

Panasonic ESD Suppressors

EZAEG2A50AX

EZAEG3A50AV

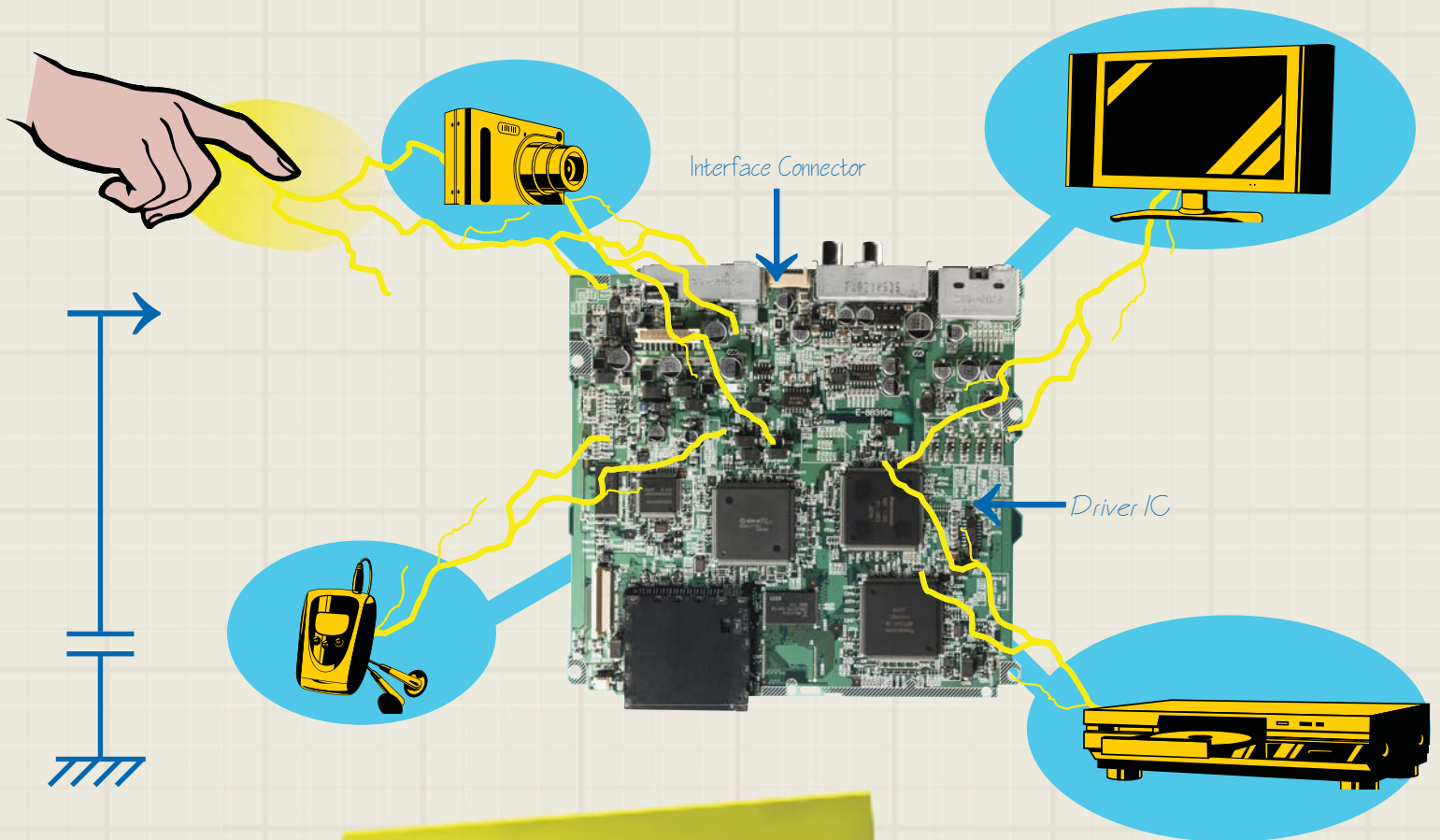


Panasonic ideas for life

Electrostatic Discharge:

