

LT87101DC --- Product Brief

DP-to-Type-C Converter

1. Features

- Compliant to VESA DP1.2, USB3.1 Gen-1, Type-C r1.2, USB PD2.0 and DP Alt Mode v1.0 Standards
- Support either Pin Assignment C/E or D/F
- Support Hot-Plug Detect for DP Input Interface
- Integrate AUX Interception
- Programmable Input Equalization
- Programmable Output Swing and De-emphasis
- USB Full-Featured, Orientation and Role Detection
- 2 Power Roles Supported: Source and Sink
- 2 Data Roles Supported: DFP and DRP
- 3-level Current Ability Advertise for Type-C Power: USB Default, 1.5A@5V, 3A@5V
- SBU Data Path Control for DP Alt Mode
- Internal MCU and Flash for Online Firmware Upgrade
- Support External I2C Debug
- 1.8V/3.3V Power Supply
- Packaged in 5mmx5mm QFN40

2. General Description

LT87101DC is a signal re-driver with DP or USB3.1 input and Type-C output. DP or USB3.1 signal quality is deeply-optimized and enhanced by performing cable or board trace loss compensation. The device complies with VESA DP1.2 and USB3.1 Gen-1 specifications. It supports 4-lane DP main link interface or 2-lane DP main link plus a USB3.1 Gen-1 interface.

The input receiver of LT87101DC features a multi-level programmable linear equalizer, supporting up to 25dB loss compensation due to Inter-Symbol Interference (ISI). The output transmitter re-drives the received signal with multi-level programmable output swing and up to 6dB de-emphasis. A build-in AUX interception

block monitors AUX channel and automatically adjust equalizers and signaling levels in response to DP Link Training Commands. A Low-Frequency Periodic Signal (LFPS) detection, automatic plug and unplug by remote receiver termination sensing and state machine is also integrated for USB3.1 Gen-1 data transfer.

Type-C operating is controlled by CC detect, CC logic and PD management unit. A high performance passive differential switch is also integrated to realize data channel exchange according to Type-C interface insert orientation. This relieves BOM cost and mobile system design complexity. The switch function is compliant with VESA DP Alternate Mode standard and support Pin Assignment C/E or D/F in different applications.

The chip internally integrates an 8-bit OCM and flash memory (stacked die) to configure and run program. Online software upgrade is also supported.

The LT87101DC is fabricated in advanced CMOS process and implemented in a small outline 5mmx5mm QFN40 package. This package is RoHS compliant and specified to operate from -40°C to +85°C.

3. Applications

- Smartphone, Tablet and Other Mobile Devices
- VR/AR Eco-System and Home Entertainment
- PC, Notebook, All-in-Ones Computer and Docking

4. Ordering Information

Table 4.1.1 Ordering Information

Part No.	Operating Temp. Range	Package	Packing
LT87101DC	-40°C to +85°C	QFN40 (5*5)	Tray

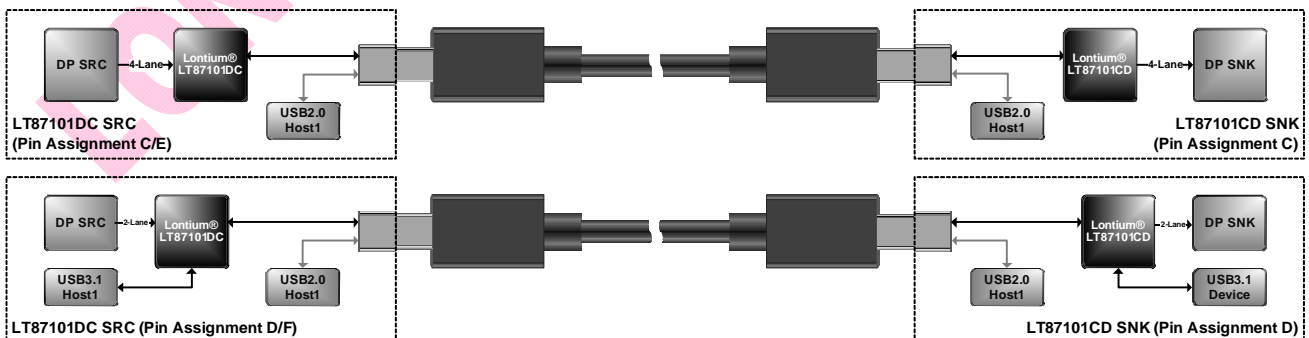


Figure 1. LT87101DC / LT87101CD Typical Application Diagram

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