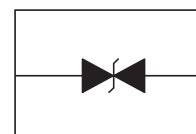


Features

- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge, max 30KV
- ESD air discharge, max 30KV
- Surface mount
- Extremely low capacitance, 0.05pF typical
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- ESD pulse withstand, 3000 pulses min
- The best ESD protection for high frequency, low voltage applications



0402



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

Description

This device is an ultra low capacitance ESD product designed to protect very high speed data interfaces. GSPSM0402V50 has a typical capacitance of only 0.05pF, and it can be used to meet the ESD immunity requirements of IEC61000-4-2 (30KV air, 30KV contact discharge).

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Maximum Contact Discharge Voltage Per IEC61000-4-2	-	30	kV
Maximum Air Discharge Voltage Per IEC61000-4-2	-	30	kV
Maximum Operating Temperature Range	T _{OPER}	-55 to +125	°C
Maximum Storage Temperature Range	T _{STG}	-55 to +125	°C
Maximum Lead Temperature for Soldering During 10s	T _L	260	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Rated Voltage	V _R	-	-	-	50	V
Trigger Voltage	V _T	IEC61000-4-2 8KV Contact Discharge	-	350	-	V
Clamping Voltage	V _C	IEC61000-4-2 8KV Contact Discharge	-	35	-	V
Leakage Current ¹	I _L	DC 50V Shall be Applied on Component	-	0.01	0.1	uA
Capacitance	C _P	V _R =0V, F=1MHz	-	0.05	-	pF
ESD Pulse Withstand	-	IEC61000-4-2 8KV Contact Discharge	3000	-	-	pulses

Note:

1. 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 Waveforms

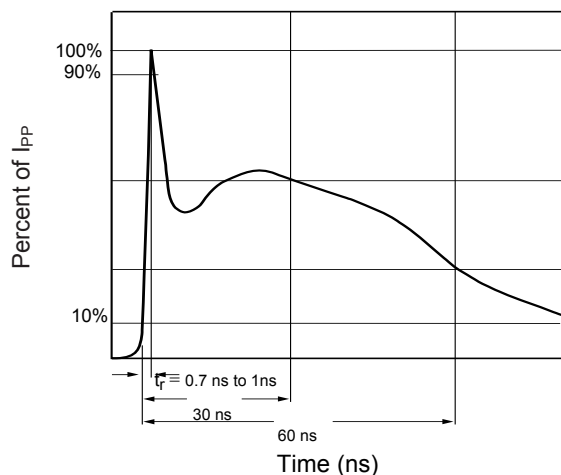


Figure 1. Pulse Waveform-ESD (IEC61000-4-2)

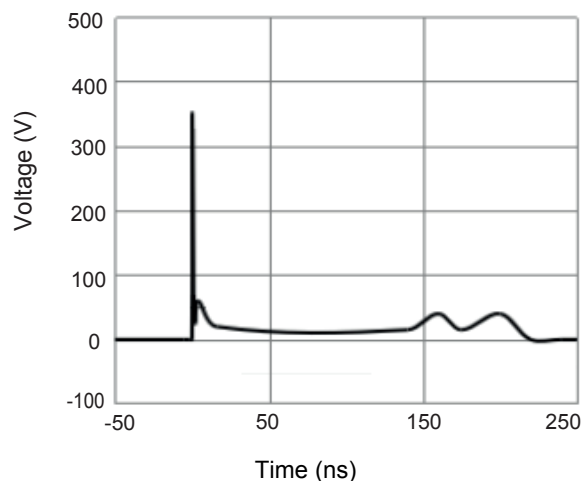
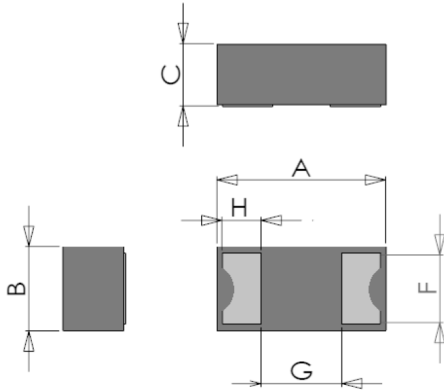


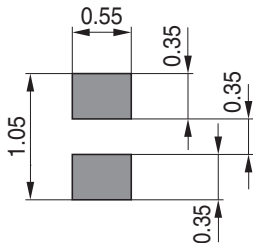
Figure 2. ESD Wave after Clamping

Product Outline Dimensions (0402)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.05	0.037	0.041
B	0.45	0.55	0.018	0.022
C	0.28	0.36	0.011	0.014
H	0.20	0.26	0.008	0.010
F	0.42	0.48	0.017	0.019
G	0.41	0.47	0.016	0.019

Recommended Pad Layout



Note:

1. Controlling dimension: in millimeters
2. Solder thickness 0.08 to 0.12mm recommended

Order Information

MPN	Package	Carrier	Quantity	HSF Status
GSPSM0402V50	0402	Tape & Reel	10,000 Pcs / Reel	RoHS Compliant