



GSV6155

Type-C/DisplayPort 1.4 Retimer with
Embedded MCU and PD Controller

Oct, 2023

Preliminary Product Specification

1. General Description

1.1 General Information

Gscoolink GSV6155 is a high-performance, low-power Type-C/DisplayPort 1.4 retimer. By integrating enhanced microcontroller, GSV6155 has created a cost-effective solution that provides time-to-market advantages. The DisplayPort Receiver and Transmitter support up to 32.4Gbps (HBR3, 4-lane). With embedded Channel Configuration (CC), Power Delivery (PD) controller and Billboard USB 2.0 controller, GSV6155 can support dual Type-C Alternate DisplayPort both as UFP and DFP in Type-C Alternate DisplayPort retimer application. GSV6155 also supports eDP Transmitter up to 21.6Gbps (HBR3, 4-lane). The superior architecture of GSV6155 provides economical smaller footprint solutions using QFN64, targeting for low power embedded applications.

With extra pins for DFP USB 3.0 SS RX1/TX1, GSV6155 can support “C”/”D”/”E” pin assignments for both UFP/DFP which can be compatible with 4-lane Alt-DP mode and USB 3.0 + 2-lane Alt-DP mode.

Within 4KV HBM tolerance, GSV6155's operation temperature range is -40 °C to 85 °C using automotive qualified process.

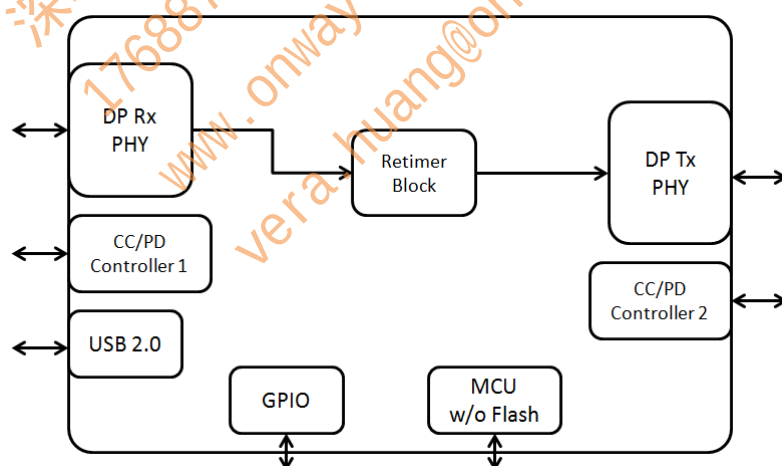


Figure 1. Top Diagram

1.2 Features

1.2.1 DisplayPort Receiver

- Compliant with VESA DisplayPort 1.4a
- Compliant with HDCP 2.2/2.3 and HDCP 1.4
- Compliant with both DisplayPort and USB Type-C Alternative Mode
- Support HBR3, HBR2, HBR and RBR (8.1/5.4/2.7/1.62 Gbps)
- Flexible MUX and Pins Swap
- Flexible 1/2/4 lane Main-Link configuration
- Programmable Adaptive Equalization
- Support Full-Link Training and No-Link Training
- Embedded arbitrary EDID and MCCS
- Support Spread Spectrum Clock (SSC)

1.2.2 DisplayPort/eDP Transmitter

- Compliant with VESA DisplayPort 1.4a
- Compliant with HDCP 2.2/2.3 and HDCP 1.4
- Compliant with both DisplayPort and USB Type-C Alternative Mode
- Support HBR3, HBR2, HBR and RBR (8.1/5.4/2.7/1.62 Gbps)
- Support 2.16/2.43/3.24/4.32 Gbps
- Support Backlight Control and MCCS over AUX
- Support ASSR
- Flexible 1/2/4 lane Main-Link configuration
- Programmable Adaptive Equalization
- Support Spread Spectrum Clock (SSC)

1.2.3 USB Type-C DisplayPort Alternative Mode Transceiver and

Receiver

- Compliant with USB Type-C 1.1/1.0 Specification
- Compliant with USB Power Delivery 3.0 Specification
- Programmable USB Type-C Channel Configuration function
- Support Billboard in USB 2.0

1.2.4 System Features

- Embedded MCU using External Flash
- External 25MHz Crystal required

- Available Pins for UART/Timer/GPIO control from embedded MCU
- Mailbox feature for external MCU access on chip function status
- Temperature Sensor Monitoring Circuit

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1.3 Chip Application Modes

1.3.1 Type-C Alt-Mode In to Out Application

RxPort is configured as Type-C Alt-Mode (DisplayPort) Rx Input. Together with on-chip CC, USB 2.0 IP support, Type-C USB input can be configured to DisplayPort 1.4a input stream for processing. TxPort is configured as DisplayPort Tx Output. Together with another on-chip CC IP support, Type-C USB output can be configured for DisplayPort 1.4a output stream.

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2. Pin Description

2.1 Pin Diagram

QFN64 Pin definition is defined as below.

