection

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

General Characteristics

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

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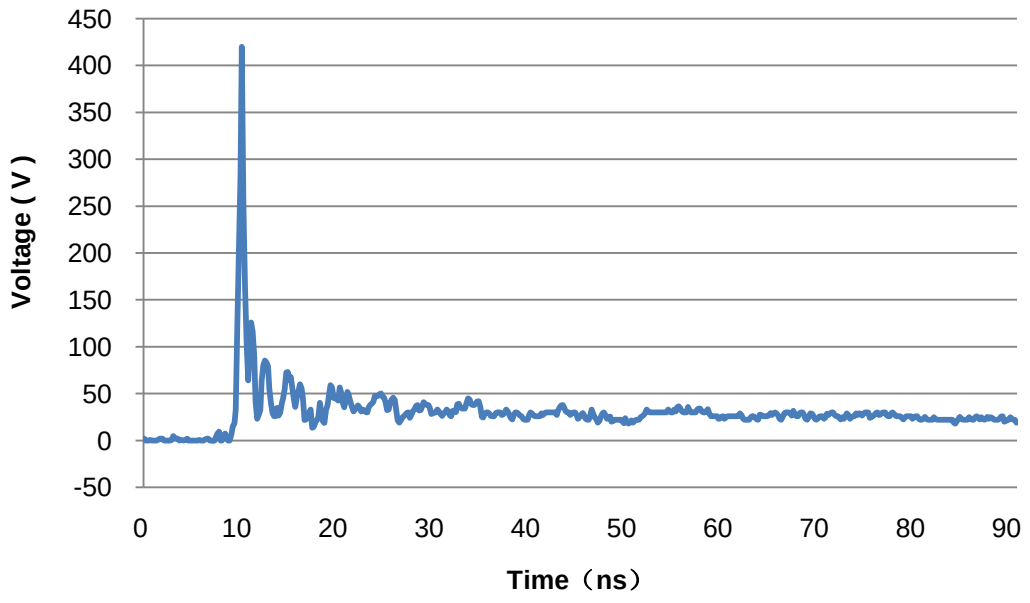
Electrical Characteristics（T_A =25°C）

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Continuous Operating Voltage	V_{DC}	---	---	---	18	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 18V 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:

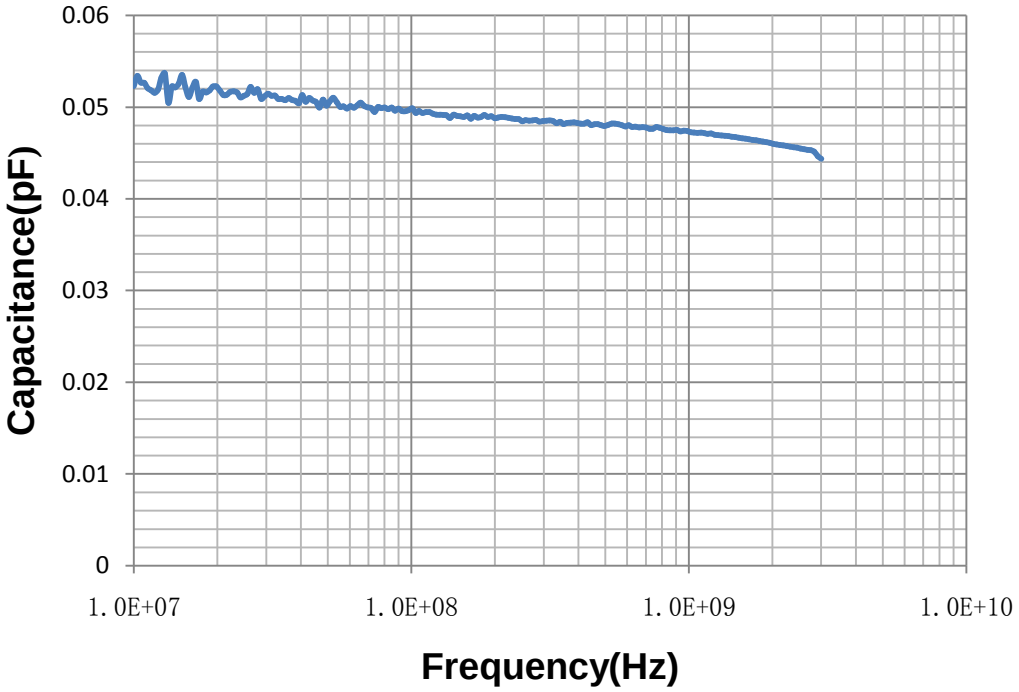
Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.

