

# GMLSEP12A-0402

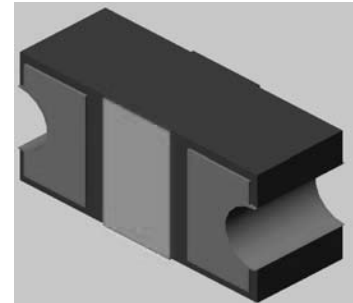
## Multilayer Polymer ESD Suppressor

### Description

GMLSEP12A-0402 is an ultra-low capacitance polymer ESD TVS designed to protect very high speed data interfaces. With a typical capacitance of only 0.05pf (I/O to GND) , this device can be used to meet the ESD immunity requirements of IEC61000-4-2 (15KV air, 8KV contact discharge).

### Features

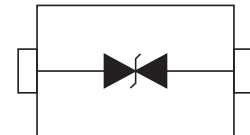
- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8KV, max 15KV
- ESD air discharge typical 15KV, max 25KV
- Multilayer structure
- Extremely low capacitance
- Low leakage current
- Fast response time
- Bi-directional ESD protection
- Ideal for high frequency, 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

### 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>	-55 to +125	°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

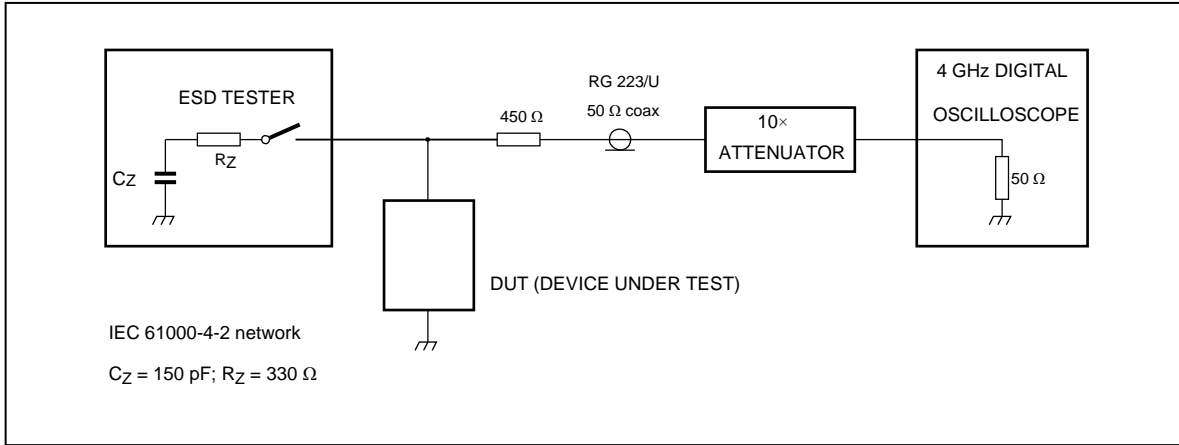
### Electrical characteristics (T<sub>A</sub> =25°C)

Electrical Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Rated Voltage	V <sub>R</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	---	35	---	V
Leakage Current	I <sub>L</sub>	DC 12V shall be applied on component	---	0.01	0.1	uA
Capacitance	C <sub>P</sub>	V <sub>R</sub> = 0V, f = 1MHz	---	0.05	---	pF

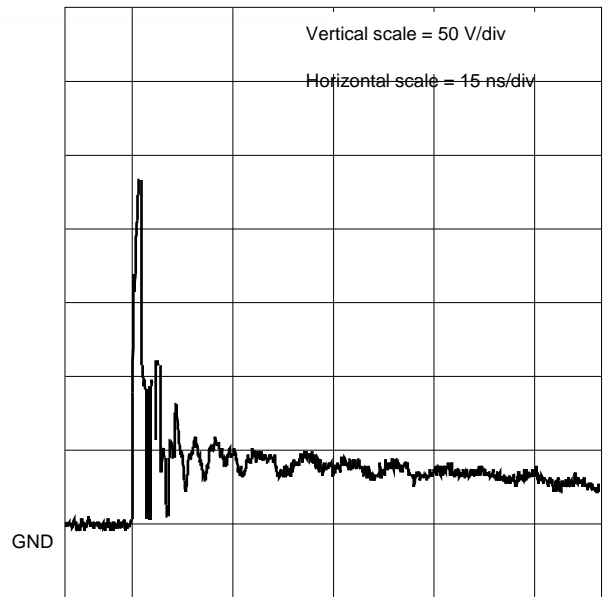
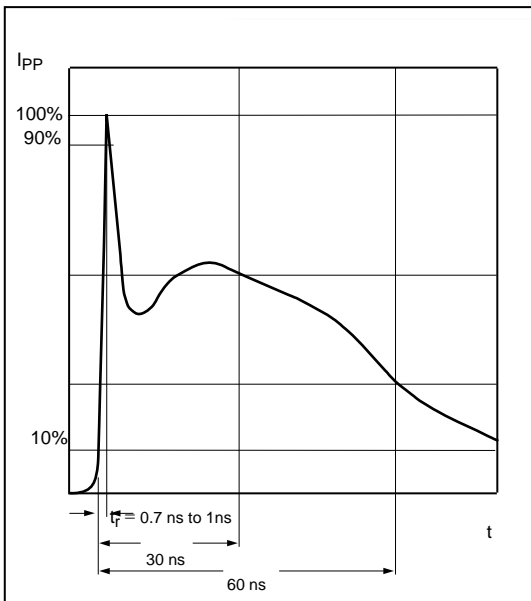
Note: 1. Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.

