

LT9211 --- Product Brief

MIPI/TTL/2-Port LVDS to MIPI/TTL/2-Port LVDS Converter

1. Features

● MIPI Transmitter

- Compliant with DCS1.02, D-PHY1.2 ,DSI1.2 and CSI-2 1.00
- 1 Clock Lane and 1~4 Configurable Data Lanes
- Two Port Simultaneous Display Supported
- Up to 1.8Gb/s per Data Lane
- Resolution Up to 1920x1200 60Hz or any other Resolution whose Pixel Clk less than 200MHz
- Data Lane and Polarity Swapping
- Both Non-Burst and Burst Video Mode Supported
- Support RGB666, Loosely RGB666, RGB888, RGB565, 16-bit YCbCr4:2:2, 24-bit YCbCr 4:2:2 Video Format

● Dual-Port LVDS Transmitter

- Compatible with VESA and JEIDA standard
- 1~2 Configurable Port
- Two Port Simultaneous Display Supported
- Resolution Up to 1920x1200 60Hz or any other Resolution whose Pixel Clk less than 200MHz
- Support DE Mode
- Data Port , Data Lane and Polarity Swapping
- Programmable Pre-emphasis
- Support output SSC(30KHz±5%)

● TTL Output

- Support 24-bit RGB and BT656/BT1120
- Both DDR and SDR Sampling supported
- Support both 1.8V and 3.3V Voltage Output
- Resolution Up to 1920x1200 60Hz or any other Resolution whose Pixel Clk less than 200MHz

● MIPI Receiver

- Compliant with DCS1.02, D-PHY1.2 ,DSI1.2 and CSI-2 1.00
- 1 Clock Lane and 1~4 Configurable Data Lanes
- Two Port Input switchable

- Up to 1.8Gb/s per Data Lane
- Resolution Up to 1920x1200 60Hz or any other Resolution whose Pixel Clk less than 200MHz
- Data Lane and Polarity Swapping
- Both Non-Burst and Burst Video Mode Supported
- Support RGB666, Loosely RGB666, RGB888, RGB565, 16-bit YCbCr4:2:2, 24-bit YCbCr 4:2:2 Video Format

● Dual-Port LVDS Receiver

- Compatible with VESA and JEIDA standard
- 1~2 Configurable Port
- Resolution Up to 1920x1200 60Hz or any other Resolution whose Pixel Clk less than 200MHz
- Support DE Mode
- Data Port , Data Lane and Polarity Swapping
- Internal Rterm Calibration with Less than 5% Error
- Support input Dessc(30KHz±5%)

● TTL Input

- Support 24-bit RGB and BT656/BT1120
- Both DDR and SDR Sampling supported
- Support SYNC Mode and DE Mode
- Support both 1.8V and 3.3V Input Voltage
- Resolution Up to 1920x1200 60Hz or any other Resolution whose Pixel Clk less than 200MHz

● Miscellaneous

- 1.8V and 3.3V Power Supply
- Alternative Input and Output configuration for LVDS/TTL/MIPI
- MIPI/LVDS muxer and splitter supported
- MIPI-LVDS level shifter for FPGA Application
- Support 100KHz and 400KHz I2C Slave
- External 25MHz±200ppm Crystal Reference Clock is Preferred
- Temperature Range: -40°C ~ +85°C
- Packaged in QFN64 7.5mm x 7.5mm

2. General Description

The Lontium LT9211 is a high performance convertor which interconvertible between MIPI DSI/CSI-2/Dual-Port LVDS and TTL except for 24bit TTL to 24bit TTL with both SYNC and DE. The LT9211 deserializes input MIPI/LVDS/TTL video data, decodes packets, and converts the formatted video data stream to MIPI/LVDS/TTL transmitter output between AP and mobile display panel or camera.

The LT9211 can be used as 2-Port MIPI/LVDS Repeater which support maximum 14dB input equalization and programmable pre-emphasis to improve performance.

The LT9211 can also be used as MIPI/LVDS Muxer and

Splitter. For MIPI Repeater, Muxer and Splitter, we also support CSI RAW format with continuous clock.

The LT9211 is fabricated in advanced CMOS process and implemented in 7.5x7.5mm QFN64 package. This package is RoHS compliant and specified to operate from -40°C to +85°C.

3. Applications

- Mobile systems
- Cellular handsets
- Digital video cameras
- Digital still cameras
- Tablet PC, Notebook PC
- Car Display and Camera System

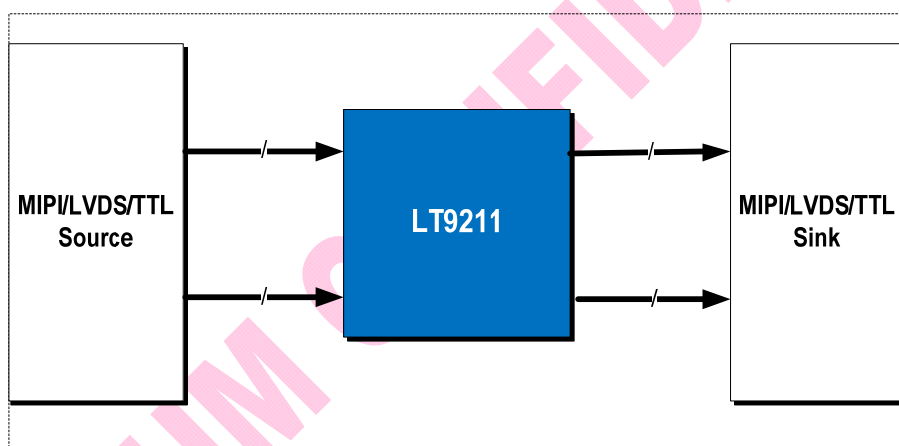


Figure 3.1 LT9211 Typical Application Diagram

4. Ordering Information

Table 4.1 Ordering Information

Part Number	Product Version	Product Status	Operating Temperature Range	Package	Packing Method	MPQ
LT9211	U2	NRND	-40°C to +85°C	QFN64 (7.5*7.5)	Tray	2600pcs
LT9211	U4	NRND	-40°C to +85°C	QFN64 (7.5*7.5)	Tray	2600pcs
LT9211_U5	U5	MP	-40°C to +85°C	QFN64 (7.5*7.5)	Tray	2600pcs

NRND: Not Recommended for New Designs.

MP: Mass Production.

Table 4.2 IC Version Information

Product Version	Information	Note
U2	1. If the MIPI source does not have “eotp packet”, LT9211’s MIPI Receiver do not work well. Any other conversions between MIPI DSI/CSI-2/Dual-Port LVDS and TTL are OK; 2. MIPI Port-B input do not work well in non-continuous clock mode.	
U4	1. MIPI Receiver solved the issue which MIPI source does not have “eotp packet”; 2. MIPI Port-B input do not work well in non-continuous clock mode.	
U5	1. MIPI Repeater support CSI RAW format with continuous clock; 2. Add TTL output dclk phase adjust function, this does not apply to LVDS with SSC and MIPI input; 3. Solved MIPI Port-B input non-continuous clock issue.	

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