

# GMLSEP12A-0402

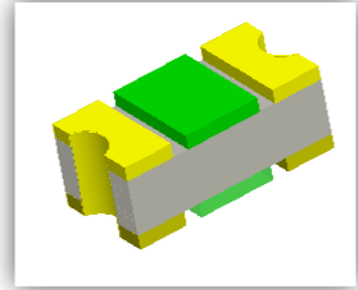
## Multilayer Polymer ESD Suppressor

### Description

This device is an ultra low capacitance PESD product designed to protect very high speed data interfaces. MLSEP12A-0402 has a typical capacitance of only 0.05pf (I/O to GND), and it can be used to meet the ESD immunity requirements of IEC 61000-4-2 (15KV air, 8KV contact discharge).

### Features

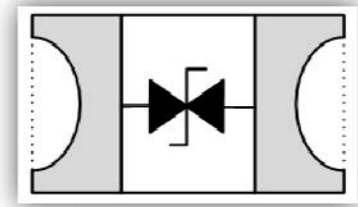
- ESD protection for high speed data lines to **IEC61000-4-2 ESD contact discharge typical 8KV, max 15KV**  
**IEC61000-4-2 ESD air discharge typical 15KV, max 25KV**
- Multilayer structure
- Surface mount
- Extremely low capacitance
- Low leakage current
- Fast response time
- Bi-directional ESD protection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



Case: 0402

### 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



Schematic Diagram

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

### 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

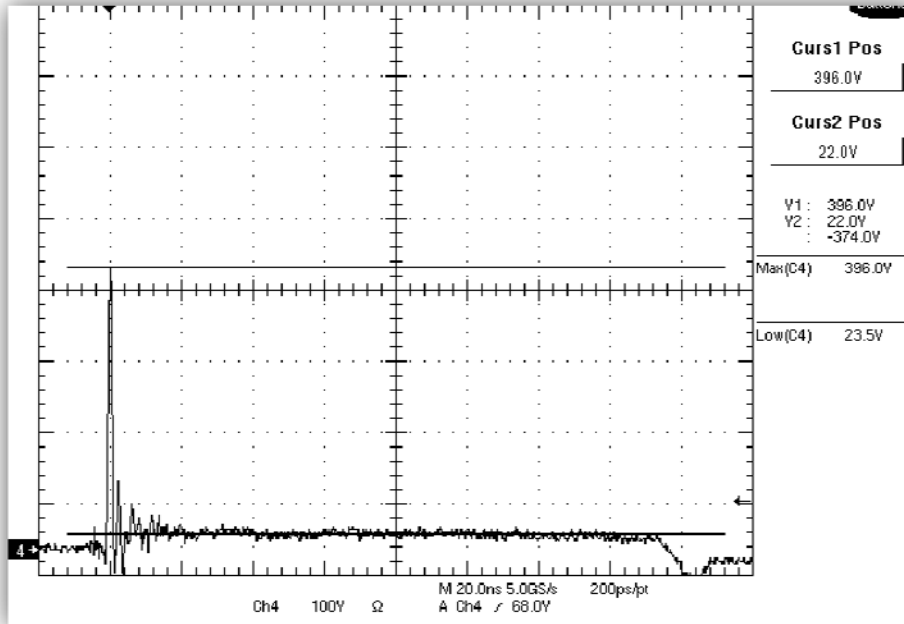
### Electrical characteristics (T<sub>A</sub> =25°C)

Electrical Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Continuous Operating Voltage	V <sub>DC</sub>	---	---	---	12	V
Trigger Voltage	V <sub>T</sub>	IEC61000-4-2 8KV contact discharge	---	300	---	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	---	0.10	100	nA
Capacitance	C <sub>P</sub>	V <sub>R</sub> = 0V, f = 1MHz	---	0.05	0.15	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.

Typical PESD clamping for +8KV pulse per IEC61000-4-2

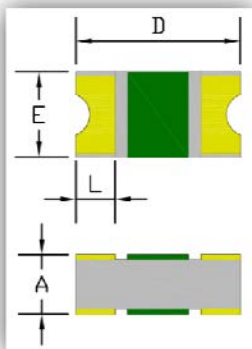


## Product & PAD Dimension

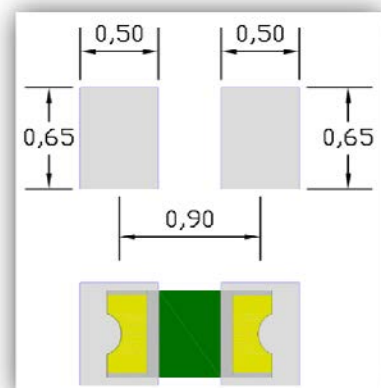
Product Dimension

Case: 0402

Recommended Pad Dimension

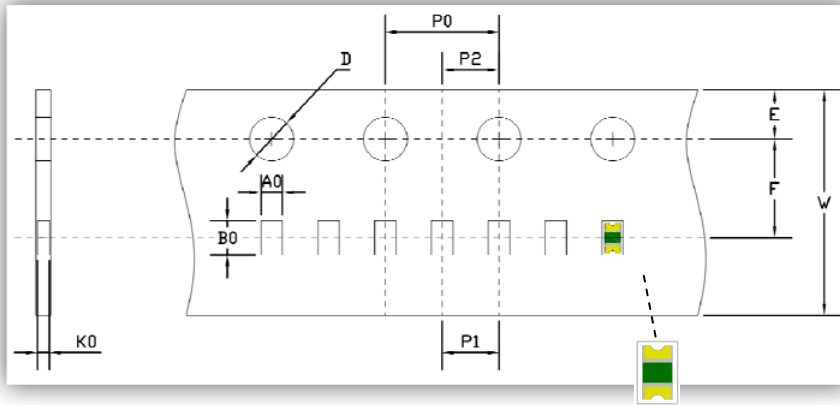


Dimension	Unit: Millimeters		
	Min	Typ	Max
D	0.90	1.05	1.20
E	0.45	0.55	0.65
L	0.15	0.25	0.35
A	0.25	0.36	0.45



**Package Information**

**Tape Dimension**



Dimension	Typical	Unit
A0	0.75	mm
B0	1.22	
K0	0.43	
D	1.55	
P0	4.00	
P1	2.00	
P2	2.00	
E	1.75	
F	3.50	
W	8.00	

**Reel Dimension**

