Product Brief

VastLane™ HDMI Receiver

Four-port HDMI Receiver with Deep Color, HD Lossless Audio, Repeater and Mobile High-Definition Link Support

The VastLane SiI9233 HDMI 1.3 receiver delivers advanced features such as 1080p Deep Color, HD lossless audio and x.v.Color expanded color gamut to high-definition A/V Receivers. The SiI9233 supports Silicon Image's Mobile High-Definition Link (MHL) technology that enables mobile devices such as portable media players, mobile phones and digital cameras to connect to A/V Receivers for distribution of their HD content.

The SiI9233 supports up to 36-bit color depth at 1080p/60Hz and x.v.Color that allows for the display of roughly 1.8 times the color range allowed by present industry standards. The SiI9233 supports HD lossless audio, enabling A/V receivers to decode next generation compressed lossless audio formats such as Dolby® True HD and DTS-HD™. Super Audio CD, DVD Audio and multi-channel audio at 192kHz and stereo audio are also supported.

The SiI9233 includes a receiver programming interface that significantly reduces the software overhead required to control the receiver.

The SiI9233 integrates non-volatile memory based extended display identification data (EDID) that is loaded during power-up or initialization into four separate EDID RAMs. The embedded EDIDs simplify the architecture, reduce BOM cost and save PCB real-estate.

The SiI9233 integrated HDMI compliant Consumer Electronics Control (CEC) hardware and API help reduce BOM cost and development time. The CEC I/O eliminates the need for additional external components and the CEC API manages communication of all CEC commands and signalling, significantly lowering system-level control by the system microcontroller and simplifying firmware overhead.

The SiI9233 supports power down modes. Separate power islands for the CEC and EDID allow these features to be fully operational during power down.

The SiI9233 built-in HDCP decryption engine and pre-programmed HDCP keys secures the digital link for transmission of protected high-definition content and reduces manufacturing complexity and cost. The SiI9233 supports full HDCP repeater functionality.

The SiI9233 uses Silicon Image's HDMI 1.3 compliant TMDS core supporting dynamic cable equalization that auto-detects and applies appropriate equalization to provide the best-in-class support for long cable lengths.

The SiI9233 supports Silicon Image's MHL technology, a low power, low-pin-count HDMI-compatible solution for mobile devices such as mobile phones, cameras and camcorders. MHL-equipped mobile devices can connect directly to A/V receivers via the SiI9233 for distribution and display of their HD content on the HDTV.

SiI9233

Applications

- A/V receivers
- Wireless media boxes & adapters

Key Features

- Four HDMI 1.3 inputs
- 36-bit Deep Color at 1080p/60Hz
- MHL ready
- Supports Dolby TrueHD & DTS-HD high-bit-rate lossless audio formats
- Full HDCP repeater
- Built-in consumer electronics control with CEC – API
- Four EDIDs for the four HDMI ports

HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

Sil9233 Features

Sil9233 Starter Kit (CP9233)

Contents include:

Hardware

- Sil9233 HDMI 1.3 receiver daughter board
- Sil9134 HDMI 1.3 transmitter daughter board
- Motherboard
- HDMI to HDMI cable
- AC power supply

Software

- Windows debug software tool

Documentation

- User's guide
- Schematics
- Bill of materials (BOM)

Industry-Standard Compliance

- HDMI 1.3
- DVI 1.0
- EIA/CEA-861D
- HDCP 1.3

Package

- 20mm x 20mm 144-pin TQFP with ePad

Digital Video Input/Output

- Four HDMI 1.3 ports with MHL support
- Supports video resolutions up to 1080p @ 60Hz or 720p/1080i @ 120Hz with 36-bit color depth
- Flexible digital video interface:
  - 24/30/36-bit RGB/YCbCr 4:4:4
  - 16/20/24-bit YCbCr 4:2:2
  - 8/10/12-bit YCbCr 4:2:2 (ITU-R BT.656)
- Integrated x.v.Color and RGB color space converter for both RGB-to-YCbCr and YCbCr-to-RGB (both 601 and 709) with true 12-bit accuracy using 14-bit processing
- 4:2:2 to 4:4:4 converter with 12-bit accuracy using 14-bit processing

HDMI Receiver Programming Interface

- Minimal software overhead to control device
- Automatic Video and Audio Control
- Automatic mute and un-mute of audio

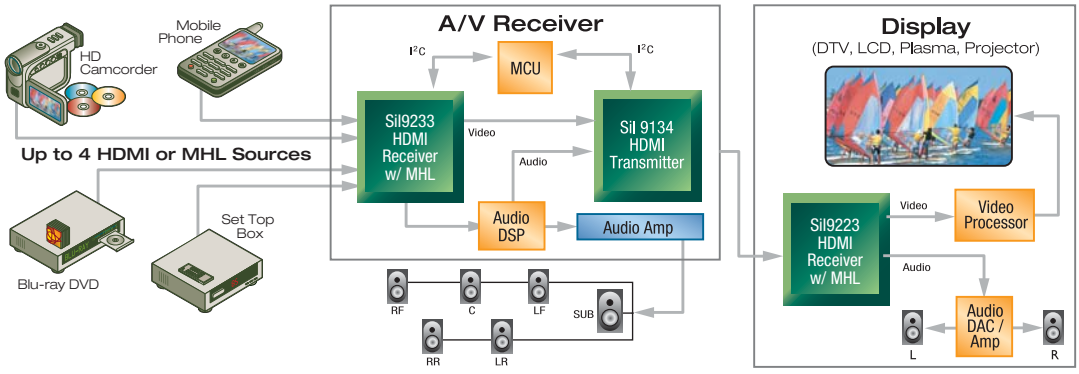
Built-in Consumer Electronics Control

- HDMI-compliant CEC I/O simplifies design and lowers cost
- Integrated CEC Programming Interface (CPI) lowers software overhead
- Automatic Feature Abort response for unsupported commands
- Automatic message retry on transmit
- Integrated EDID in non-volatile memory
- Optional registers to override EDIDs

Power Management

- Flexible power management
- Separate Standby power pin
- Standby power can be obtained locally or from HDMI +5V signal
- Extremely low standby power

Sil9233 Typical Application



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Part Number: Sil9233CTU

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