IT6803TE

Dual-port MHL2.1/HDMI1.4 Receiver with 3D Support

Preliminary Datasheet

ITE TECH. INC.

General Description

The IT6803TE is a dual-port HDMI receiver which port-0 can operate in both HDMI1.4 and MHL2.1 dual mode, it is fully compatible with MHL2.1, HDMI 1.4b, HDMI 1.4b 3D and HDCP 1.4 and also backward compatible to DVI 1.0 specifications. The IT6803TE with its Deep Color capability (up to 36-bit) ensures robust reception of high-quality uncompressed video content, along with state-of-the-art uncompressed and compressed digital audio content such as DTS-HD and Dolby TrueHD in digital televisions and projectors. The IT6803TE also supports all the primary 3D formats which are compliant with the HDMI 1.4b 3D specification.

Aside from the various video output formats supported, the IT6803TE also receives and provides up to 8 channels of I^2S digital audio outputs, with sampling rate up to 192kHz and sample size up to 24 bits, facilitating direct connection to industry-standard low-cost audio DACs. Also, an S/PDIF output is provided to support up to compressed audio of 192kHz frame rate. Super Audio Compact Disc (SACD) is supported at up to 8 channels and 88.2kHz through DSD (Direct Stream Digital ports) ports.

The High-Bit Rate (HBR) audio is also provided by the IT6803TE in two interfaces: with the four I^2S input ports or the S/PDIF input port. With both interfaces the highest possible HBR frame rate is supported at up to 768kHz.

Each IT6803TE comes preprogrammed with an unique HDCP key, in compliance with the HDCP 1.4 standard so as to provide secure transmission of high-definition content. Users of the IT6803TE need not purchase any HDCP keys or ROMs.

Features

- Dual-port HDMI 1.4b receiver.
- Port-0 support MHL2.1, HDMI1.4b dual mode input. Port-1 support HDMI1.4b signal input.
- MHL/HDMI mode auto detection for port-0.
- MHL RCP command to HDMI CEC interactive translation.
- Compliant with MHL2.1, HDMI 1.4b, HDMI 1.4b 3D, HDCP 1.4 and DVI 1.0 specifications
- Supporting link speeds of up to 3.0Gbps (link clock rate of 300MHz) for 4K2K or 1080p@120hz solution. And up to 1080p@60hz on MHL packed pixel mode.
- Supporting all the primary 3D formats which are compliant with the HDMI 1.4b 3D specification.
  - ◆ Supporting 3D video up to 1080P@50/59.95/60/120Hz, 1080P@23.98/24/29.97/30Hz, 1080i@50/59.94/60/Hz, 720P@23.98/24/29.97/30Hz, 720P@50/59.94/60Hz
  - ◆ Supporting formats: Framing Packing, Side-by-Side (half), Top-and-Bottom.

- Video output interface supporting digital video standards such as:
    - 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 BT-656)
    - 12/15/18-bit double data rate interface (data bus width halved, clocked with both rising and falling edges) for RGB/YCbCr 4:4:4
    - 24/30/36-bit double data rate interface (full bus width, pixel clock rate halved, clocked with both rising and falling edges)
    - 24-bit dual pixel interface (dual pixel, pixel clock rate halved, only for 4:4:4 non-CSC and non-pixel repeating mode)
    - Input channel swap
    - MSB/LSB swap (Only for deep color 12bpp mode)
- Bi-direction Color Space Conversion (CSC) between RGB and YCbCr color spaces with programmable coefficients.
- Up/down sampling between YCbCr 4:4:4 and YCbCr 4:2:2
- Dithering for conversion from 12-bit component to 10-bit/8-bit
- Digital audio output interface supporting
    - up to four I^2S interface supporting 8-channel audio, with sample rates of 32~192 kHz and sample sizes of 16~24 bits
    - S/PDIF interface supporting PCM, Dolby Digital, DTS digital audio at up to 192kHz frame rate
    - Optional support for 8-channel DSD audio up to 8 channels at 88.2kHz sample rate
    - Support for high-bit-rate (HBR) audio such as DTS-HD and Dolby TrueHD through the four I^2S interface or the S/PDIF interface, with frame rates as high as 768kHz
    - automatic audio error detection for programmable soft mute, preventing annoying harsh output sound due to audio error or hot-unplug
- Auto-calibrated input termination impedance provides process-, voltage- and temperature-invariant matching to the input transmission lines.
- Integrated pre-programmed HDCP keys
- Integrated programmable EDID RAM
- Intelligent, programmable power management
- 144-pin TQFP with Epad (14mm x 14mm) package
- RoHS Compliant (100% Green available)