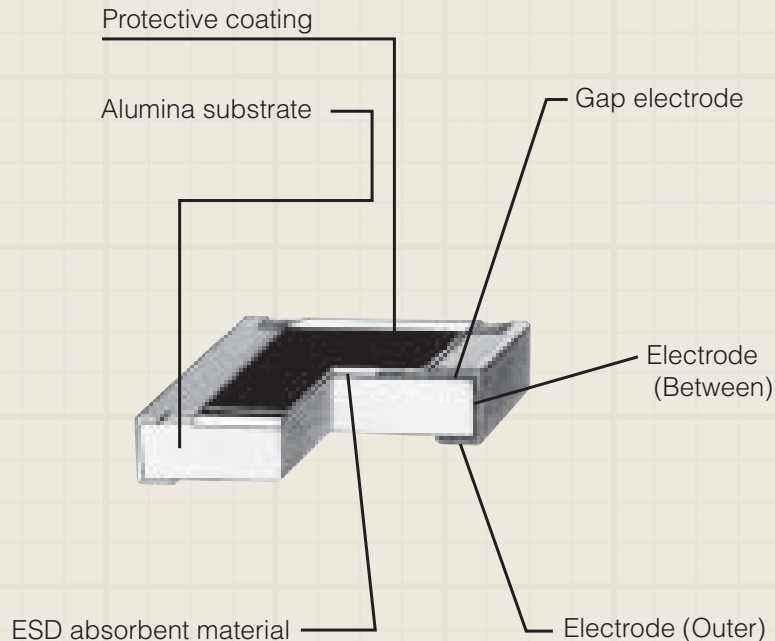
Electrostatic Discharge can damage electronic equipment. An ESD Suppressor, like the EZAEG2A50AX can prevent other components, active or passive, from being destroyed. Panasonic has a wide range ESD suppression components available. The ESDs are available with high capacitance to super low capacitance.

The human body acts like a Capacitor : 70 to 150 pF
Static electricity can reach Voltage levels of: ± 8 to 15 kV



ESD can travel through High Speed Data Lines connected between the transmitting & receiving integrated circuits of electronic products, both in consumer & industrial applications.

Product Overview:



EZAEG3A50AV

EZAEG2A50AX

Features:

Small Sizes & Low Weight

Low Capacitance Loading

15 V Operating Voltage

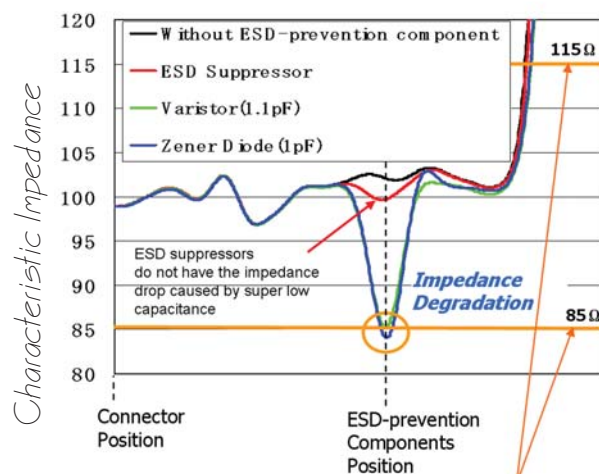
High Peak Voltage Handling Capability - 500 V max

-55 to 125°C Operating Temperature Range

RoHS Compliant

Specifications:

Size	0402, 0603 (inches)
Capacitance Value	0.05 +/- 0.05 (0402) 0.1 +/- 0.1 (0603) pF
Peak Voltage	500 max. (350 typ.) (V)
Clamping Voltage	100 max (V)
Rated Voltage	15 max (V)
Features	Low capacitance, good ESD suppression characteristics and withstanding voltage.
Applications	HDMI, Serial ATA, USB, IEEE 1394, Antennas



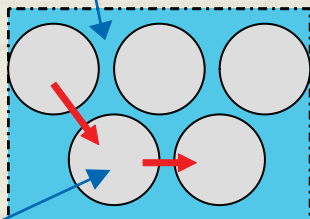
Characteristic Impedance Spec: $100 \pm 15 \Omega$

ESD suppressors do not have the typical impedance drop caused by super low capacitance.

