

## MLSEP12B-0603 Multilayer Polymer ESD Suppressor

### Description

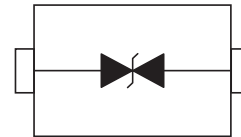
This device is an ultra low capacitance ESD product designed to protect very high speed data interfaces. MLSEP12B-0603 has a typical capacitance of only 0.15pf (I/O to GND), and it can be used to meet the ESD immunity requirements of IEC61000-4-2 (15KV air, 8KV contact discharge).



Case: 0603

### Features

- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8KV, max 15KV
- ESD air discharge typical 15KV, max 25KV
- Multilayer structure
- Surface mount
- Extremely low capacitance
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- The best ESD protection for high frequency, low voltage applications



Schematic Diagram

### Applications

- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- Display Port Interface (DP)
- Unified Display Interface (UDI)
- Mobile Display Digital Interface (MDDI)
- Gigabit Ethernet
- USB2.0 and USB3.0
- IEEE1394 interface

**Caution:**  
This component is designed for signal line protection only,  
Not intended to be used under bias, not for application with a power line.

## MLSEP12B-0603

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#### Absolute Maximum Ratings

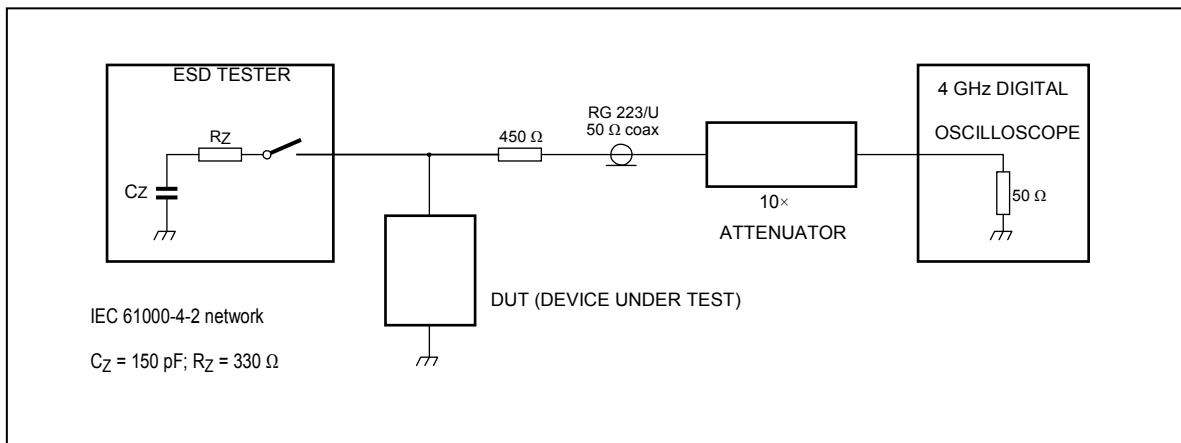
Parameter	Symbol	Value	Unit
Maximum Contact Discharge Voltage Per IEC61000-4-2	---	15KV	V
Maximum Air discharge Voltage Per IEC61000-4-2	---	25KV	V
Maximum Operating Temperature	T <sub>OPER</sub>	-40 to +90	°C
Maximum Storage Temperature	T <sub>STG</sub>	-55 to +125	°C
Maximum Lead Temperature For Soldering During 10s	T <sub>L</sub>	260	°C

#### Electrical Characteristics (T<sub>A</sub>=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Rated Voltage	V <sub>R</sub>	---	---	---	12	V
Trigger Voltage	V <sub>T</sub>	IEC61000-4-2 8KV contact discharge	---	500	---	V
Clamping Voltage	V <sub>C</sub>	IEC61000-4-2 8KV contact discharge	---	20	---	V
Leakage Current	I <sub>L</sub>	DC 12V shall be applied on component	---	0.20	100	nA
Capacitance	C <sub>P</sub>	V <sub>R</sub> = 0V, f = 1MHz	---	0.15	0.30	pF
ESD Pulse Withstand	Pulses	IEC61000-4-2 8KV contact discharge	100	---	---	---

