

**Clockless Link™**

# Serial Interface Transceiver LSI

**BU17074KV**
**General Description**

BU17074KV supports parallel data transmission by ROHM's original CDR (Clock Data Recovery) technology. This chip supports transmitter feature and receiver feature alternatively.

BU17074KV transmits or receives 24bit RGB video data and 3bit DE/Vsync/Hsync signals via one pair Clockless Link™.

**Features**

- High-speed differential serial interface (Maximum 2.7Gbps)
- No need of lock condition signal or reset signal between transmitter and receiver. (Only differential signals)
- Low EMI transmission by original DC balance protocol and scrambling.
- Selectable 2 modes of CMOS parallel output current. (Receiver Mode)
- The internal filter reduces an image disturbance. This is effective for the external noise that affects differential wire.

**Applications**

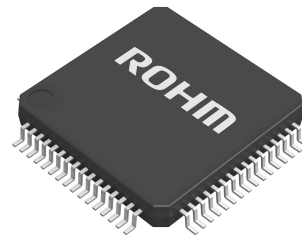
- LCD
- Image sensor

**Key Specifications**

- |                                |                    |
|--------------------------------|--------------------|
| ■ 3.3V voltage range:          | 2.3 to 3.6 V       |
| ■ I/O voltage range:           | 2.3 to 3.6 V       |
| ■ Clock frequency range:       | 20M to 75M Hz      |
| ■ Transmission data rate:      | 0.72G to 2.70 Gbps |
| ■ Effective throughput:        | 0.56G to 2.10 Gbps |
| ■ Operating temperature range: | -40 to +85 °C      |

