

**12Gbps HDMI2.1 2-to-1 Active Mux with Linear ReDriver & I<sup>2</sup>C Control**

**Description**

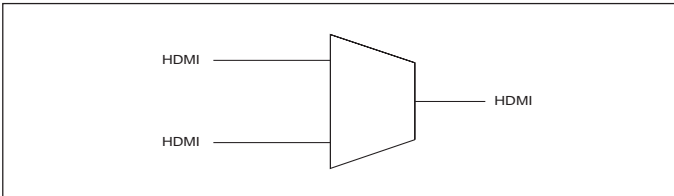
The DIODES PI3HDX12221B is a 2-to-1 active mux for 4-channel HDMI link with data rate up to 12Gbps for HDMI2.1 standard. It provides the maximum equalizer gain controls up to +8.8dB (HDMI2.1 @ 6GHz) and +5.5dB (HDMI2.0 @ 3GHz) to compensate the insertion loss along the channel connection.

The non-blocking linear ReDriver™ design ensures the differential signals conveying pre-shoot and de-emphasis equalization waveforms to be transparently transmitted from source side to the receiver side and linearly compensate the channel loss to achieve longer channel extension. The CTLE equalizers are implemented at the inputs of the ReDriver to reduce the ISI jitters and compensate channel loss. The programmable flat gain and output linearity adjustments support the eye diagram opening adjustment.

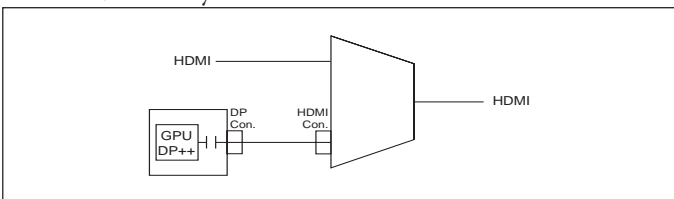
With the combinational logic control design, the device has reduced the control pins to achieve more compact package dimension. Users can use pin strap method to select different EQ gains, flat gains and output swing linearity for flexible design tuning.

**System Application**

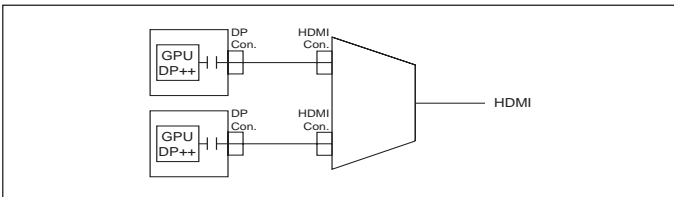
HDMI2.1 Mux



HDMI2.1/DP++ Hybrid Mux



DP++ to HDMI Mux



**Notes:**

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Features**

- 2-to-1 Mux Switch Configuration for 4-Channel HDMI Operation
- Compliant to HDMI 1.4/2.0/2.1 and DisplayPort Dual-Mode V1.1 Standard
- Supports Dual-Mode DisplayPort (DP++) Level Shift Application for HDMI TMDS Output Signals
- Quad-Level Pin Strap Control Through Combinational Logic Table for Equalizer Gain Value Selection
- Quad-Level Pin Strap or I<sup>2</sup>C Control for Flat Gain and Output Swing Linearity Selection
- Single Power Supply: 3.3V +/-10%
- Industrial Temperature Support: -40°C to +85°C
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>
- Packaging (Pb-free & Green):
  - 40-pin, TQFN 3 x 6mm

**Application(s)**

- Digital TVs
- Display Monitors
- Gaming Consoles
- Laptop and Desktop PCs
- Workstation and Server System
- Docking, KVM and PC Peripherals

**Ordering Information**

Ordering Number	Package Code	Description
PI3HDX12221BZLDEX	ZLD	40-Contact, 3x6mm (TQFN)

**Notes:**

- E = Pb-free and Green
- X suffix = Tape/Reel