

# CeraDiodes

for ESD Protection of Analog Audio and Video Lines

In addition to HDMI, TVs and DVD/Blu-ray players/recorders, set-top boxes, etc. are still most commonly equipped with analog audio and video interfaces. The ICs in these devices are extremely sensitive to ESD. Therefore, video and audio connectors need ESD protection to prevent damage to these downstream electronics.

CeraDiodes are ideal ESD components. They can be used as 1:1 drop-in replacement for semiconductor diodes. Compared to silicon diodes, CeraDiodes offer higher ESD robustness of up to  $\pm 1000$  pulses acc. to IEC 61000-4-2, level 4.

## Application

- Bidirectional ESD protection for analog audio and video lines e.g.
  - SCART
  - S-video
  - Component
  - Composite
- Consumer and IT devices such as
  - TVs
  - Set-top boxes
  - DVD/Blu-ray players/recorders
  - Portable media players
  - Stereo equipment
  - Notebook
  - Desktop computers

# CeraDiodes for ESD Protection of Analog Audio and Video Lines

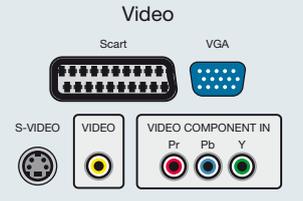
## Features and benefits

- Low capacitance values for video lines
- High transmission bandwidth for high quality audio signals (0 dB up to 1 MHz)
- Bidirectional operation
- ESD protection with additional EMI filtering due to integrated capacitance for audio lines
- Low clamping voltage, e.g.
  - 24 V @ 8/20  $\mu$ s, 1 A for case size 0402
  - 19 V @ 8/20  $\mu$ s, 1 A for case size 0603
- Fast response time: < 0.5 ns

## Characteristics

- DC voltage: 5.6 to 30 V
- Typical capacitance: 10 to 470 pF
- ESD robustness to IEC61000-4-2, level 4
- Operating temperature range: –40 °C to 85 °C
- Lead-free soldering: Nickel barrier termination
- RoHS-compatible

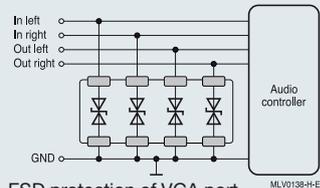
## Standard product range<sup>1)</sup>

Case size	Device	C <sub>typ</sub>	Semi diode package	EPCOS type	Ordering code	
<b>Analog audio lines</b>						
0201	Single	15	SOD-723	CDS1C05GTA	B72440D0050A60	
0402	Single	180	SOD-523	CDS2C05GTA	B72590D0050A60	
0603	Single	470	SOD-323	CDS3C05GTA	B72500D0050A60	
1003	Single	82	–	CDS4C12GTA	B72570D0120A60	
0508	Array	33	–	CDA4C20GTA	B72714D0200A60	
0612	Array	56	–	CDA5C20GTA	B72724D0200A62	
<b>Video lines</b>						
0201	Single	10	SOD-723	CDS1C05GTH	B72440D0050H60	
0402	Single	10	SOD-523	CDS2C15GTH	B72590D0050H60	
0603	Single	10	SOD-323	CDS3C30GTH	B72500D0050H60	
1003	Single	3	–	CDS4C16GTH	B72570D0120H60	
0508	Array	10	–	CDA4C16GTH	B72714D0160H60	
0612	Array	3	–	CDA5C16GTH	B72724D0160H60	
1012	Array	7	SOT-23 6L	CDA6C05GTH	B72735D0050H62	

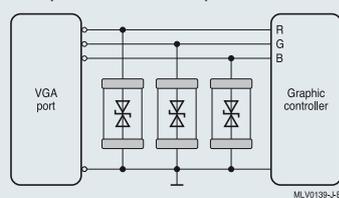
<sup>1)</sup> For special requirements, please contact your sales representative for EPCOS products.

## Application examples

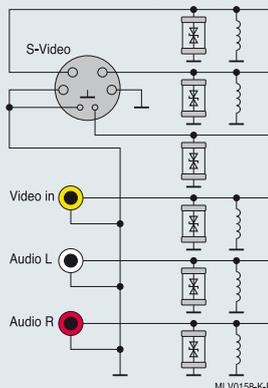
### Protection of four audio lines with a 4-fold array



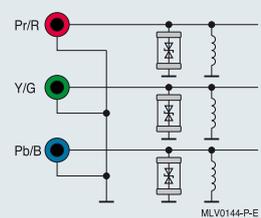
### ESD protection of VGA port



### ESD protection of the S-video, composite video, and analog audio group



### ESD protection for component/RGB video lines



**Important information:** Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products. We expressly point out that these statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. It is incumbent on the customer to check and decide whether a product is suitable for use in a particular application. This publication is only a brief product survey which may be changed from time to time. Our products are described in detail in our data sheets. The Important Notes ([www.epcos.com/ImportantNotes](http://www.epcos.com/ImportantNotes)) and the product-specific warnings and cautions must be observed. All relevant information is available through our sales offices.