**Package**

VQFP64

 W(Typ.) x D(Typ.) x H(Max.)  
 12.00mm x 12.00mm x 1.60mm


Block Diagram

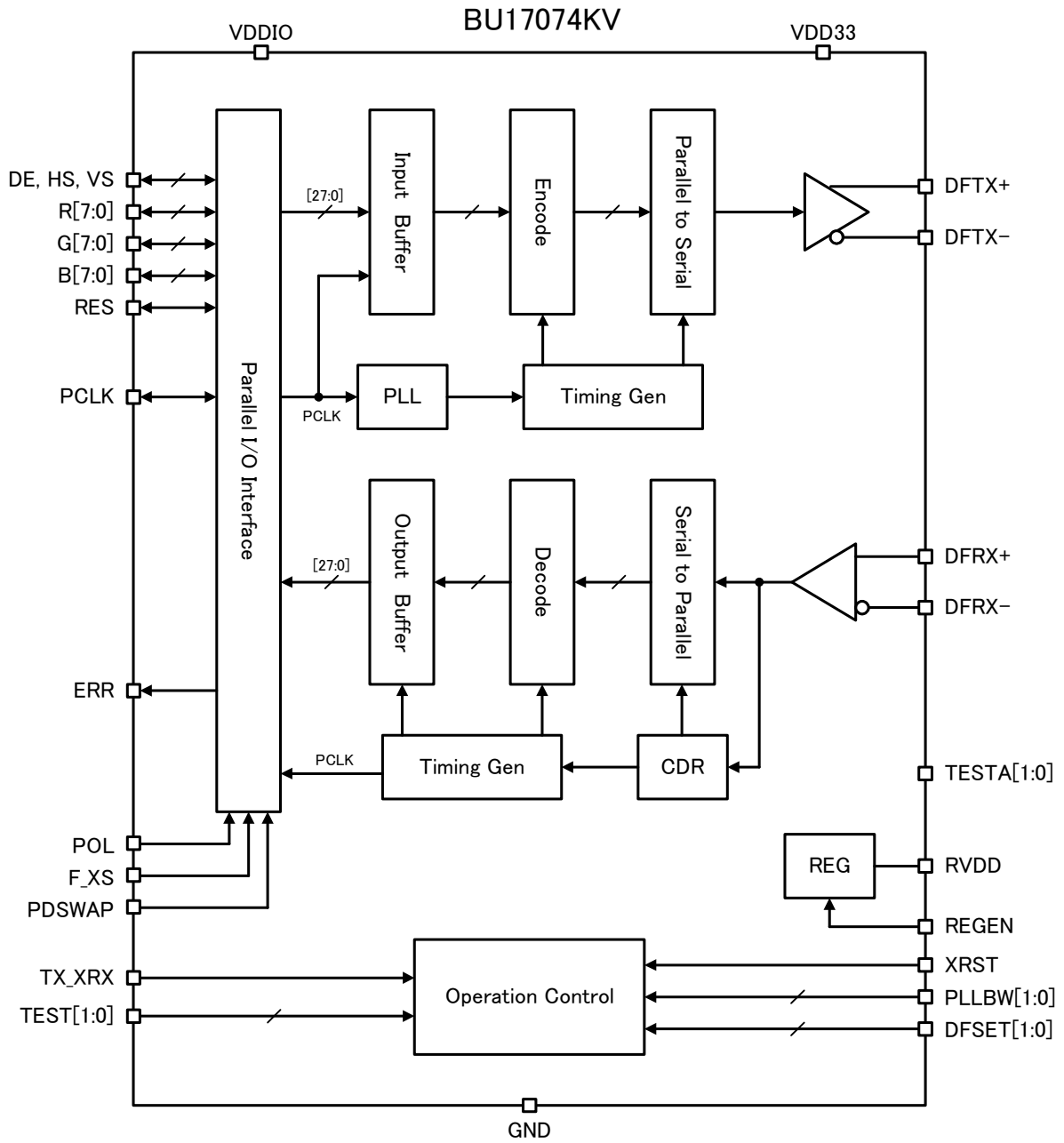


Figure 1. Block Diagram

Typical Application Circuit

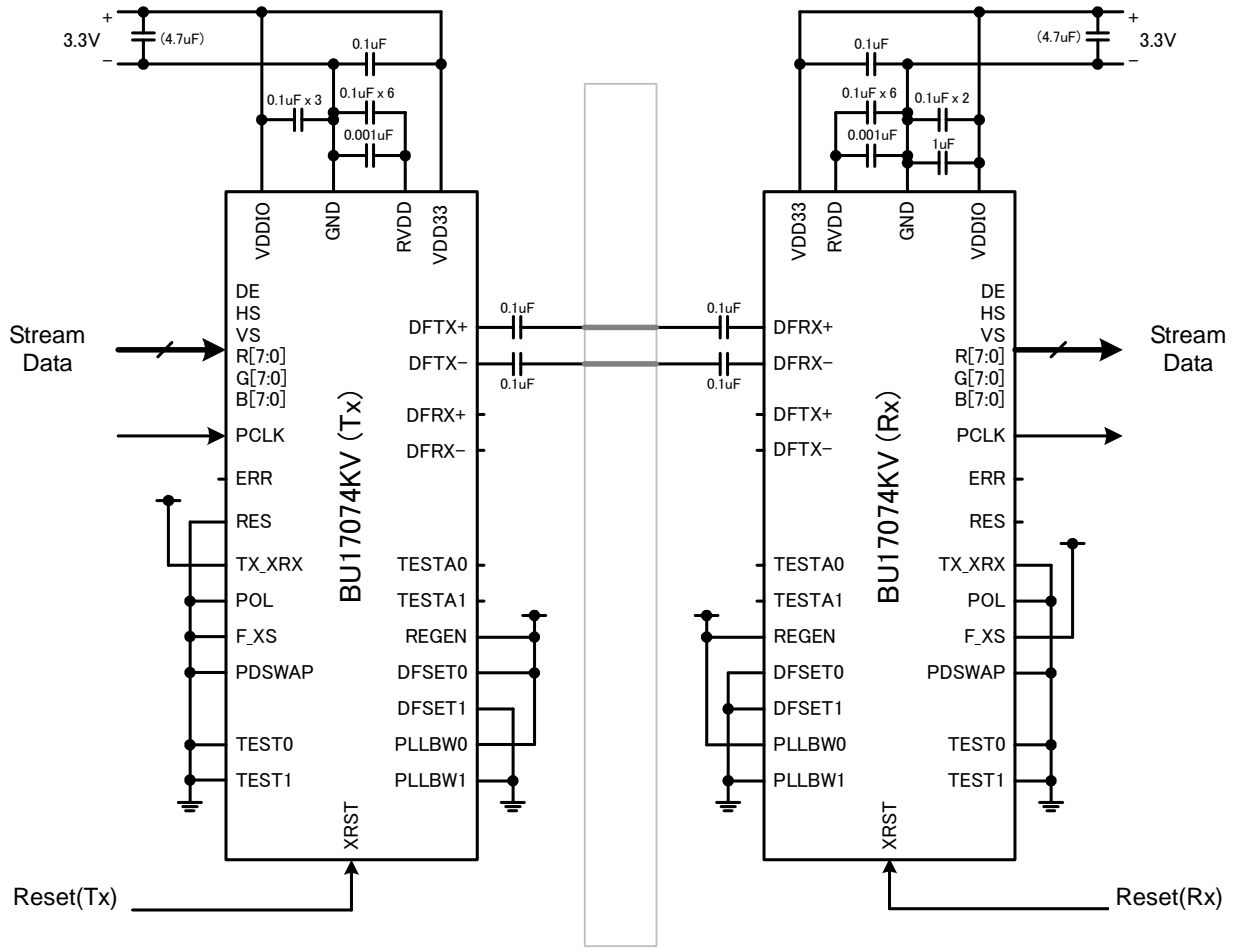
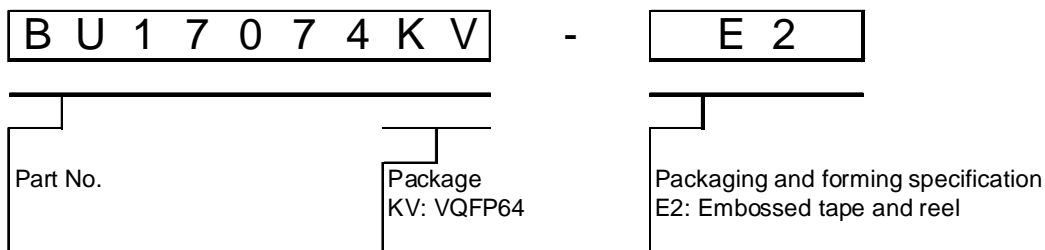