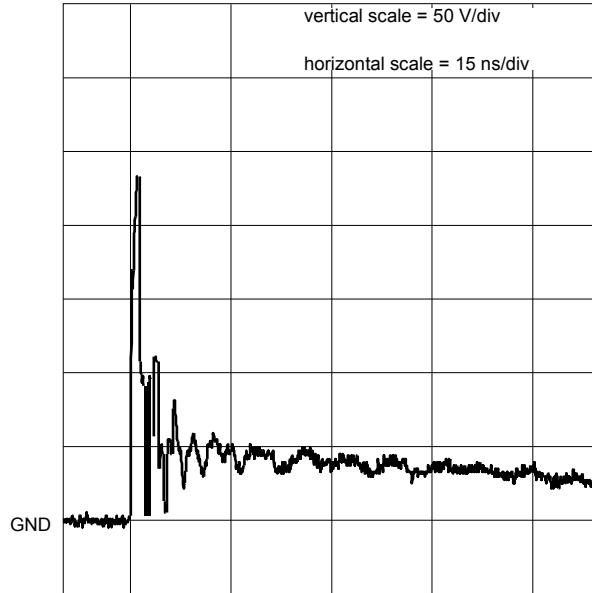
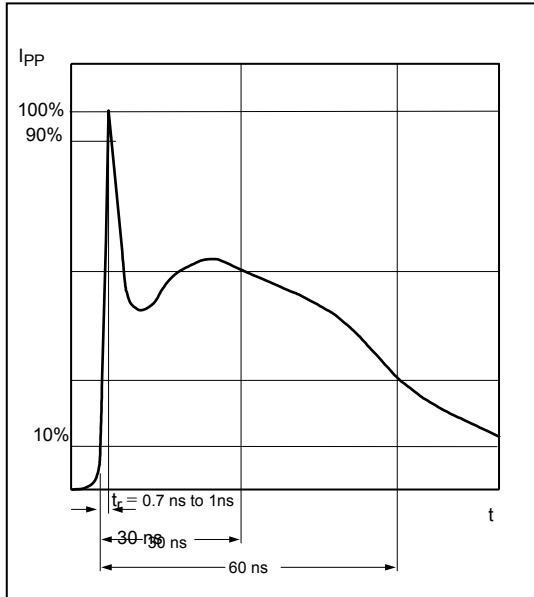
Notes: 1, Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.  
 2, After reliability tests such as high Temp storage, Temp cycles, continuous ESD strike etc, the maximum leakage current is less than 10uA.

#### ESD Clamping Test



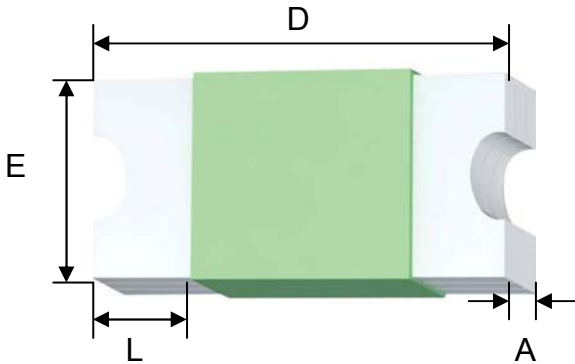
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## ESD Clamping Test Waveforms



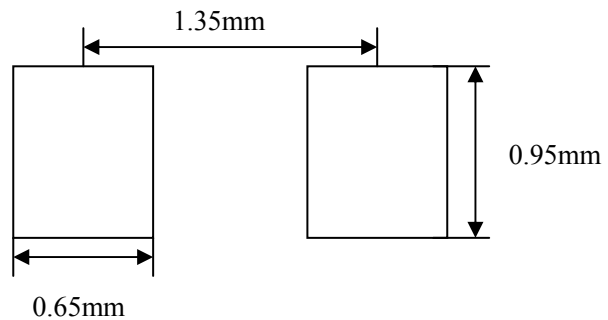
## Product Dimensions

Case: 0603



Dimension	Unit: Millimeters		
	Min	Typ	Max
D	1.45	1.60	1.75
E	0.70	0.83	0.95
L	0.20	0.35	0.50
A	0.27	0.38	0.47

