New Product Announcement

PI3DPX1235Q

UHBR13.5 6:4 Active-Crossbar Mux Improves Interconnectivity in Automotive USB 3.2/DP 2.1 USB Type-C® Connections

The PI3DPX1235Q is a DisplayPort™ (DP) 2.1 UHBR13.5/USB 3.2 Gen 2, 6:4 active mux linear ReDriver™ with data rates up to 13.5Gbps for USB Type-C automotive applications. It is compliant to the VESA DP Alt 2.1 UHBR13.5 and USB 3.2 Gen 2 industry standard.

It multiplexes either one lane of USB 3.2, one lane of USB 3.2 and two channels of DP 2.1 UHBR13.5, or four channels of DP 2.1 UHBR13.5 to the USB Type-C connector. In addition, the AUX± channels are also multiplexed to the USB Type-C connector.

The DP 2.1 and USB 3.2 Gen 2 signals can be easily adjustable with equalization, output swing linearity, and flat gain values by the I2C control setting. This allows the DP/USB 10Gbps signal performance to be optimized over a wide variety of physical media by reducing inter-symbol interference jitters.

Non-blocking linear equalization does not block the receiver DFE's adaptive channel controls, enabling support of DisplayPort Transparent Link Training (LT) without dependency of the DP-Aux channels listener.

It is available in the 40-pin W-QFN6040-40 (ZLB40) with a 4mm x 6mm footprint.

The DIODES Advantage

Automotive-compliant 13.5Gbps USB Type-C USB 3.2/DP 2.1 UHRB13.5 6:4 active crossbar mux for routing/multiplexing USB-C and/or DP signals.

- **Supports the Latest USB 3.2 Spec with Three Operating Modes:**
  - **1-Port 13.5Gbps USB 3.2**
  - **1-Port USB 3.2 + 2-Channel DisplayPort 2.1**
  - **4-Channel DisplayPort 2.1**

  Provides flexible USB Type-C, USB 3.2/DP-Alt Mode Operation
- **Programmable Receiver-Side CTLE, Output-Side Flat Gain, and Swing Linearity Settings**
  Extends PCB trace lengths while reducing signal latency
- **Auto Power-Saving Modes for Both USB and DP**
  Enables USB U2/U3 and DP D3 power-saving modes with built-in AUX listener
- **Configuration and Performance Set via I2C**
  Allows flexible control and setup for ease of use
- **Qualified to AEC-Q100 Grade 2**
  Supports a -40ºC to +105ºC ambient operating temperature

Applications

USB and/or DP routing in:

- Smart cockpits
- Rear seat entertainment

Automotive-compliant - AEC qualified, manufactured in facilities certified to IATF 16949, supporting PPAP documents.

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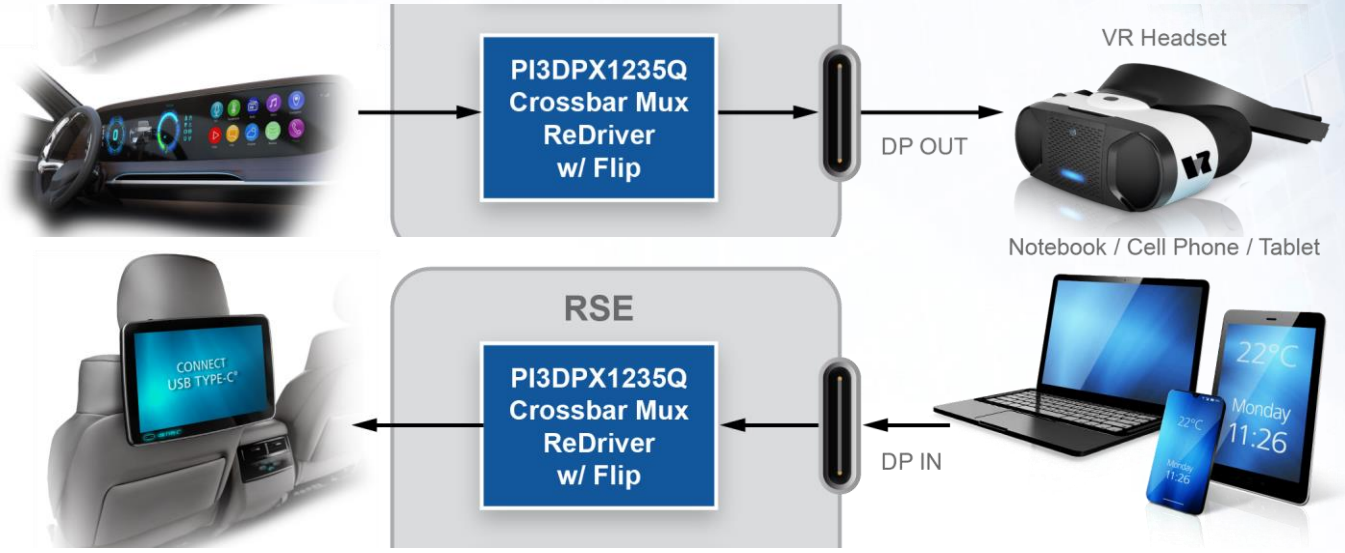
Typical Application



Automotive-Compliant USB Type-C ReDriver Portfolio

Part Number	Operation Voltage	Input Channels	Data Rate	Output Channels	Output Swing Max	Programming Interface(s)	Operation Temperature	Packages
	V		Gbps		mV		°C	
PI3DPX1235Q	**3.3**	**6/4**	**13.5**	**4**	**1200**	**I2C**	**-40 to +105**	**W-QFN6040-40 (ZLB40)**
PI3DPX1225Q	3.3	6/4	10	4	1200	I2C	-40 to +85	W-QFN6040-40
PI3DPX1207Q	3.3	4	10	4	1200	I2C or Pin-Strapping	-40 to +85	42-pin TQFN

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
PI3DPX1235Q2ZLBEX	Automotive	W-QFN6040-40 (ZLB40)	MSL-1	3,500	13” Tape & Reel