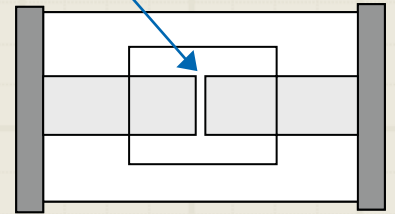
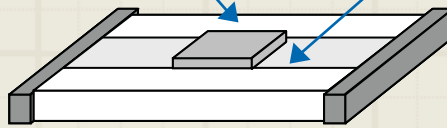
Basic Construction:

Grain Boundry (resin)

Metallic Particle



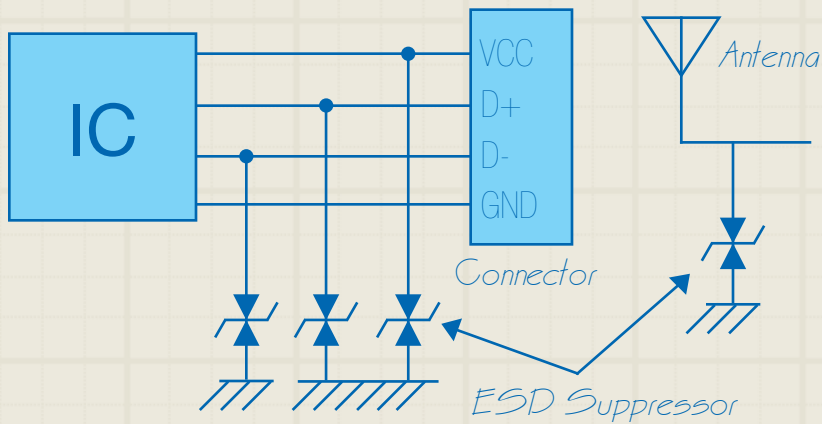
ESD absorbent material Gap electrode



Off-time: Open

On-time: (Over voltage)
Low Impedance

Examples:



1. Good ESD Suppression Characteristics

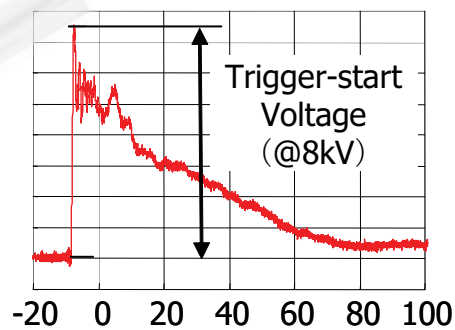
2. Low C Value (0.1pF)

Best for Hi-Speed Data-Lines

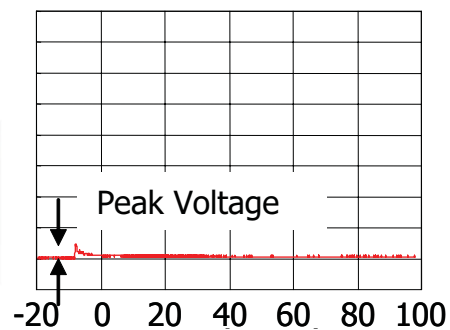
Ex: HDMI, USB, IEEE 1394

3. Failure in Open Mode condition.

ESD Suppression Voltage Waveform Image:



ESD Voltage: Initial Waveform



Waveform after Clamping

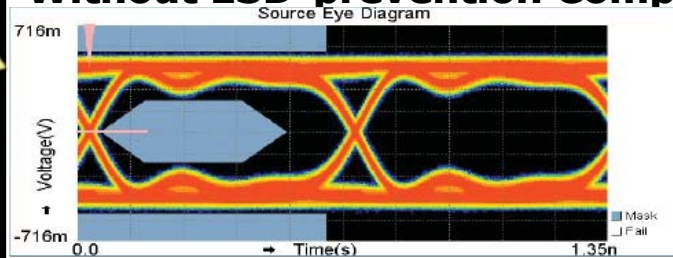
Panasonic's EZAEG significantly reduces the energy of an ESD.

Applications

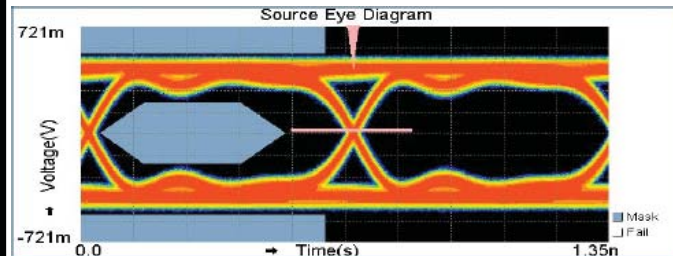
HDMI Mask Test

The ultra-low capacitance of the Panasonic ESD Suppressor has a low loading effect on the signal quality as indicated in the eye signal pattern of Fig. 2.

