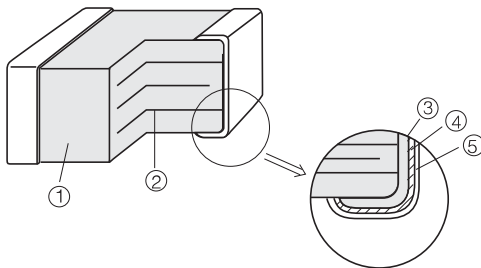


## Features

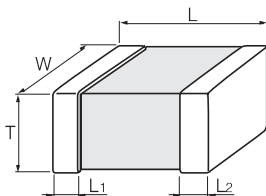
- Excellent ESD suppression due to original advanced material technology
- Having large electrostatic resistance meeting IEC61000-4-2, Level 4 standard
- Having no polarity (bipolar) facilitated replacing Zener Diodes. Capable of replacing 2 Zener Diodes and 1 Capacitor.
- Lead-free plating terminal electrodes enabling great solderability
- Wide range of products is available by adopting multilayer structure, meeting various needs.
- Low capacitance versions for DC voltage lines of high speed busses
- Ultra low capacitance for high speed signal line
- Applicable to high-speed signal lines, such as interfaces (e.g. USB 2.0, IEEE1394, HDMI, and so on), due to our original ultra-low capacitance technology.
- RoHS compliant

## Construction



No.	Name
①	Semiconductive Ceramics
②	Internal electrode
③	Substrate electrode
④	Terminal electrode
⑤	External electrode

## Dimensions in mm (not to scale)



Size(inch)	L	W	T	L <sub>1</sub> , L <sub>2</sub>
0201	0.60±0.03	0.30±0.03	0.30±0.03	0.15±0.05
0402	1.00±0.05	0.50±0.05	0.50±0.05	0.2±0.1
0603	1.6±0.1	0.8±0.1	0.8±0.1	0.3±0.2

## Features

- Multilayer monolithic ceramic construction for high speed signal lines
- Ideal for USB 2.0, IEEE1394, and HDMI high speed data busses
- Applicable to high-speed signal lines, such as interfaces (e.g. USB 2.0, IEEE1394, HDMI, and so on), due to our original material technology and multilayer technology.
- Capacitance: 0.8 to 2.1 pF typ.

## Recommended Applications

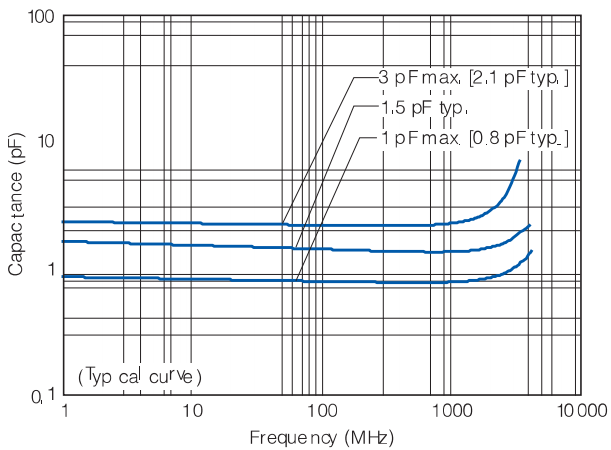
Mobile phone	Antenna circuit, External IF
DSC, DVC	USB2.0, IEEE1394
PC, PDA	USB2.0, IEEE1394, LAN1000BASE
TV, DVD	USB2.0, IEEE1394, HDMI
Game console	Controller, External IF

## Ratings and Characteristics

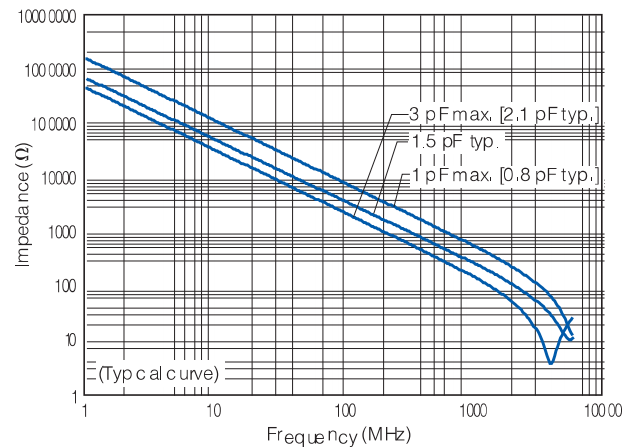
Size	Part No.	Maximum allowable voltage DC (V)	Nominal varistor voltage at 1mA (V)	Capacitance (pF) at 1MHz	Maximum ESD IEC61000-4-2
0402	0402ESDA-05	5	25	5	Contact discharge : 8kV
	0402ESDA-09	9	30	3	
	0402ESDA-LF	18	200	3	
	0402ESDA-LC	24	200	1	
	0402ESDA-LP	24	200	0.6	
0603	0603ESDA-05	5	25	5	
	0603ESDA-09	9	30	3	
	0603ESDA-LF	18	200	3	
	0603ESDA-LC	24	200	1	