Figure 2. Typical Application Circuit

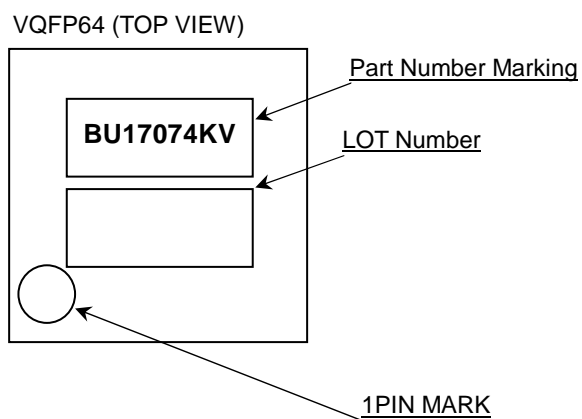
< Recommended coupling capacitors position >

Pin	Pin No.	Transmitter PCB (Tx)	Receiver PCB (Rx)
VDD33	56, 57	0.1uF	0.1uF
VDDIO	9	0.1uF	0.1uF
	25	0.1uF	1uF
	41	0.1uF	0.1uF
RVDD	2	0.1uF	0.1uF
	47	0.1uF	0.1uF
	54	0.1uFx2	0.1uFx2, 0.001uF
	59	0.1uFx2, 0.001uF	0.1uFx2