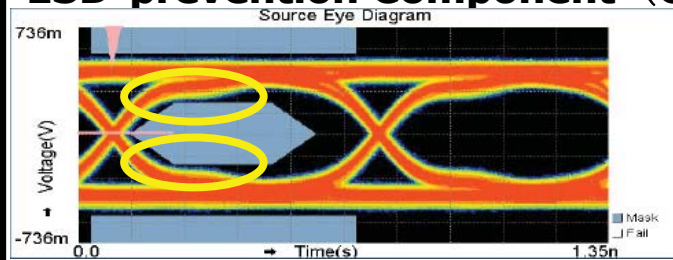
Without ESD-prevention Component



ESD Suppressor (C:0.1pF)



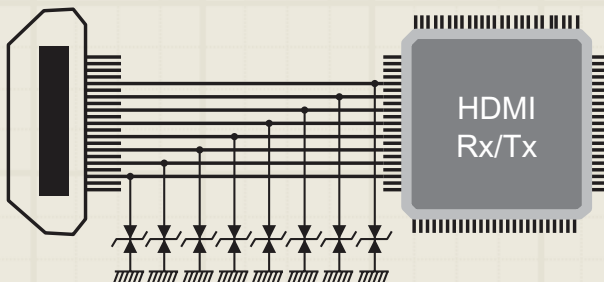
ESD-prevention Component (C:3pF)



High Speed Data Lines

- HDMI, Serial ATA, USB, IEEE 1394

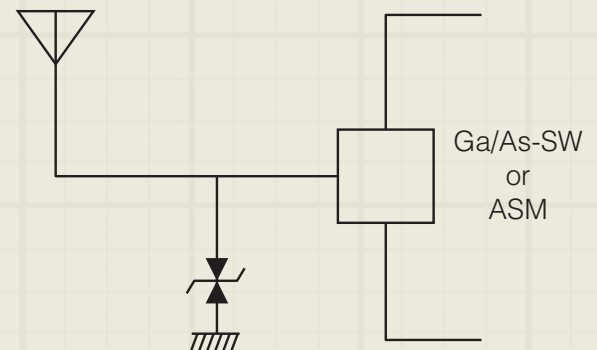
HDMI Controller



Antenna Circuitry

- Portable Voice & Data Products

Antenna



Other Resources:

EZAEG Datasheet:

<http://www.panasonic.com/industrial/components/pdf/AWD0000CE1.pdf>

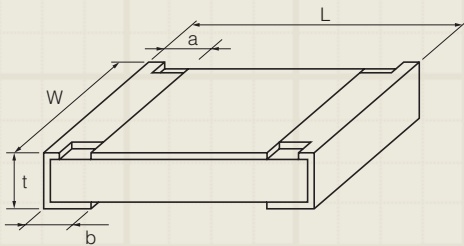
Includes Precautions for Storage, Handling, Safety and recommended Assembly/Solder Conditions.

Available Part Numbers:

EZAEG2A50AX - 0402, 0.05 pF, nominal

EZAEG3A50AV - 0603, 0.1 pF, nominal

Dimensions (in mm, not to scale)



Type (inches)	Dimensions (mm)					Mass (Weight) [g/1000 pcs.]
	L	W	a	b	t	
EZAEG2A (0402)	1.00 ±0.10	0.50 ±0.05	0.20 ±0.10	0.25 ±0.10	0.38 ±0.05	0.6
EZAEG3A (0603)	1.60 ±0.15	0.80 ±0.15	0.30 ±0.20	0.30 ±0.20	0.50 ±0.10	2.2

Part Number Explanation:

1	2	3	4	5	6	7	8	9	10	11
E	Z	A	E	G	2	A	5	0	A	X
Product Code ESD Suppressor		Size Code Size (inches) 2 1005 (0402) 3 1608 (0603)		Rated Voltage Code Rated Voltage A 15 V		Peak Voltage Code Peak Voltage 50 500 V		Design Specification Code Design Specification A Standard		Packaging Methods Code Packaging X Punched Carrier Taping 2 mm Pitch (EZAEG2A) V Punched Carrier Taping 4 mm Pitch (EZAEG3A)

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<http://www.panasonic.com/industrial/components/>