



GSV6128E

Embedded DisplayPort 1.4 to LVDS
Converter with Audio Extraction and
Embedded MCU

May, 2024

Preliminary Product Specification

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1. General Description

1.1 General Information

Gscoolink GSV6128E is a high-performance, low-power Embedded DisplayPort 1.4 to LVDS converter. With Dual Port LVDS interface, genuine 4K60 444 can be transmitted using LVDS interface. By integrating enhanced microcontroller, GSV6128E has created a cost-effective solution that provides time-to-market advantages. The DisplayPort Receiver supports up to 32.4Gbps (HBR3, 4-lane). The superior architecture of GSV6128E provides economical smaller footprint solutions using QFN76, targeting automotive and video conference applications.

Color Space Conversion, 420-444/422 Conversion, De-Interlacer and Downscaler are supported for flexible video processing.

Within 8kV HBM tolerance for Type-C interface pins, GSV6128E's operation temperature range is -40 °C to 85 °C using automotive qualified process.

An internal Video Generator can be used to generate any uncompressed video timing defined in DisplayPort HBR3 bandwidth, such as 4K@60Hz, 4K@30Hz, 480i@60Hz.

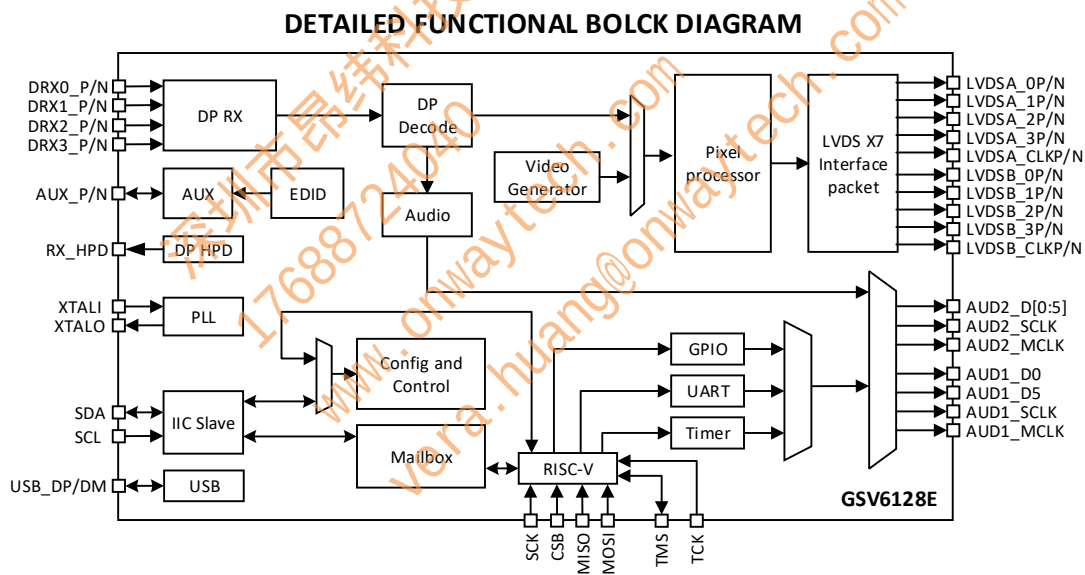


Figure 1. Top Diagram

1.2 Features

1.2.1 Embedded DisplayPort Receiver

- Compliant with VESA DisplayPort 1.4a
- Support HBR3, HBR2, HBR and RBR (8.1/5.4/2.7/1.62 Gbps)
- Flexible 1/2/4 lane Main-Link configuration
- Adaptive Equalization
- Support Full-Link Training and No-Link Training

- Support High Dynamic Range (HDR) and Dynamic/Static Metadata
- Support Horizontal Blanking Expansion up to 4K@60Hz format
- Embedded arbitrary EDID and MCCS
- Support Spread Spectrum Clock (SSC)
- 3D format support of frame sequential, stacked frame, side-by-side, top-to-bottom
- Support flexible pin swap

1.2.3 Multi-Port LVDS Transmitter

- Compatible with VESA and JEIDA standards
 - Single/Dual-Port LVDS Transmitter
 - Programmable output swing , slew-rate , common voltage and pre-emphasis
 - Data rate up to 1.5Gbps per lane

1.2.4 Pixel Processor

- Color Space conversion
- YCbCr 444/422-420 timing conversion
- Downscaler with fixed horizontal and vertical 2 ratio for 4K to 2K conversion
- Deinterlacer for interlaced timing

1.2.5 System Features

- Optional External MCU (via I2C)/ Internal MCU mode
- 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

2. Pin Description

2.1 Pin Diagram

QFN76 Pin definition is defined as below.

