

# THCV231(-Q), THCV235(-Q) and THCV236(-Q)

SerDes transmitter and receiver with bi-directional transceiver

## General Description

The THCV231(-Q), THCV235(-Q) and THCV236(-Q) are designed to support video data transmission between the host and display.

### THCV231(-Q)

One high-speed lane can carry up to 14bits data at a pixel clock frequency from 12MHz to 160MHz.

### THCV235(-Q)/THCV236(-Q)

One high-speed lane can carry up to 32bit data and 3bits of synchronizing signals at a pixel clock frequency from 6MHz to 160MHz by converting RGB444 to YCbCr422.

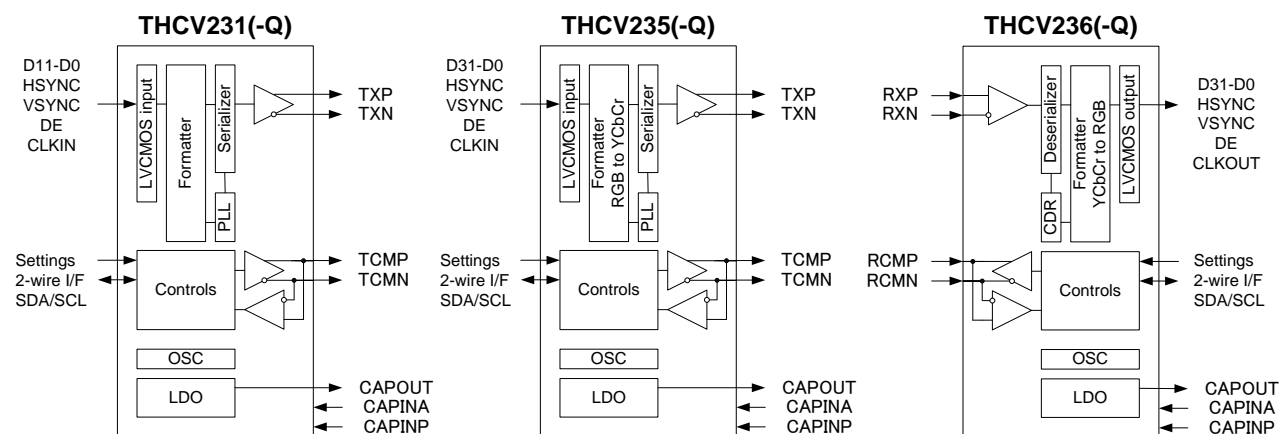
The chipset, which has one high-speed data lane, can transmit video data up to 1080p/60Hz.

The maximum serial data rate is 4.00Gbps/lane.

## Features

- RGB ⇄ YCbCr422 color space conversion function (THCV235(-Q)/THCV236(-Q))
- Wide frequency range
- CDR requires no external frequency reference
- Wide range supply voltage from 1.7V to 3.6V
- Additional spread spectrum on data stream
- 2-wire serial interface bridge function(400kbps)
- Remote side GPIO control and monitoring
- Low speed data bridge function (THCV235(-Q)/THCV236(-Q))
- THCV231(-Q):  
QFN32 (5mm x 5mm) with exposed pad ground
- THCV235(-Q)/THCV236(-Q):  
QFN64 (9mm x 9mm) with exposed pad ground
- Automotive grade product : AEC-Q100 Grade 2 compliant (THCV231-Q/THCV235-Q/THCV236-Q)
- ISO/TS16949 compliant (THCV231-Q/THCV235-Q/THCV236-Q)
- V-by-One® HS standard version1.4 compliant(THCV235(-Q)/THCV236(-Q))
- RoHS compliant

## Block Diagram



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## **Notices and Requests**

1. The product specifications described in this material are subject to change without prior notice.
2. The circuit diagrams described in this material are examples of the application which may not always apply to the customer's design. We are not responsible for possible errors and omissions in this material. Please note if errors or omissions should be found in this material, we may not be able to correct them immediately.
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5. Product Application
  - 5.1 Application of this product is intended for and limited to the following applications: audio-video device, office automation device, communication device, consumer electronics, smartphone, feature phone, and amusement machine device. This product must not be used for applications that require extremely high-reliability/safety such as aerospace device, traffic device, transportation device, nuclear power control device, combustion chamber device, medical device related to critical care, or any kind of safety device.
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6. Despite our utmost efforts to improve the quality and reliability of the product, faults will occur with a certain small probability, which is inevitable to a semi-conductor product. Therefore, you are encouraged to have sufficiently redundant or error preventive design applied to the use of the product so as not to have our product cause any social or public damage.
7. Please note that this product is not designed to be radiation/proof.
8. Customers are asked, if required, to judge by themselves if this product falls under the category of strategic goods under the Foreign Exchange and Foreign Trade Control Law.

***THine Electronics, Inc.***

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