



New Product Announcement

PI3HDX12311 PI3HDX6311

Low-Power, Enhanced HDMI 2.1 Hybrid ReDriver™ with DDC Listener in a Small Package for High Resolution Video Connectivity

The PI3HDX12311 and PI3HDX6311 are 3.3V quad-channel hybrid ReDrivers. The PI3HDX12311 supports HDMI 2.1 fixed rate link (FRL) up to 12Gbps and transition-minimized differential signaling (TMDS) up to 6Gbps; the PI3HDX6311 supports HDMI 2.0 TMDS up to 6Gbps. Both are backward compatible to HDMI 1.4.

For HDMI 1.4 applications, both are configured as a limited ReDriver (where the ReDriver's differential output swing is defined by the swing setting), ensuring HDMI-compliant levels at the receptacle.

For HDMI 2.0 and HDMI 2.1, the devices are configured as linear ReDrivers (where the differential output swing is directly proportional to the received signal), which ensure the ReDrivers function as trace cancellers. The linear ReDriver mode is also inherently transparent to link training signals.

The PI3HDX12311 and PI3HDX6311 are equipped with pin strap mode control for operational mode, equalization, flat gain, output swing (SW), and output -1dB linearity swing (N1SW).

Both devices support dual-mode DisplayPort (DP++) level shift applications for HDMI TMDS output signals. Their input and outputs signals can be AC- or DC-coupled or mixed, which can eliminate the need for additional level shifter components from the data channels.

The PI3HDX12311 and PI3HDX6311 are available in the tiny X1-QFN2845-32 (XEA32) package occupying only 2.85mm x 4.5mm PCB area and operate across the -40°C to +70°C temperature range.

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The DIODES Advantage

Low-power, 12Gbps, HDMI 2.1/2.0 hybrid ReDrivers with display data channel (DDC) listeners provide optimized signal integrity.

- **Hybrid ReDriving Mode**
Ensures HDMI-compliant levels at the receptacle
- **Supports DDC Listeners**
Monitors data rates and FRL/TMDS modes; includes auto-loading pre-setting for power and SI optimization to save tuning cycle
- **PI3HDX12311 Supports Latest HDMI 2.1 Standard**
Enables 8K DTV video resolution at aggregated 4-channel data rates up to 48Gbps (12Gbps per channel)
- **Low 726mW Power Dissipation at Maximum Output Swing**
Increases operating time in portable and mobile devices
- **Thin and Small X1-QFN2845-32 Package**
Enables use in portable devices

Applications

- Laptops and desktop PCs
- Gaming consoles
- HDMI active cables
- KVM switch boxes
- DTVs and commercial display panels
- Docking stations and peripherals



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Typical Application



Product Portfolio

Part Number	Supply Voltage	Channels	Data Rate	Lanes/Ports	Max. Output Swing	Programming Interface(s)	Operating Temperature	Packages
	V		Gbps		mV		°C	
PI3HDX12311	3.3	4	12	4	1200	Pin strap	-40 to +70	X1-QFN2845-32 (XEA32)
PI3HDX6311	3.3	4	6	4	1200	Pin strap	-40 to +70	X1-QFN2845-32 (XEA32)

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
PI3HDX12311XEAEX	Standard	X1-QFN2845-32 (XEA32) 2.85mm x 4.5mm (0.4 mm pitch)	MSL-1	3,500	13" Tape & Reel
PI3HDX6311XEAEX	Standard	X1-QFN2845-32 (XEA32) 2.85mm x 4.5mm (0.4 mm pitch)	MSL-1	3,500	13" Tape & Reel