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**



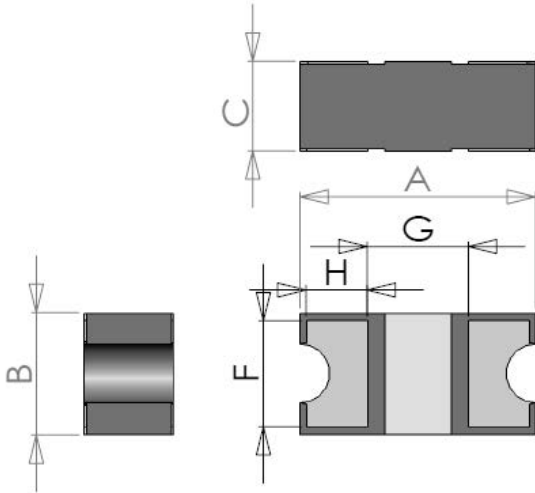
**ESD Clamping Test Waveforms**



# GMLSEP12A-0402

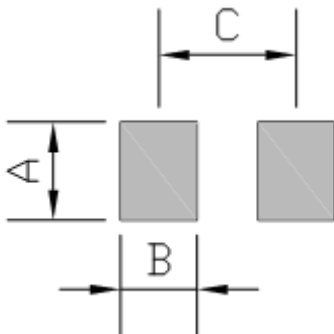
## Multilayer Polymer ESD Suppressor

### Package Outline Dimensions



Symbol	Dimension			Unit
	Min	Typ	Max	
A	0.95	1.0	1.05	mm
B	0.44	0.52	0.60	
C	0.32	0.36	0.40	
H	0.21	0.23	0.25	
F	0.43	0.45	0.47	
G	0.42	0.44	0.46	

### Recommended Pad Layout



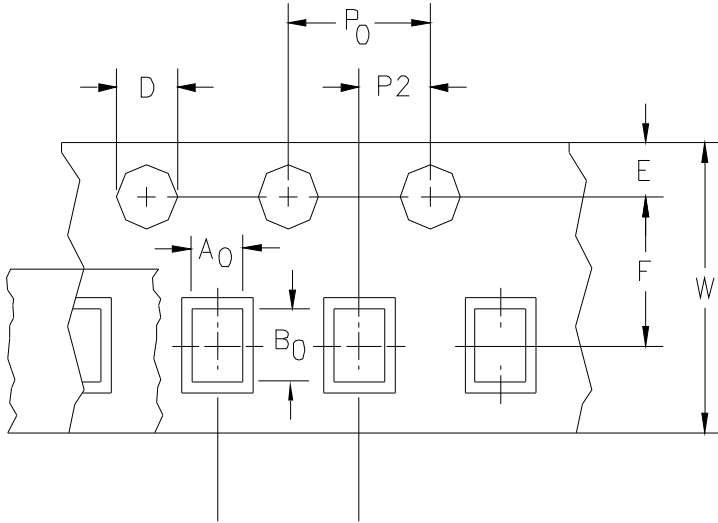
Symbol	Dimension	Unit
A	0.55	mm
B	0.48	
C	0.88	

Solder thickness 0.08 to 0.12mm

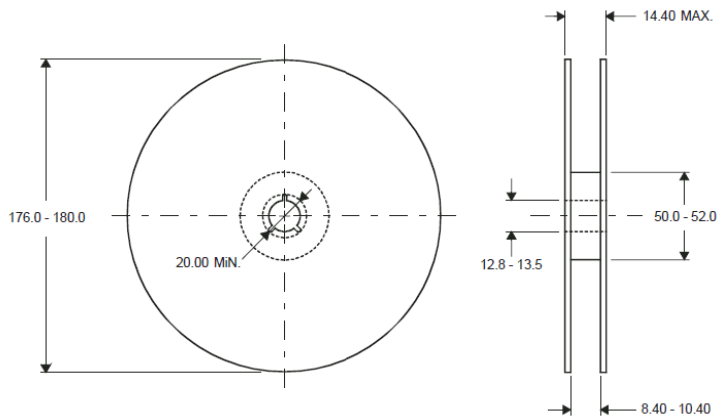
### Order Information

Device	Package	Net Weight	Carrier	Quantity	HSF Status
GMLSEP12A-0402	0402	0.44 mg	Tape & Reel	10,000pcs/reel	RoHS compliant

**Packing Information**



Dimension	Typical	Unit
A0	0.68	mm
B0	1.17	
D	1.55	
P0	4.00	
P1	2.00	
P2	2.00	
E	1.75	
F	3.50	
W	8.00	



DIMENSIONS ARE: MILLIMETERS