



New Product Announcement

PI2DPT1021Q

1.8V Bi-Directional USB Type-C DP-Alt Retimer Improves Signal Integrity in Automotive Video Interconnectivity

The automotive compliant* PI2DPT1021Q is a bit-level retimer providing receiver adaptive equalization, compensating channel losses up to -23dB at 5GHz signals.

The device, with its 10Gbps data handling, supports DisplayPort™ (DP) 1.4 and USB 3.2 standards for automotive USB Type-C® applications such as rear seat entertainment and active cables.

The PI2DPT1021Q has 4:4 channels, supporting system-on-chip (SOC) devices with an integrated USB/DP crossbar switch with I2C. The I2C is used to select:

- Four-lane DP
- Two-lane DP and one-lane USB 3.2 Gen2
- One- or two-lane USB 3.2 Gen2

The PI2DPT1021Q complies with USB power management states for active mode (U0) and power-saving modes (U1, U2, U3).

The bi-directional design provides flexibility when the DFP and UFP signal flows are swapped, which supports active cable applications and signal flow selection.

Diodes also provides the PI2DPT1021 commercial-grade device for industrial applications

The PI2DPT1021Q is packaged in the very small X1-QFN2845-32 (0.4 mm pitch) package, supports AEC-Q100 Grade 2, and operates across the -40°C to +105°C temperature range.

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

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The DIODES Advantage

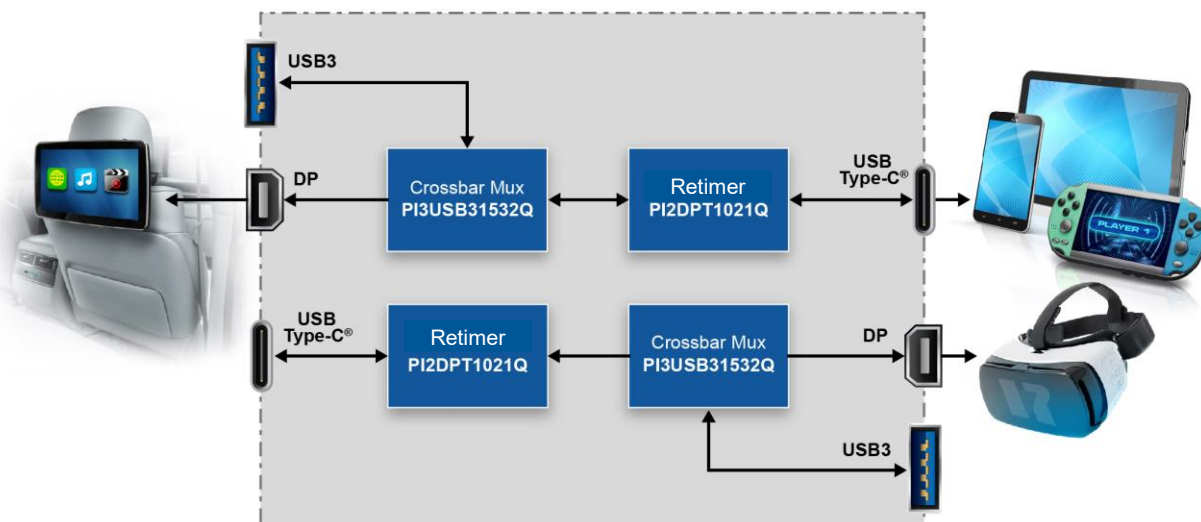
The PI2DPT1021Q bit-level retimer provides fast USB 3.2 video interconnectivity.

- **Flexible Four-Channel USB Type-C DP-Alt Mode Operation**
USB 3.2 Gen2x2,
USB 3.2 Gen2x1 + Two-lane DP 1.4 (HBR3),
Four-lane DP 1.4 (HBR3)
- **High-Speed Signal Integrity**
Provides receiver adaptive equalization up to -23dB at 5GHz of channel loss compensation and jitter cleaning
- **Very Small X1-QFN2845-32 Package**
Optimizes 2.85mm x 4.5mm PCB area for densely populated computing equipment
- **Auto-Power-Saving Modes for Both USB and DP**
Maintains USB U1/U2/U3 and DP D3 power-saving modes with built-in AUX listener
- **Bi-Directional with Very-Low (<1ns) Latency for High-Speed Channels**
Provides flexibility for signal flow selection

Applications

- Rear seat entertainment
- Active cables

Typical Application



Product Portfolio

Part Number	Operation Voltage	Data Rate	Lanes	Max Output Swing	Programming Interface	Operating Temperature Range	Package
	V	Gbps		mV		°C	
PI2DPT1021Q	1.8	10	4	1,200	I2C	-40 to +105	X1-QFN2845-32 (XEA32)

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package	Package Code	Moisture Sensitivity	Packing	
					Quantity	Carrier
PI2DPT1021Q2XEAEX	Automotive	X1-QFN2845-32 (2.85mm x 4.5mm x 0.45mm, 0.4mm pitch)	XEA32	MSL-1	3,500	13" Tape & Reel