- Operating Temperature Range: -40 to 85 °C
- \* Recommend soldering method : Reflow soldering

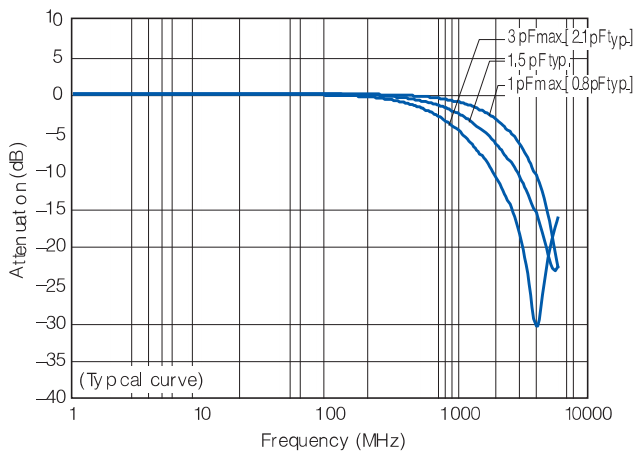
## Capacitance vs. Frequency



## Impedance vs. Frequency

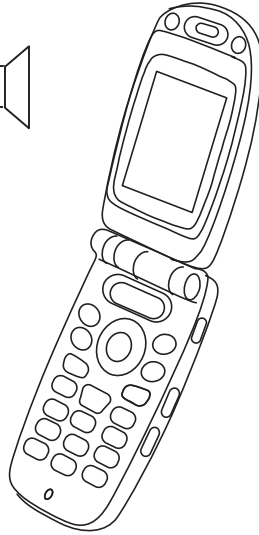
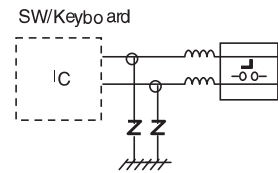
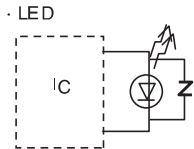
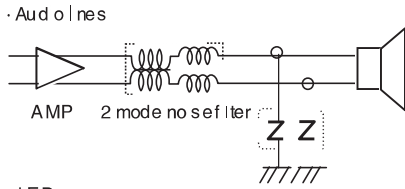


## Attenuation vs. Frequency

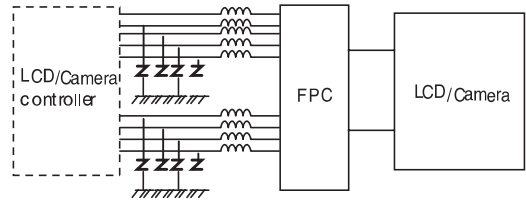


**Applications**

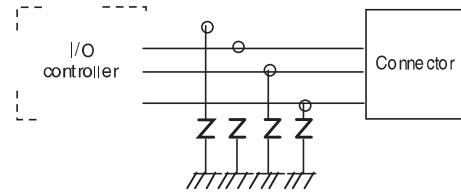
● Mobile Phone



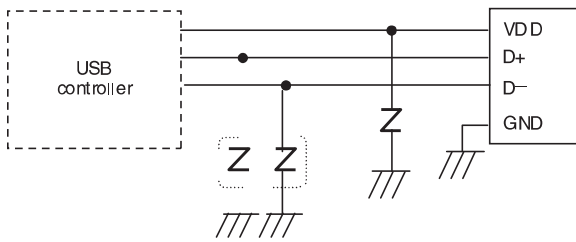
· LCD/Camera lines



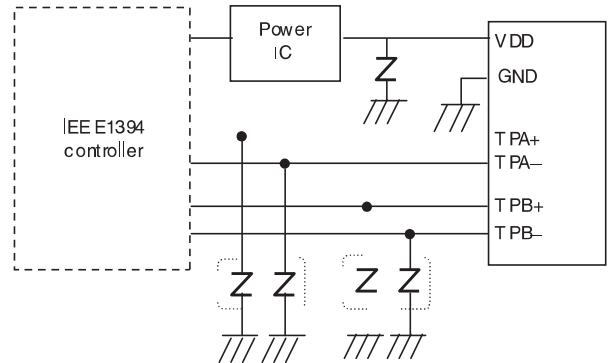
· I/O data lines



● USB 1.1/2.0 lines



● IEEE 1394 lines



● HDMI lines

