



# THCV241-Q

SerDes transmitter with bi-directional transceiver

## General Description

THCV241-Q is designed to support 1080p60 2Mpixel uncompressed video data over 15m 100ohm differential STP or single-end 50ohm Coaxial cable with 4 in-line connectors between camera and processor by V-by-One<sup>®</sup> HS.

THCV241-Q supports a MIPI CSI-2. Each CSI-2 data lane can transmit up to 1.2Gbps/lane. Virtual channel is supported.

One high-speed V-by-One<sup>®</sup> HS lane can transmit up to 1080p60fps. The maximum serial data rate is 4Gbps/lane. 2nd output lane supports HDR large amount of data or data copy-and-distribution experience.

THCV241-Q is capable to control and monitor camera module from remote ECU via GPIO, UART or 1Mbps 2-wire serial interface.

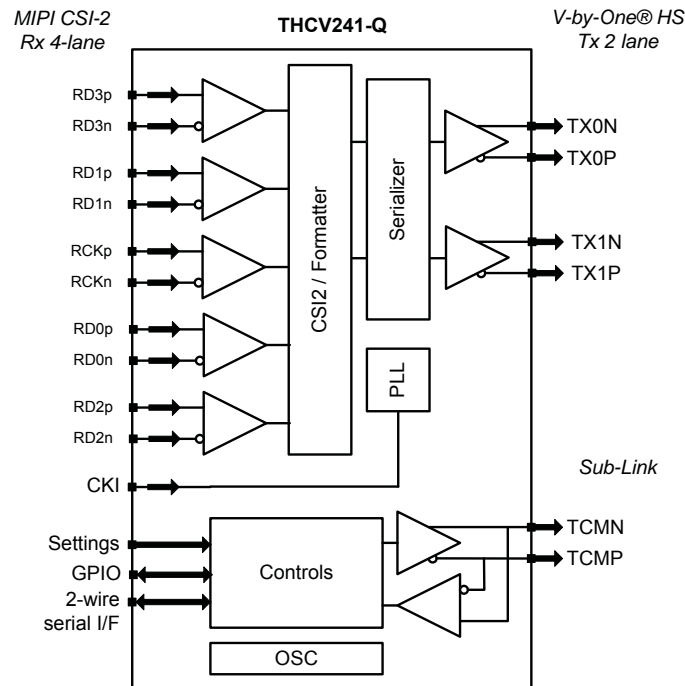
Several fault and error detection function including CRC provides vehicle hardware functional safety design.

## Features

- MIPI CSI-2 with 1,2 or 4-lane input
- MIPI D-PHY supports 80Mbps~1.2Gbps
- MIPI Virtual channel supported
- Video formats: RAW8/10/12/14/16/20, YUV422/420, RGB888/666/565, JPEG, User-defined generic 8-bit
- V-by-One<sup>®</sup> HS 400Mbps~4Gbps x2lane
- V-by-One<sup>®</sup> HS standard version1.5
- Reference clock input CKI range 10~40MHz shareable with video source CMOS sensor
- Wide range IO voltage from 1.7V to 3.6V
- Additional spread spectrum to reduce EMI
- 2-wire serial interface 1Mbps bridge function
- Remote GPIO/UART control and monitoring
- Error detection including CRC and notification
- QFN40 5x5mm 0.4mm pitch Exp-pad package
- AEC-Q100 Grade 2 (-40 to 105degC)

MIPI is a licensed trademark of MIPI, Inc. in the U.S. and other jurisdictions.

## Block Diagram



## 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.
3. This material contains our copyright, know-how or other proprietary. Copying or disclosing to third parties the contents of this material without our prior permission is prohibited.
4. Note that if infringement of any third party's industrial ownership should occur by using this product, we will be exempted from the responsibility unless it directly relates to the production process or functions of the product.
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.
  - 5.2 This product is not intended to be used as an automotive part, unless the product is specified as a product conforming to the demands and specifications of ISO/TS16949 ("the Specified Product") in this data sheet. THine Electronics, Inc. ("THine") accepts no liability whatsoever for any product other than the Specified Product for it not conforming to the aforementioned demands and specifications.
  - 5.3 THine accepts liability for demands and specifications of the Specified Product only to the extent that the user and THine have been previously and explicitly agreed to each other.
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. Testing and other quality control techniques are used to this product to the extent THine deems necessary to support warranty for performance of this product. Except where mandated by applicable law or deemed necessary by THine based on the user's request, testing of all functions and performance of the product is not necessarily performed.
9. 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.
10. The product or peripheral parts may be damaged by a surge in voltage over the absolute maximum ratings or malfunction, if pins of the product are shorted by such as foreign substance. The damages may cause a smoking and ignition. Therefore, you are encouraged to implement safety measures by adding protection devices, such as fuses.

## ***THine Electronics, Inc.***

[sales@thine.co.jp](mailto:sales@thine.co.jp)

<http://www.thine.co.jp>

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А