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



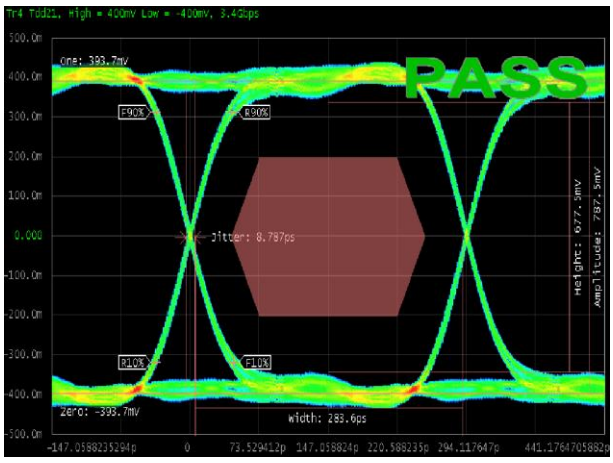
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Typical Device Capacitance VS. Frequency

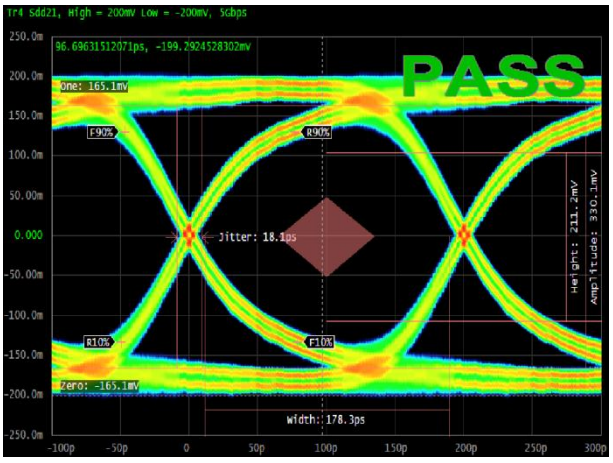


Eye Diagram Measurement

HDMI Mask at 3.4 Gbps



USB3.0 Mask at 5.0 Gbps

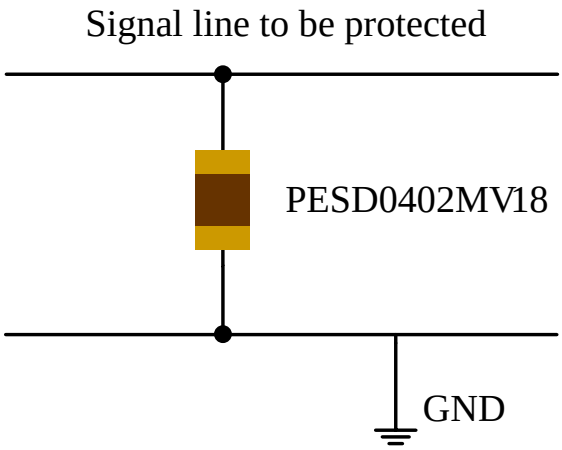


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ESD Protection for Signal Line

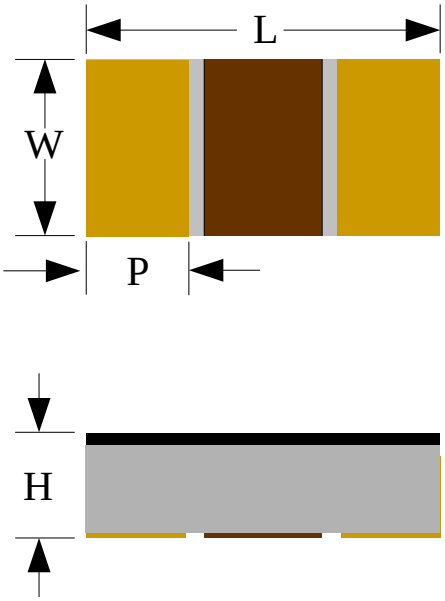
The PESD is designed for the protection of one bidirectional data line from ESD damage.

- 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.