Ordering Information

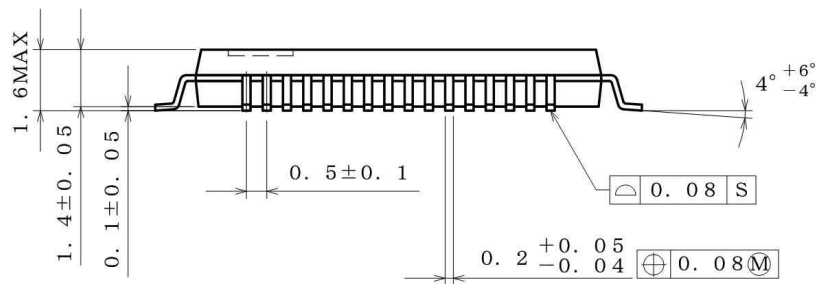
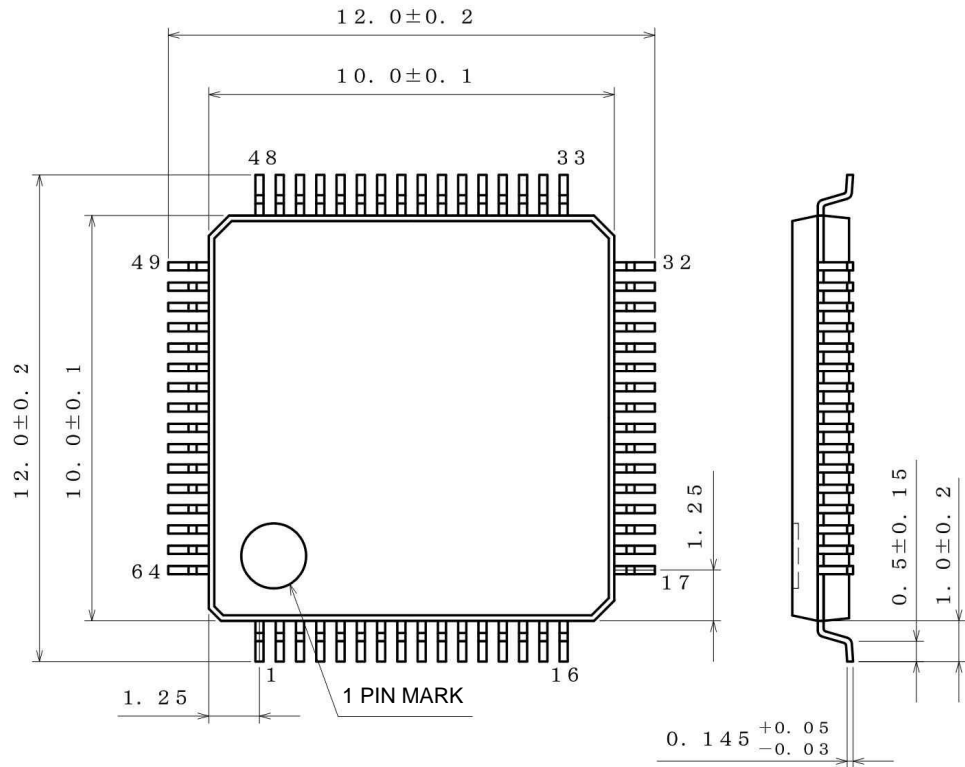


Marking Diagram



Physical Dimension Tape and Reel Information

Package Name	VQFP64
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(UNIT : mm)  
 PKG : VQFP64  
 Drawing: EX252-5001-1

<Tape and Reel information>

Tape	Embossed carrier tape (with dry pack)
Quantity	1000pcs
Direction of feed	E2 ( The direction is the 1pin of product is at the upper left when you hold reel on the left hand and you pull out the tape on the right hand )

\*Order quantity needs to be multiple of the minimum quantity.

**Revision History**

Date	Revision	Changes
27.Oct.2014	006	New Release

# Notice

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- Our Products are designed and manufactured for application in ordinary electronic equipments (such as AV equipment, OA equipment, telecommunication equipment, home electronic appliances, amusement equipment, etc.). If you intend to use our Products in devices requiring extremely high reliability (such as medical equipment <sup>(Note 1)</sup>, transport equipment, traffic equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or failure may cause loss of human life, bodily injury or serious damage to property ("Specific Applications"), please consult with the ROHM sales representative in advance. Unless otherwise agreed in writing by ROHM in advance, ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of any ROHM's Products for Specific Applications.

(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASS III	CLASS III	CLASS II b	CLASS III
CLASS IV		CLASS III	

- ROHM designs and manufactures its Products subject to strict quality control system. However, semiconductor products can fail or malfunction at a certain rate. Please be sure to implement, at your own responsibilities, adequate safety measures including but not limited to fail-safe design against the physical injury, damage to any property, which a failure or malfunction of our Products may cause. The following are examples of safety measures:
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  - Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
  - Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
  - Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
  - Sealing or coating our Products with resin or other coating materials
  - Use of our Products without cleaning residue of flux (even if you use no-clean type fluxes, cleaning residue of flux is recommended); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
  - Use of the Products in places subject to dew condensation
- The Products are not subject to radiation-proof design.
- Please verify and confirm characteristics of the final or mounted products in using the Products.
- In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse. is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta). When used in sealed area, confirm the actual ambient temperature.
- Confirm that operation temperature is within the specified range described in the product specification.
- ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

## Precaution for Mounting / Circuit board design

- When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

**Precautions Regarding Application Examples and External Circuits**

1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
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**Precaution for Electrostatic**

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

**Precaution for Storage / Transportation**

1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
  - [a] the Products are exposed to sea winds or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - [b] the temperature or humidity exceeds those recommended by ROHM
  - [c] the Products are exposed to direct sunshine or condensation
  - [d] the Products are exposed to high Electrostatic
2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

**Precaution for Product Label**

QR code printed on ROHM Products label is for ROHM's internal use only.

**Precaution for Disposition**

When disposing Products please dispose them properly using an authorized industry waste company.

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