# 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

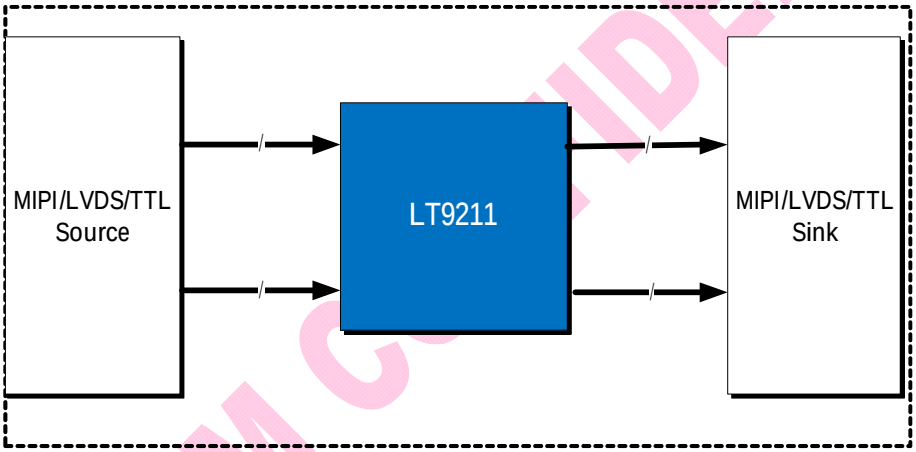


**Figure 3.1 LT9211 Typical Application Diagram**

# 4. Ordering Information

**Table 4.1 Ordering Information**

| Product Name | Part Number | Product Status | Operating Temperature Range | Package | Packing Method | MPQ |
|---|---|---|---|---|---|---|
| LT9211 | LT9211_U5 | MP | -40°C to +85°C | QFN64 (7.5*7.5) | Tray | 2600pcs |
| LT9211 | LT9211_U5Q07CAN | MP | -40°C to +85°C | QFN64 (7.5*7.5) | Tray | 2600pcs |
| MP: Mass Production. | | | | | | |

**Note:** LT9211_U5Q07CAN is an automotive grade device which is qualified by AEC-Q100 grade 3 testing.

**Table 4.2 IC Version Information**

| Product Version | Information | Note |
|---|---|---|
| U5 | 1. MIPI Repeater support CSI RAW format with continuous clock;<br>2. Add TTL output dclk phase adjust function, this does not apply to LVDS with SSC and MIPI input;<br>3. Solved MIPI Port-B input non-continuous clock issue. | |

**Lontium Semiconductor Proprietary & Confidential**

This document and the information it contains belong to Lontium Semiconductor. Any review, use, dissemination, distribution or copying of this document or its information outside the scope of a signed agreement with Lontium is strictly prohibited.

LONTIUM DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THOSE OF NONINFRINGEMENT, MERCHANTABILITY, TITLE AND FITNESS FOR A PARTICULAR PURPOSE. CUSTOMERS EXPRESSLY ASSUME THEIR OWN RISH IN RELYING ON THIS DOCUMENT.
LONTIUM PRODUCTS ARE NOT DESIGNED OR INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS WHERE A MALFUNCTION OF A LONTIUM DEVICE COULD RESULT IN A PERSONAL INJURY OR LOSS OF LIFE.

Lontium assumes no responsibility for any errors in this document, and makes no commitment to update the information contained herein. Lontium reserves the right to change or discontinue this document and the products it describes at any time, without notice. Other than as set forth in a separate, signed, written agreement, Lontium grants the user of this document no right, title or interest in the document, the information it contains or the intellectual property in embodies.

**Trademarks**

Lontium™ 龙迅™ and ClearEdge™ is a registered trademark of Lontium Semiconductor. All other brand names, product names, trademarks, and registered trademarks contained herein are the property of their respective owners.

**Visit our corporate web page at: www.lontiumsemi.com**
**Technical support: support@lontium.com**
**Sales: sales@lontium.com**