

FEATURES

General

- Low-power HDMI™/DVI transmitter ideal for portable applications
- CEC controller and buffer reduces system overhead.
- Compatible with HDMI v1.3, DVI v1.0, and HDCP 1.3
- Single 1.8V power supply
- Video/audio inputs accept logic levels from 1.8V to 3.3V

Digital video

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

Digital audio

- Supports standard S/PDIF for stereo LPCM or compressed audio up to 192 kHz
- 8-channel uncompressed LPCM I²S audio up to 192 kHz

Special features for easy system design

- On-chip MPU with I²C® master to perform HDCP operations and EDID reading operations
- 5 V tolerant I²C and HPD I/Os, no extra device needed
- No audio master clock needed for supporting S/PDIF and I²S
- On-chip MPU reports HDMI events through interrupts and registers

APPLICATIONS

- Digital video cameras,
- Digital still cameras
- Personal media players
- Cellular handsets
- DVD players and recorders
- Digital set-top boxes
- A/V receivers
- HDMI repeater

GENERAL DESCRIPTION

The ADV7520NK is an 80 MHz, high definition multimedia interface (HDMI) v.1.3 transmitter. It supports HDTV formats up to 1080i and 720p, and computer graphic resolutions up to XGA (1024 x 768 @ 75 Hz). With the inclusion of HDCP (available in the BGA package only), the

Rev. PrA

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FUNCTIONAL BLOCK DIAGRAM

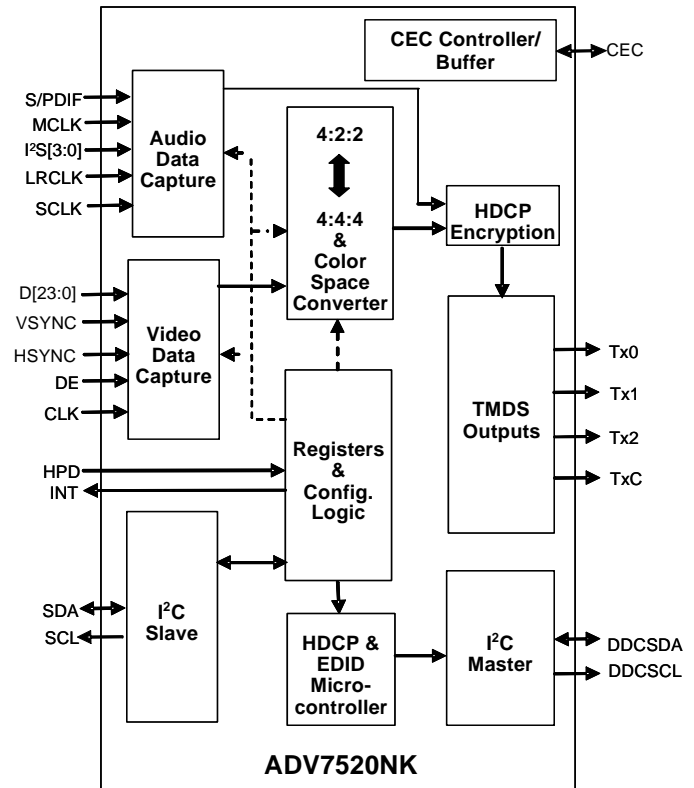


Figure 1.

ADV7520NK allows the secure transmission of protected content as specified by the HDCP v1.3 protocol.

The ADV7520NK supports both S/PDIF and 8-channel I²S audio. Its high fidelity 8-channel I²S can transmit either stereo or 7.1 surround audio at 192 kHz. The S/PDIF can carry stereo LPCM audio or compressed audio including Dolby® Digital and DTS®.

The ADV7520NK helps to reduce system design complexity and cost by incorporating such features as an internal MPU for HDCP operations, an I²C master for EDID reading, a single 1.8V power supply and 5 V tolerance on I²C and hot plug detect pins.

Fabricated in an advanced CMOS process, the ADV7520NK is available in a space saving, 76-ball, CSP_BGA or 64-lead LFCSP surface-mount package. Both packages are available as RoHS compliant and are specified from -25°C to +85°C operational.

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REVISION HISTORY

APPLICATIONS

DESIGN RESOURCES

Analog Devices, Inc. evaluation kits, reference design schematics, and other support documentation are available under NDA from flatpanel_apps@analog.com.

