



GSV2001

1 In to 2 Out HDMI2.0 Repeater with Audio
Extraction/Insertion

September, 2019

PRODUCT SPECIFICATION

ONWA

1 General Information

1.1 General Information

The GSV2001 is HDMI1.4/2.0 compatible, HDCP 1.4/2.2 supported, configurable 1-in-2-out repeater device. All 2 outputs are identical on transmitter capability.

The HDMI input and output maximum processing pixel clock frequency is 600MHz which means the video resolution can support up to 4kx2k@60Hz 4:4:4 8-bit. The maximum processing audio sample frequency is 192K Hz for non-compression timing. GSV2001 supports HDR10 and Dolby Vision HDR as input and output.

For audio insertion and extraction, the versatile TTL pin bus of GSV2001 can be configured as either input mode or output mode regarding platform requirement. GSV2001 can support up to 8-channel I2S or 2-channel S/PDIF, 3D and multi-stream audio. In TDM mode, each audio pin supports up to 8 channels.

Internal Scaler and Color Space Converter enables the input and output to be timing format independent and capable of long distance transmission.

With powerful HDMI Rx equalizer and Tx pre-emphasis capability, GSV2001 can cascade itself (or GSV2000 series chips) with at least 7 stages for all HDMI 1.3/1.4/2.0 timings.

An internal Clock Generator can be used to generate 4 independent output clocks, which will greatly remove complexity of using dedicated clock device.

1.2 Features

1.2.1 HDMI Video Input and Output

- Compliant with HDMI2.0b, HDMI1.4b
- Compliant with HDCP2.2/2.3 and HDCP1.4
- Data rate up to 18Gbps
- Programmable HDMI Tx output swing, slew-rate, pre-emphasis
- Adaptive receiver equalization
- AC-coupling capable
- Color Space Converter supports any conversion between different color spaces
- HDR supported (HDR10/HDR12/Dolby Vision/HLG)
- 5V tolerance on DDC/HPD/CEC
- Arbitrary video stream matrix between HDMI Rx and HDMI Tx

1.2.2 Audio Input/Output

- SPDIF/I2S/HBR/DSD/TDM Audio Extraction
- SPDIF/I2S/HBR/DSD/TDM Audio Insertion
- Configurable direction for each Audio bus
- Arbitrary audio stream matrix between HDMI Rx/HDMI Tx/Audio bus

4 Package Information

The GSV2001 device is packaged in a 76-pin, 9mmx9mm QFN76L package. There is an ePad as the electrical ground of the device. It is critical to solder the entire ePad firmly onto the PCB. A weak connection of the ePad could result in poor performance on higher frequency HDMI video timing.

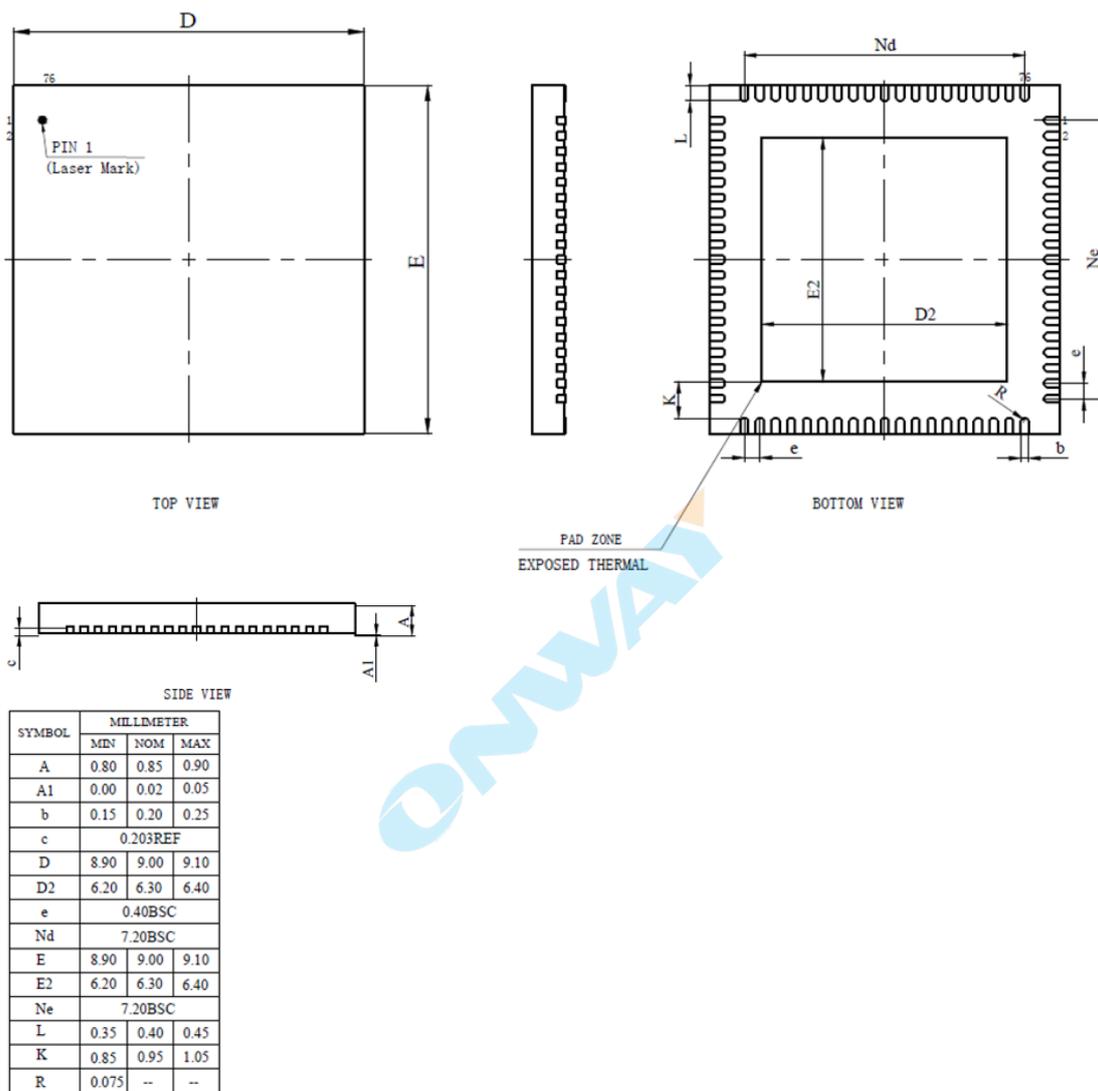


Figure 10. GSV2001 package dimensions

5 Ordering Guide

Table 10. Ordering Information

Part Number.	Temperature Range	Package Description	Packing Type
GSV2001	-20 °C to +85 °C	QFN76L, 0.4 mm ball pitch, 9 mm x 9 mm outline	Tray

