

### FEATURES

#### General

- Low power HDMI/DVI transmitter ideal for portable applications
- CEC controller and expanded message buffer (3 messages) reduces system overhead
- Incorporates HDMI 1.3 (x.v.Color) technology
- Compatible with DVI 1.0
- Optional embedded HDCP keys to support HDCP 1.3
- 1.8 V and 1.2 V supplies for ultralow operating power
- Video/audio inputs accept logic levels from 1.8 V to 3.3 V

#### Digital video

- 80 MHz operation supports all video and graphics resolutions from 480i to 1080i
- Programmable 2-way color-space converter
- Supports RGB, YCbCr, and DDR
- Supports ITU656-based embedded syncs
- Automatic input video format timing detection (CEA-861-E)

#### Digital audio

- Supports standard S/PDIF for stereo LPCM or compressed audio up to 192 kHz
- 2-channel, uncompressed LPCM I<sup>2</sup>S audio up to 192 kHz

#### Special features for easy system design

- On-chip MPU with I<sup>2</sup>C master to perform EDID reading and HDCP operations; reports HDMI events through interrupts and registers
- 5 V tolerant I<sup>2</sup>C and HPD I/Os, no extra device needed
- No audio master clock needed for supporting S/PDIF and I<sup>2</sup>S
- Compatible with AD9394 HDMI companion chip 5 V generator for Hot Plug detection in portable applications

### APPLICATIONS

- Cellular handsets
- Digital video cameras
- Digital still cameras
- Personal media players
- Gaming
- DVD players and recorders
- Digital set-top boxes
- HDMI repeater

### GENERAL DESCRIPTION

The ADV7523A is an 80 MHz, High-Definition Multimedia Interface (HDMI™) transmitter with expanded CEC buffer. It supports HDTV formats up to 1080i and computer graphic resolutions up to XGA at 75 Hz.

#### Rev. Sp0

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### FUNCTIONAL BLOCK DIAGRAM

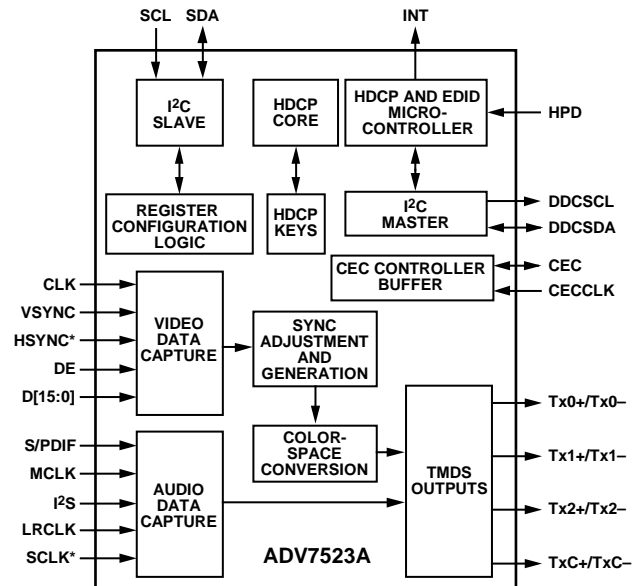


Figure 1.

With the optional inclusion of embedded HDCP keys, the ADV7523A allows the secure transmission of protected content, as specified by the HDCP 1.3 protocol.

The ADV7523A supports x.v.Color™ (gamut metadata) for a wider color gamut.

The ADV7523A supports both S/PDIF and 2-channel I<sup>2</sup>S audio. Its high fidelity, 2-channel I<sup>2</sup>S audio can transmit stereo up to a 192 kHz sampling rate. S/PDIF can carry stereo LPCM audio or compressed audio, including Dolby® digital and DTS®.

The ADV7523A helps to reduce system design complexity and cost by incorporating such features as an I<sup>2</sup>C master for EDID reading, and 5 V tolerance on the I<sup>2</sup>C and Hot Plug™ detect pins.

Fabricated in an advanced CMOS process, the ADV7523A is available in a space saving, 49-ball, WLCSP surface-mount package. This package is RoHS compliant and specified to operate from -25°C to +85°C.

**ADV7523A**

**NOTES**

I<sup>2</sup>C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

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