



NXP HDMI signal-conditioning IC IP4786CZ32

Increased reliability for HDMI transmitters

This signal-conditioning device, designed to enhance the stability of HDMI transmission, combines level shifting with EMI/ESD protection. The small footprint (5 x 5 mm) and very low standby modes support mobile applications.

Key features

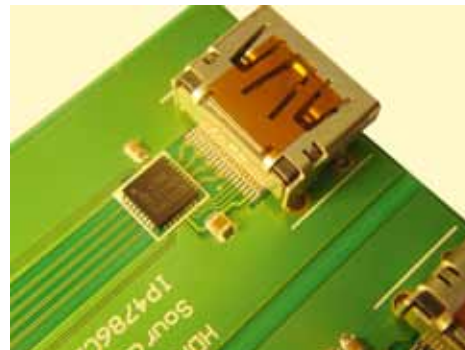
- ▶ Compact HVQFN32 package (5 x 5 mm)
- ▶ Clean interface, requiring only one capacitor
- ▶ CEC back-drive protection and current source
- ▶ 5 V LDO with back-drive protection, current limiter, and load switch
- ▶ Impedance-matched transmission line clamping ESD protection for TMDS lines
- ▶ Buffer-based DDC, CEC, and Hot Plug level shifting
- ▶ Reduced power consumption, with extremely low power at standby
- ▶ 8 kV ESD protection for all HDMI signals, including HEAC protection

Key benefits

- ▶ Lowest component count (less pick-and-place time)
- ▶ Reduced PCB space
- ▶ Long cable support
- ▶ DDC compensation for high-resistance external switches in HDMI sinks
- ▶ Both high and low logic-level shifting on DDC, CEC, and Hot Plug signals
- ▶ Enable/disable of HDMI control lines and 5 V out
- ▶ Fully HDMI compliant

Applications

- ▶ Set-top boxes
- ▶ DVD and Blu-ray players
- ▶ Portable media players
- ▶ PCs, notebooks, netbooks, and tablets
- ▶ Mobile phones
- ▶ DV camcorders
- ▶ Digital still image cameras



IP4786CZ32 in combination with an HDMI Type A connector



The NXP IP4786CZ32 offers all the features and functions to ensure the most reliable HDMI interface in the field.

An integrated LDO, with current-limiting functions and back-drive protection, provides a regulated 5 V output from an input voltage up to 6.5 V. At the same time, the LDO isolates the 5 V source during sleep mode. This prevents TVs from turning on by mistake when the HDMI source is active but not transmitting.

The HDMI control lines (DDC, CEC, and Hot Plug) use buffer technology to level shift to 1.8, 2.5, or 3.3 V HIGH and LOW logic levels. The buffer technology compensates for higher capacitance, so designers can use longer or cheaper HDMI cables. The buffers are designed to block 100% of any ESD

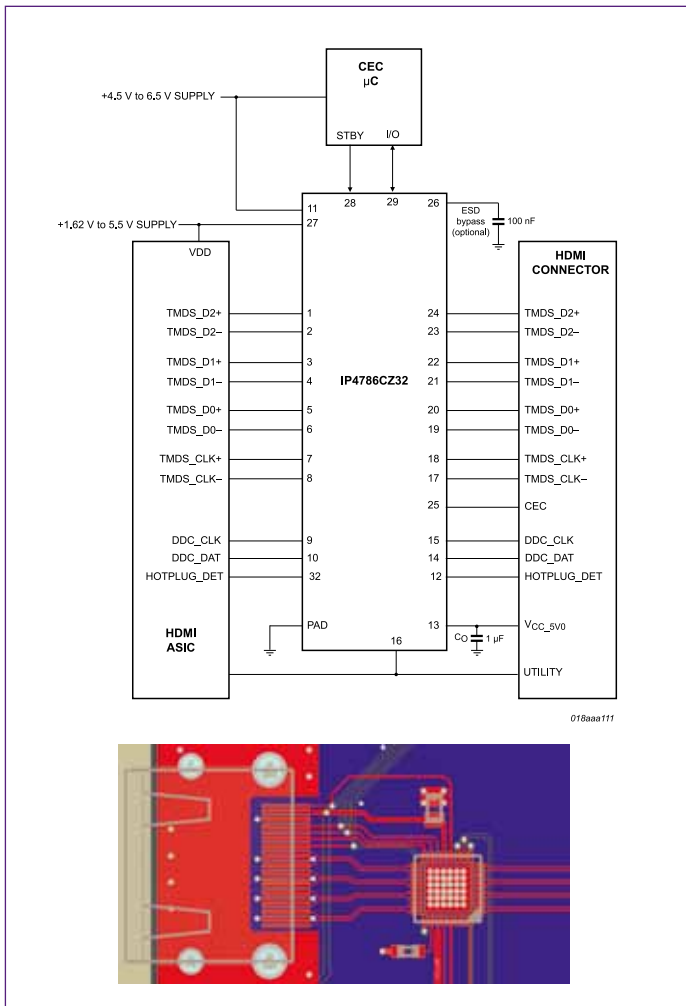
strike entering the system via the HDMI connector. If level shifting is not used, the lines are 5 V compliant.

The TMDS lines are protected by a transmission-line clamping structure that offers superior ESD protection while operating at the full HDMI signal speed of 3.4 Gbps.

Housed in a small HVQFN32 package that measures only 5 x 5 mm, the IP4786CZ32 can be used with any HDMI Type A, Type C, or Type D connector.

Low power consumption during operation and very low standby consumption save energy in consumer applications and extend battery life in mobile applications.

Sample IP4786CZ32 application



The IP4786CZ32 is a complete solution for HDMI signal conditioning