## PAD Dimensions



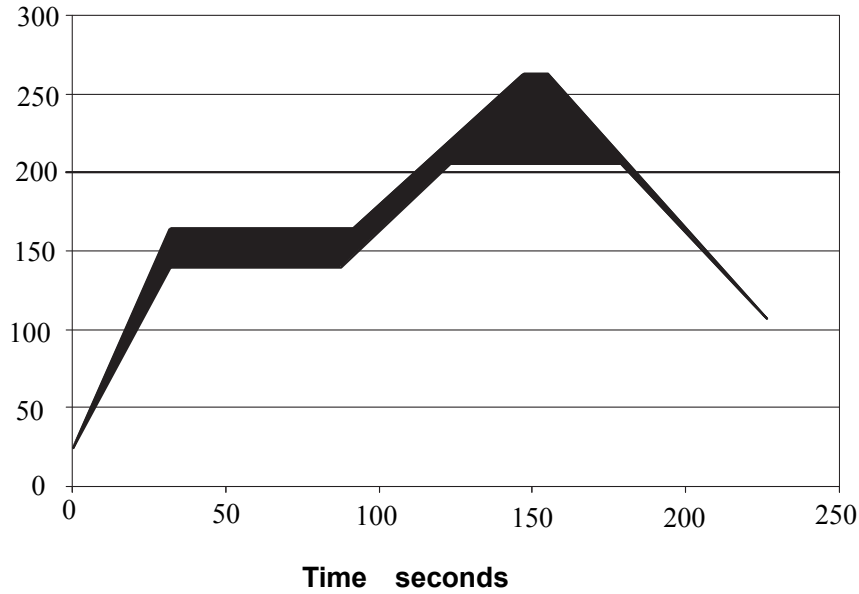
Solder thickness 0.15 to 0.2mm

# GMLSEP12B-0603

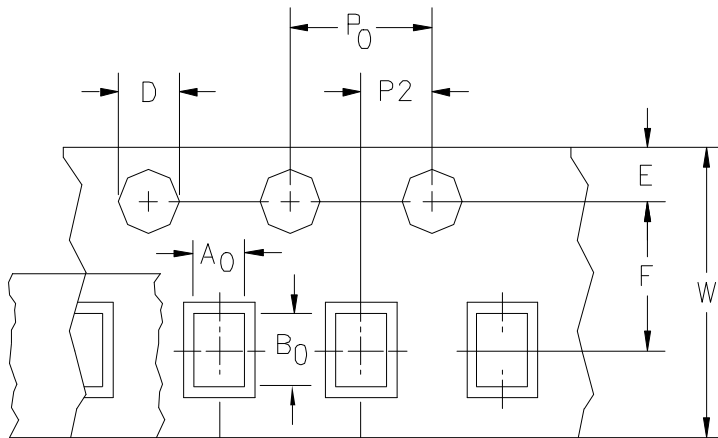
## Multilayer Polymer ESD Suppressor

### Solder Reflow Recommendations

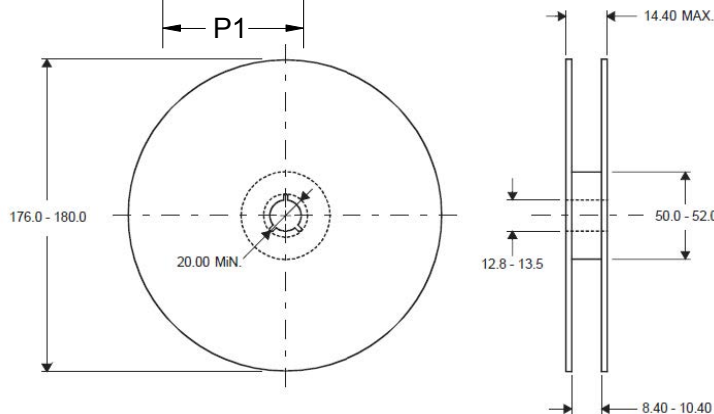
Temperatures (°C)



### Package Information



Dimension	Typical	Unit
A0	1.00	mm
B0	1.90	
D	1.55	
P0	4.00	
P1	4.00	
P2	2.00	
E	1.75	
F	3.50	
W	8.00	



DIMENSIONS ARE: MILLIMETERS