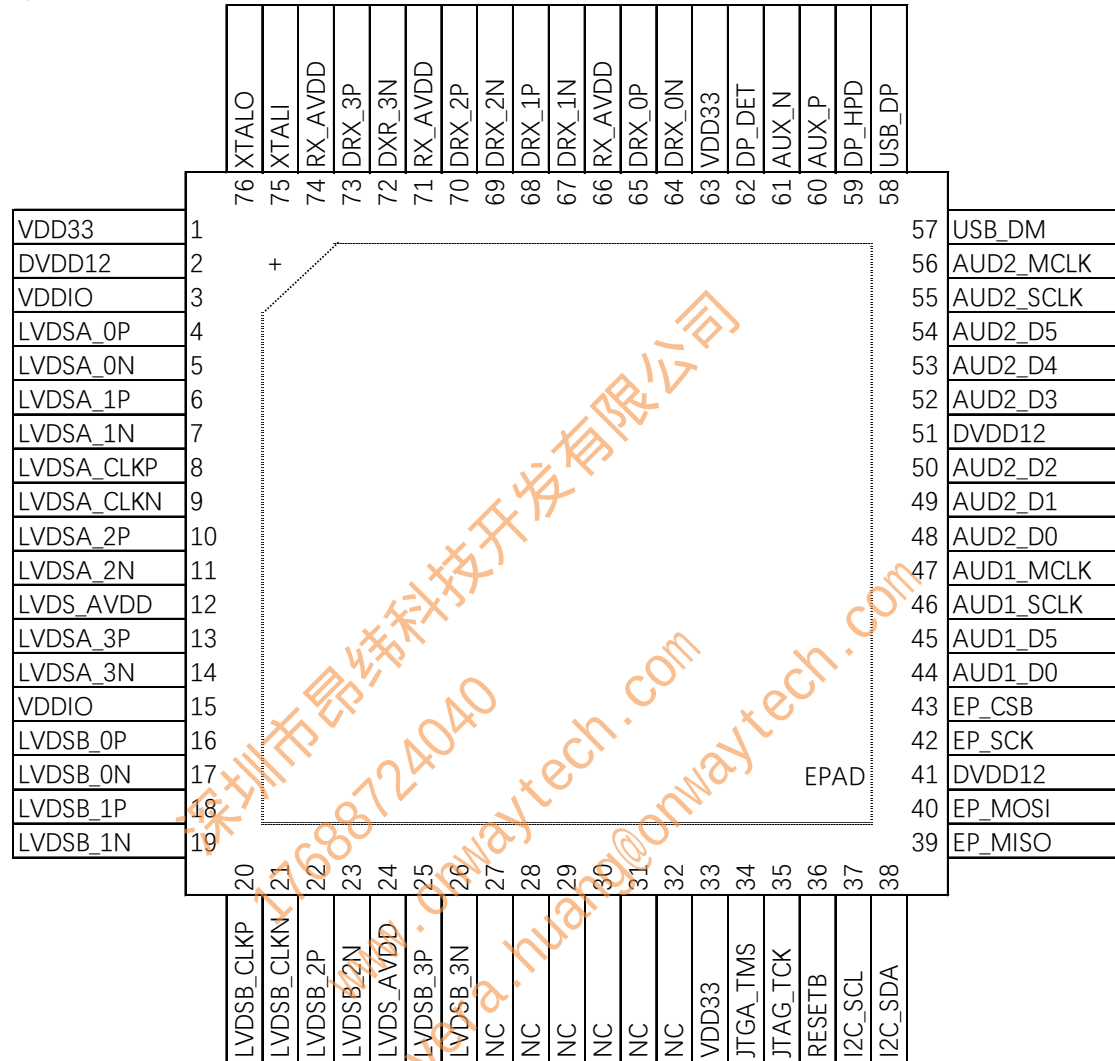


Figure 2. GSV6128E QFN76 Pin Diagram

2.2 QFN76 Pin Description

Table 1. QFN76 Pin Description

Pin Name	Direction	Pin No.	Description
DisplayPort RX Pins			
DP_DET	I	62	DP: RX DP Detection PAD
DP_HPD	O	59	DP: RX HPD PAD
AUX_P	I/O	60	DP: RX AUX_P PAD
AUX_N	I/O	61	DP: RX AUX_N PAD
DRX_0N	I	65	DP: RX Negative Main-Link differential data input [0]
DRX_0P	I	64	DP: RX Positive Main-Link differential data input [0]

