

MCDP6xx0

USB Type-C DP Alt-Mode Switching Retimer

MCDP6xx0 Features

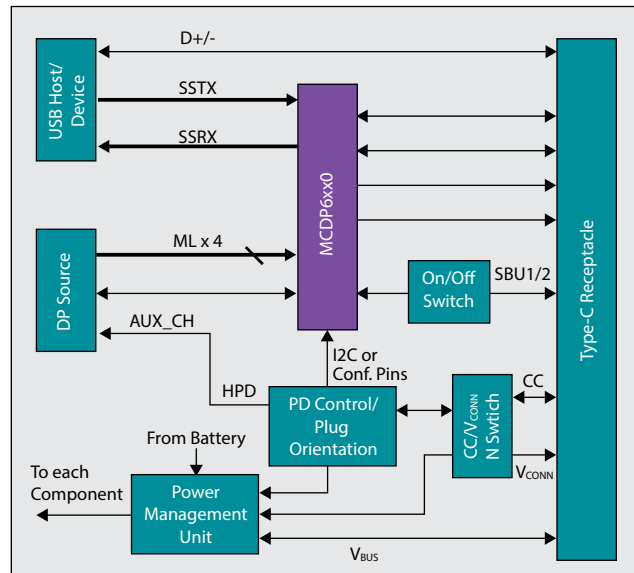
- USB Type-C DP Alt-mode Retimer
- USB3.2 x1 compliant Gen1 & Gen2 (5/10 Gbps) modes
- DP1.4a Compliant Retimer
- DP Data rates 1.62 Gbps/2.7 Gbps/5.4 Gbps/8.1 Gbps
- Transparent/ Non-transparent mode support
- PHY performance exceeding the standard requirement
- Adaptive Receiver Equalization
- Real time Eye Opening Monitor (EOM)
- Low Power Operation
- 46 Ex-VQFN (6.5 mm x 4.5 mm)

Applications

- Desktop PC/Notebook/Tablet
- Smartphone motherboard enabling USB Type-C DP alternate mode
- Advanced Driver Assistance Systems (ADAS)
- Automotive Infotainment

The MCDP6XX0 is a low power USB 3.2 x1 and DisplayPort1.4a repeater device with an integrated USB Type-C switch targeted for desktop/mobile PC motherboard-down application.

The USB 3.2 x1 retimer supports both SuperSpeed (SS) bit rate (5 Gbps), and SuperSpeedPlus (SSP) data rate (10 Gbps). The USB 3.2 x1 retimer includes the link layer function and LTSSM and RTSSM to participate in the link training. The MCDP6XX0 supports SS mode with a BLR (Bit-Level Retimer) and SSP mode with a SRIS (Separate Reference clock Independent SSC). The MCDP6XX0 supports link power management with Ux entry and exits in both SS and SSP modes. In addition, the MCDP6XX0 supports the link state and link quality maintenance, compensates the clock offset between the downstream port and the upstream port, detects errors, and corrects single symbol errors in framing order sets, single bit block header errors, and single or double-bit SKP symbol errors in SSP mode. It also supports spread



Ordering Information

Device Name	Operating Temperature	Package	Function
MCDP6000C1	0°C to +70°C	Ex-VQFN46	USB Type-C DP Alt-Mode Switching Retimer
MCDP6150C1	0°C to +70°C	Ex-VQFN46	DisplayPort 1.4a Link Training Tunable PHY Retimer
MCDP6200C1	0°C to +70°C	Ex-VQFN46	USB Type-C Switching Retimer

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spectrum clocking (SSC) to minimize EMI and the low frequency periodic signaling (LFPS). The transmitter employs 3-tap FIR-based transmitter equalizer for SSP operation and fixed transmitter equalizer ranging from 3 dB to 4 dB for SS operation. The receiver employs an adaptive Continuous Time Linear Equalizer (CTLE) and a Decision Feedback Equalizer (DFE). Both the transmitter equalizer and the receiver equalizer are configurable through the TWI register. Proper settings to comply with USB 3.2 electrical requirements are provided by default.