



ESD protection and signal conditioning for HDMI™ 1.4 source interface

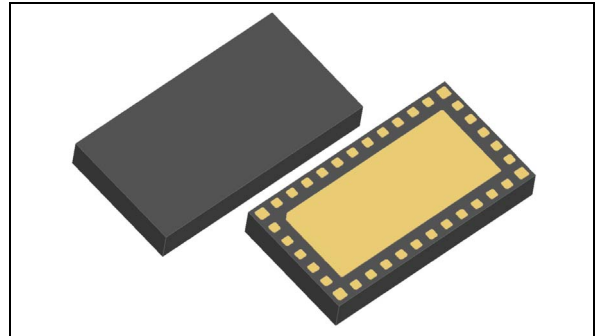
Data brief — production data

Features

- HDMI 1.3 and 1.4 compliant: from -40 to 85 °C
- 8 kV contact ESD protection on connector side
- Supports direct connection to low-voltage HDMI ASIC and/or CEC driver (down to 1.8 V)
- High integration level in 1 package
- TMDS high bandwidth ESD protection
- DDC (I2C) link protection, bi-directional signal conditioning circuit, and dynamic pull-up
- CEC bus protection, bi-directional level-shifter, backdrive protection, and independent structure from main power supply
- HEAC link protection and line matching
- HPD pull down and signal conditioning
- Short-circuit protection on 5 V output
- Over temperature protection
- Proposed in QFN 36 leads 500 µm pitch

Benefits

- Speed-up hardware design and certification of HDMI 1.4 application
- Pin map sequence compliant with HDMI connector type A
- Minimal PCB footprint in consumer area
- Protection of ultra-sensitive HDMI ASICs
- Ultra low power consumption in stand-by mode
- Wake-up from stand-by through CEC bus
- Improved HDMI interface ruggedness and user experience
- Long and/or poor quality cable support
- Companion chip for STMicroelectronics' STixxxx HDMI decoders.



Complies with the following standards

- HDMI 1.4 version
- IEC 61000-4-2 level 4
- JESD22-A114D level 2

Description

The HDMI2C1-14HD is a fully integrated ESD protection and signal conditioning device for control links and TMDS data video channels of HDMI transmitters (Source).

The HDMI2C1-14HD is a simple solution that provides HDMI designers with an easy and fast way to reach full compliance with the stringent HDMI 1.4 CTS on a wide temperature range.

Applications

- Consumer and computer electronics HDMI Source device such as:
 - HD set-top boxes
 - DVD and Blu-Ray Disk systems
 - Notebook
 - PC graphic cards

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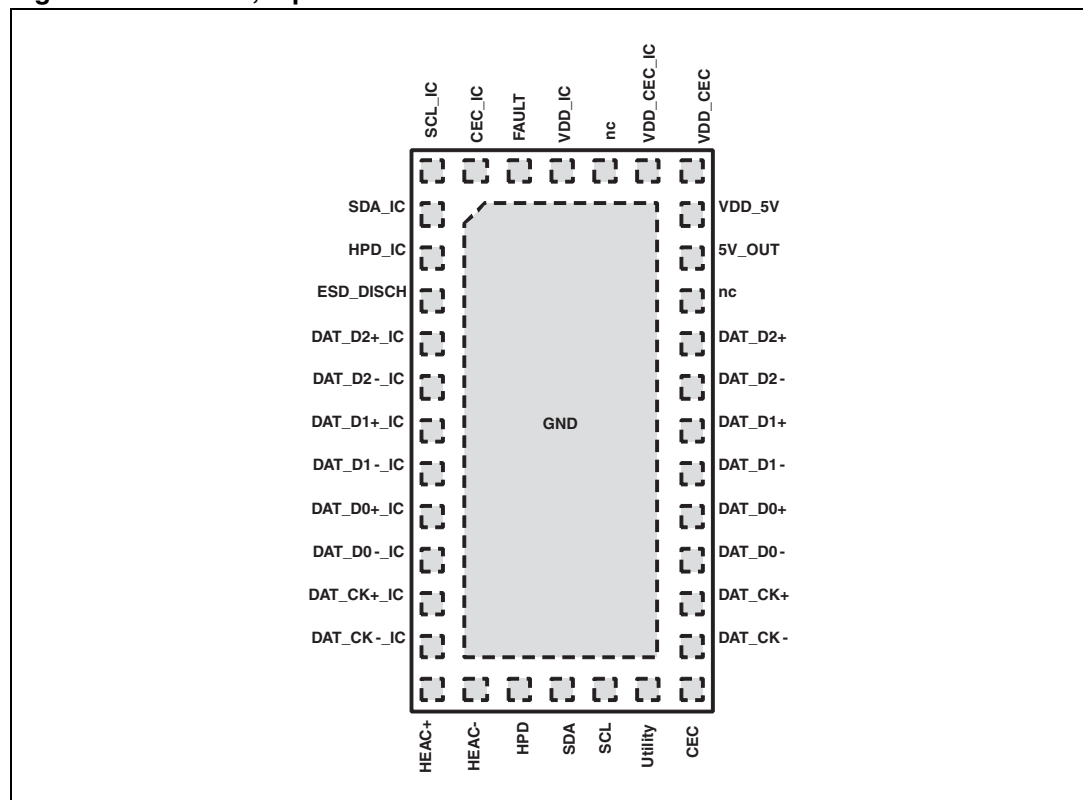
1 Functional description

The HDMI2C1-14HD is a fully integrated ESD protection and signal conditioning device for control links and TMDS data video channels of HDMI transmitters (Source).

The control stage provides a bidirectional buffer, integrating signal conditioning and dynamic pull-up on DDC bus for maximum system robustness and signal integrity. The HEAC (HDMI Ethernet and Audio return Channels) function is supported, making the component fully compliant with HDMI 1.4 version. A bidirectional CEC block is integrated, able to wake-up the application from stand-by mode (all power supply off, except the CEC power supply). The integrated TMDS links ESD protection allows a video data rate up to 10.2Gbps, corresponding to the maximal speed specified by the HDMI standard. All video format specified by HDMI standard (from 720p30 up to 1080p60 3D) are supported, giving maximal flexibility to designers. The +5V supplied to the cable is protected against accidental surge current and short circuit as requested by the HDMI 1.4 standard. All these features are provided in a single 36 leads QFN package featuring natural PCB routing and saving space on the board.

The HDMI2C1-14HD is a simple solution that provides HDMI interface designers with an easy and fast way to reach full compliancy with the stringent HDMI 1.4 CTS (compliance test specification) on a wide temperature range. STMicroelectronics proposes a dual version dedicated for the Sink interfaces: the HDMI2C2-14HD.

Figure 1. Pin out, top view



2 Ordering information

Table 1. Ordering information

| Order code | Marking | Package | Weight | Base qty | Delivery mode |
|--------------|----------|---------|--------|----------|---------------|
| HDMI2C1-14HD | 2C1-14HD | QFN | 51,6 | 4,000 | Tape and Reel |

3 Revision history

Table 2. Document revision history

| Date | Revision | Changes |
|-------------|----------|-----------------|
| 14-Nov-2012 | 1 | Initial release |

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