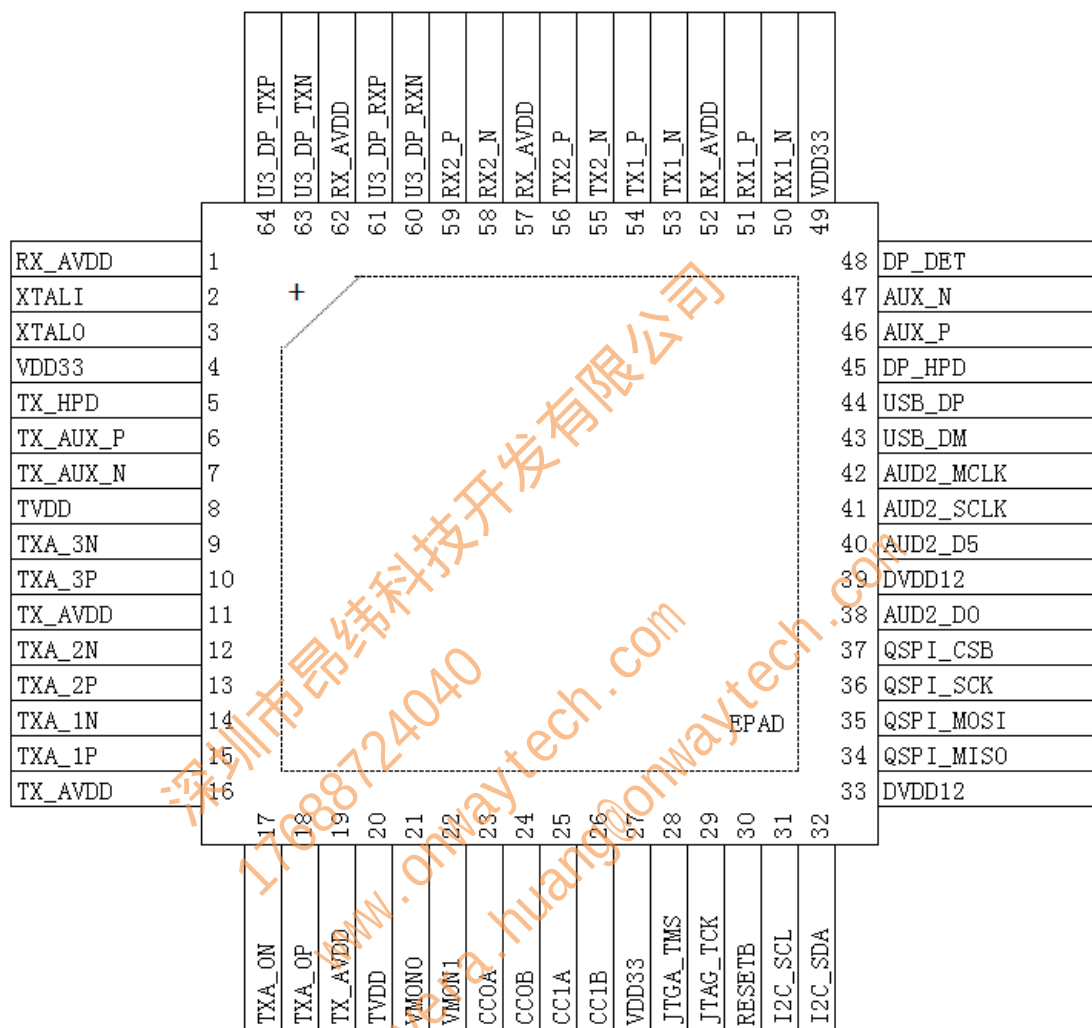


Figure 2. GSV6155 QFN64 Pin Diagram

2.2 QFN64 Pin Description

Table 1. QFN64 Pin Description

Pin Name	Direction	Pin No.	Description
Type-C UFP/DisplayPort RX Pins			
DP_DET	I	48	DP: RX DP Detection PAD
DP_HPD	O	45	DP: RX HPD PAD
AUX_P	I/O	46	DP: RX AUX_P PAD
AUX_N	I/O	47	DP: RX AUX_N PAD

4. Package Information

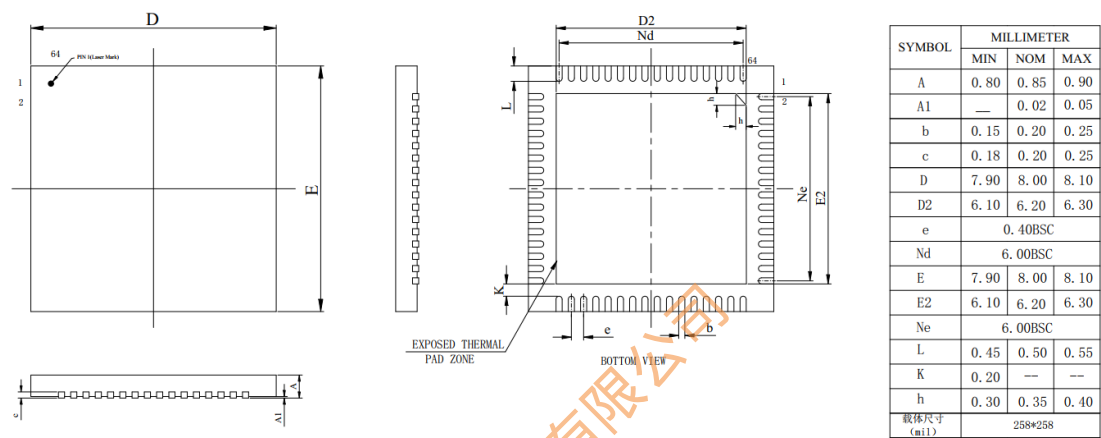


Figure 6. Package Dimensions (QFN64)

5. Ordering Guide

Table 6. Ordering Information

Part Number.	Temperature Range	Package Description	Packing Type
GSV6155	−40°C to +85°C	QFN64	Tray

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