Other resources include:

EIA/CEA-861D that describes audio and video infoframes as well as the E-EDID structure for HDMI. It is available from Consumer Electronics Association (CEA).

The *HDMI v1.3*, a defining document for HDMI Version 1.3, and the *HDMI Compliance Test Specification Version 1.3* are available from HDMI Licensing, LLC.

The *HDCP v1.3* is the defining document for HDCP Version 1.3. available from Digital Content Protection, LLC.

OUTLINE DIMENSIONS

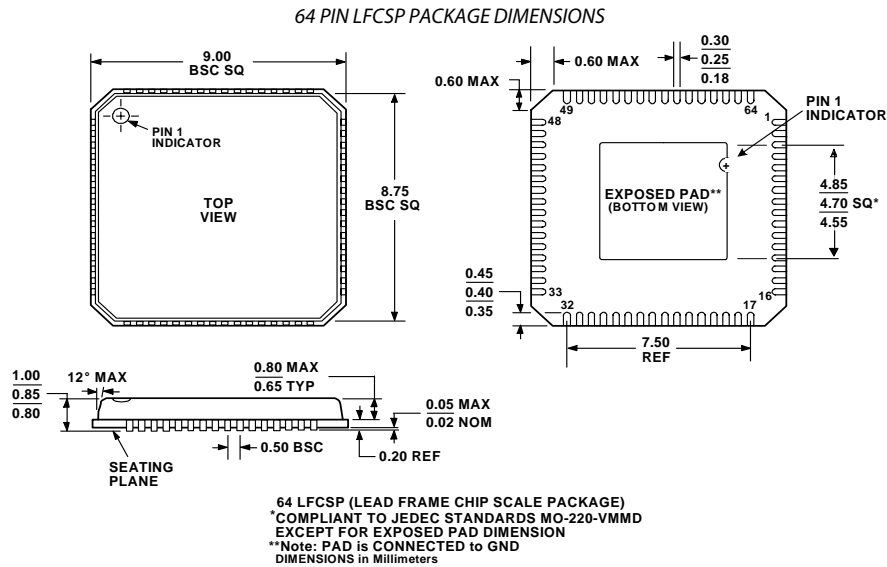


Figure 6. 64-pin LFCSP
 Dimensions shown in millimeters

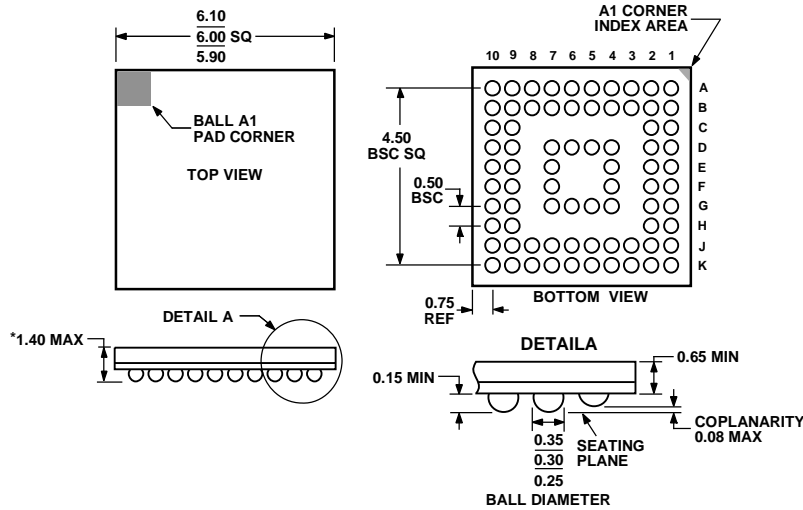


Figure 7. 76-Ball Chip Scale Package Ball Grid Array [CSP_BGA]
 6 mm × 6 mm × 1.4 mm
 (BC-76)
 Dimensions shown in millimeters

ORDERING GUIDE

Model	Temp. Range	Package Description	Package Option
ADV7520NKBCPZ-80 ¹	-25°C to +85°C	64-pin Lead Formed Chip Scale Package	CP-64
ADV7520NKBBCZ-80	-25°C to +85°C	76-Ball Chip Scale Package Ball Grid Array [CSP_BGA]	BC-76
ADV7520NKBBCZRL-80	-25°C to +85°C	76-Ball Chip Scale Package Ball Grid Array [CSP_BGA]	BC-76
ADV7520NK/PCBZ		Evaluation Board	

¹ All packages are RoHS compliant

NOTES