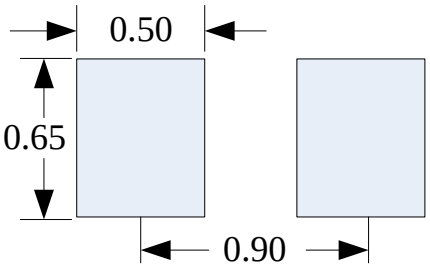


Package Dimension

Package outline



Recommended Solder Pad Footprint



Sizes in mm

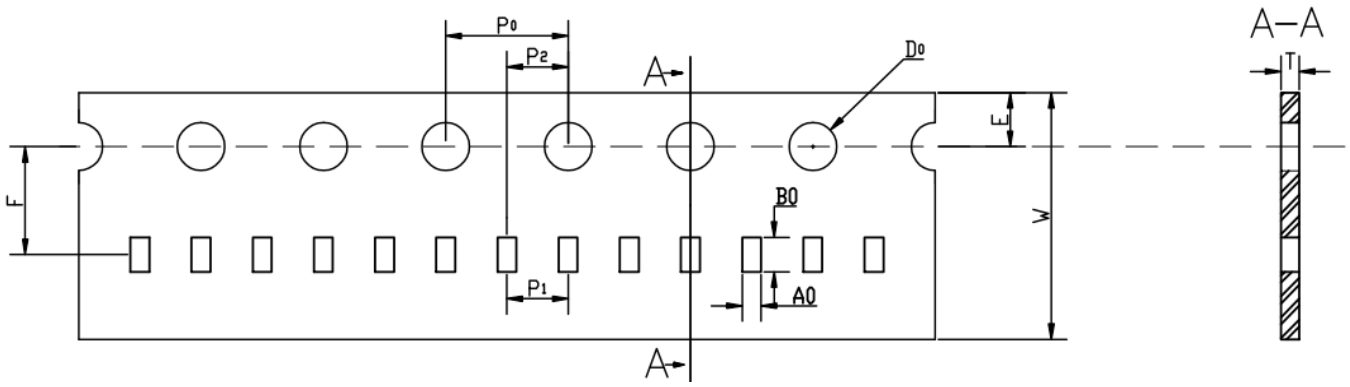
Dimension	Unit: Millimeters		
	Min.	Typ.	Max.
L	0.90	1.00	1.10
W	0.42	0.52	0.62
P	0.15	0.25	0.35
H	0.25	0.38	0.45

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Taping Specification

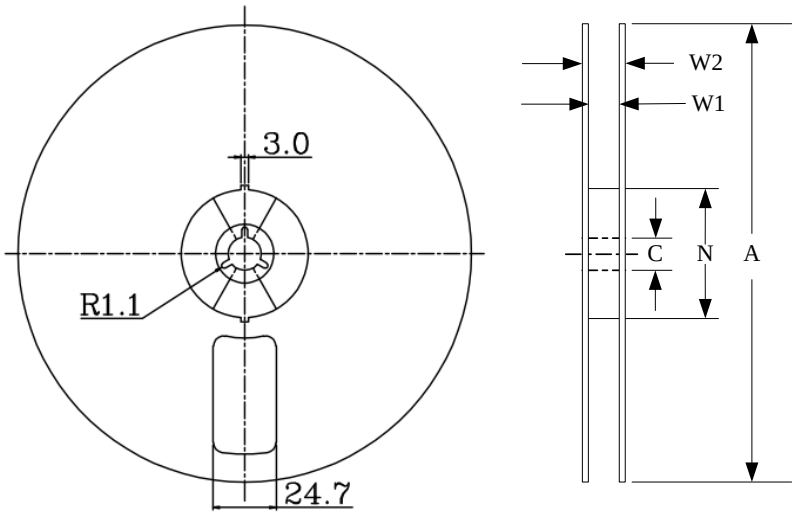
1. Tape Dimension
Unit: Millimeters

Packaging
10,000 pieces in paper tape on 7" (178mm) reel



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

2. Reel Dimension
Unit: Millimeters



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

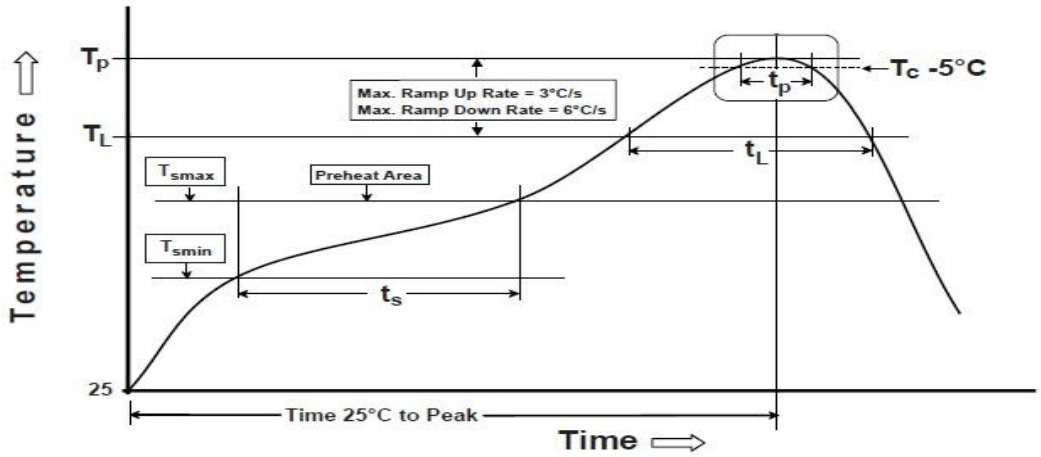
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Part Numbering

PESD 0402 MV 18

- PESD — Product Series
- 0402 — EIA Size
- MV — Product Version
- 18 — Operating Voltage Designator

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.	

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