

# PI3DPX8121

## 3.3V 10Gbps DisplayPort 2-to-1 Active Mux Switch with Linear Redriver

### Features

- 2-to-1 mux switch configuration for 4-lane DisplayPort operation
- Data rate support up to 10Gbps to cover 8.1Gbps DP1.4 and 10Gbps DP2.0 speed per lane (RBR/HBR/HBR2/HBR3/UHBR10)
- LT-tunable capability for LTPR redriver data path support
- Quad-level pin strap control through combinational logic table for equalizer gain value selection
- Quad-level pin strap control for flat gain and output swing linearity selection
- Input signal detection for automatic power saving mode
- Single power supply: 3.3v +/-0.3v
- Commercial temperature support: 0°C to +70°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-Q100/101/200, 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 3 x 6mm TQFN, (ZLD)

### Applications

- Laptop and Desktop PCs
- Workstation and Server System
- Docking, KVM and PC Peripherals
- Display Monitors

### Ordering Information

Part Number	Package	Description
PI3DPX8121ZLDEX	ZLD	40-Pin, 3 x 6mm (TQFN)

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

### Description

The PI3DPX8121 is a 2-to-1 active mux switch for 4-lane DisplayPort link with data rate support up to 10Gbps for DP1.4 and the new DP2.0 standards. The maximum equalizer gain controls are +10dB (DP2.0@5GHz) and +8.5dB (DP1.4@4.05GHz) to compensate the insertion loss along the channel connection.

The Link Training tunable linear Redriver™ design supports the LTPR (Link Training Transparent PHY Repeater) redriver data path type. It ensures the differential signals conveying pre-shoot and de-emphasis equalization waveforms to be transmitted from source side to the receiver side to optimize the overall channel link adjustment conducted by the system transmitter and receiver. 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 linearity adjustments support the eye diagram opening.

With the combinational logic control design, users can use pin strap method to select various EQ gains, flat gains and output swing linearity for flexible design tuning.

### Block Diagram