Ordering Information

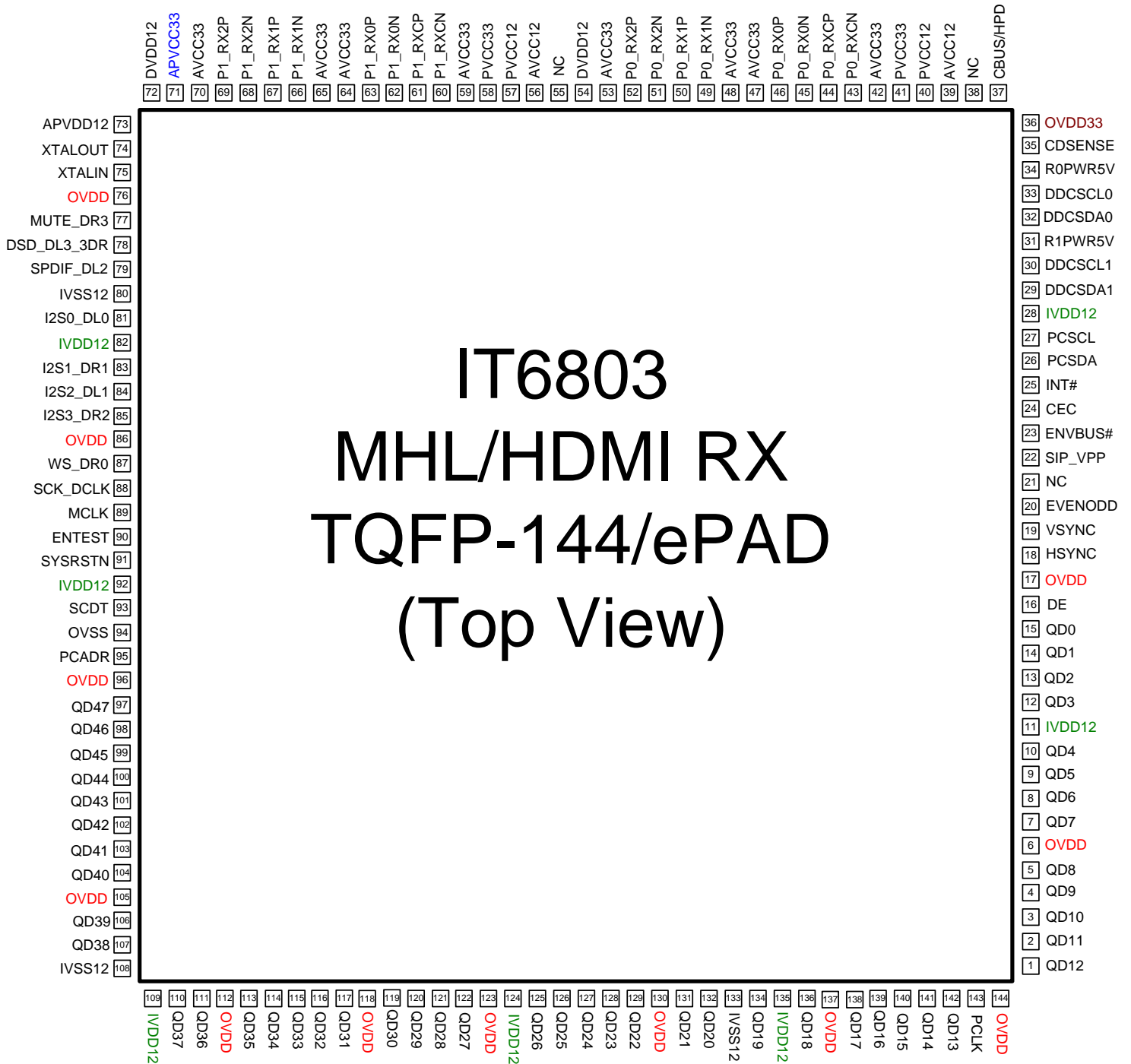| Model	Temperature Range	Package Type	Green/Pb free Option
IT6803TE	-20~70	144-pinTQFP with Epad	Green

Pin Diagram

Figure 1. IT6803TE pin diagram

Note:

1. *Pins marked with NC should be left unconnected.*