5. Package Information

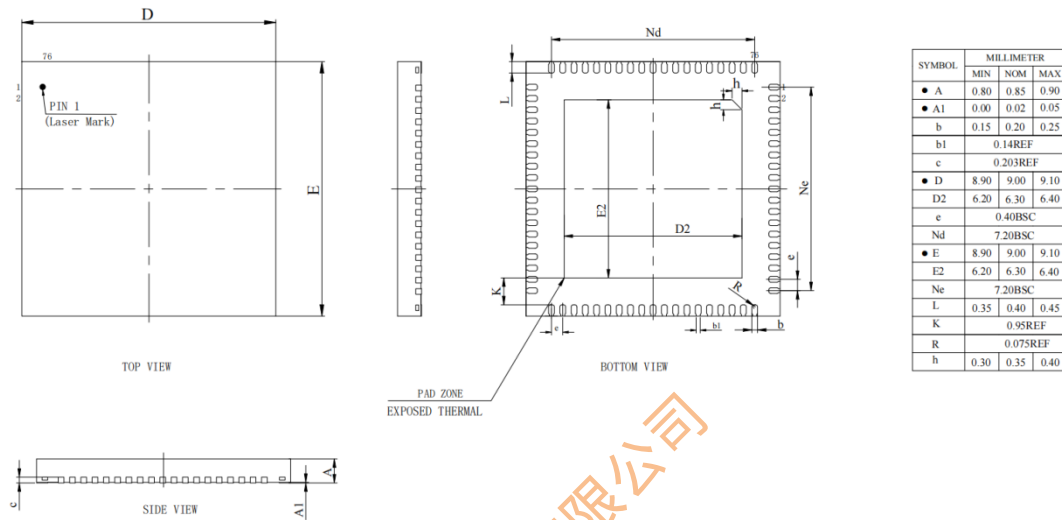


Figure 14. Package Dimensions (QFN76)

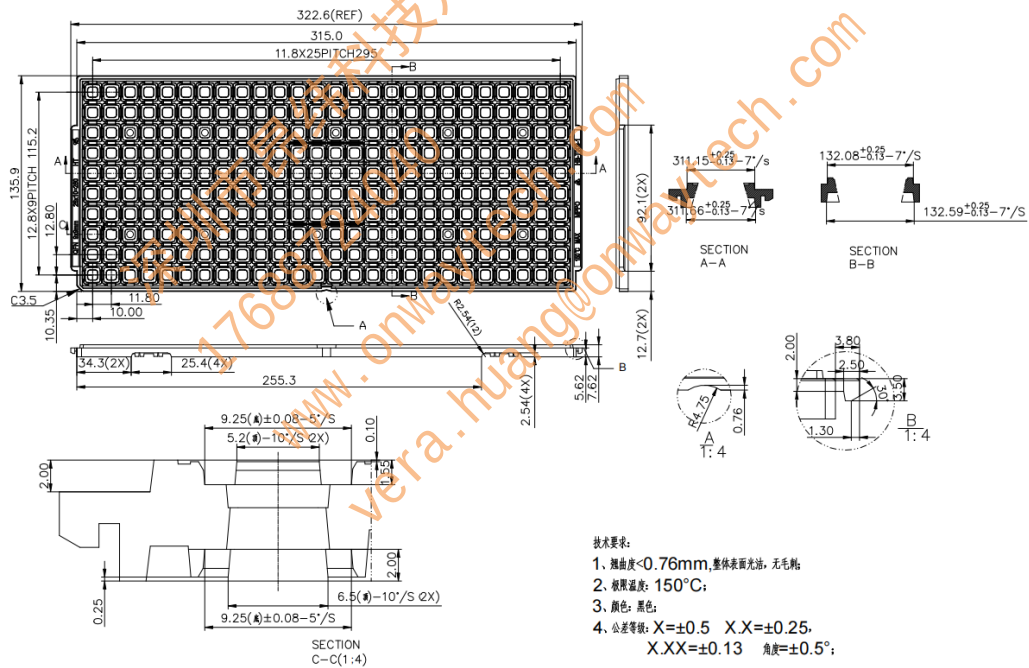


Figure 15. Package Dimensions (QFN76)

6. Ordering Guide

Table 8. Ordering Information

Part Number.	Temperature Range	Package Description	Packing Type
GSV6128E	-40°C to +85°C	QFN76	Tray

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