

# PI3UPI1608

## 3.3V 16Gbps 8-Channel PCIe 4.0 and UPI Linear Redriver with Coupling Capacitors

### Features

- Protocol-agnostic linear ReDriver with data rate up to 16Gbps
- Linear CTLE gain compensation to help RX DFE achieve low BER
- Integrated 0.22uF (+/- 20% max. tolerance) coupling capacitors at Rx inputs and Tx outputs
- 8-differential channels, x4 lane PCIe Gen1 to Gen4 in 16Gbps PCIe 4.0 and UPI applications
- Per-channel selectable adjustment of receiver equalization, output swing and flat gain
- Per-channel Activity Detector with selectable input termination of 50Ω to VCC or 78KΩ to VbiasRX for active or power-saving modes
- Per-channel Output Termination Detector on power-up with selectable output termination of 50Ω to VCC, 4KΩ to VbiasTX and high impedance for active or power saving modes
- Single-ended mode receiver detection
- Pin-mode or I<sup>2</sup>C selectable device programming
- Pin-strap value latched to I<sup>2</sup>C registers
- Two I<sup>2</sup>C Master or Slave selections
- 3-bit selectable addresses for I<sup>2</sup>C to support maximum of 4 slave devices
- 220mW typical per-channel power dissipation with a 1200mVpp output swing
- Single power supply of 3.3V
- 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](#) or your local Diodes representative.

<https://www.diodes.com/quality/product-definitions/>

### Description

The PI3UPI1608 is an 8-differential channel linear ReDriver™ that supports data rate up to 16Gbps. The device has an integrated 0.22uF coupling capacitors at both the ReDriver inputs and outputs to simplify signal routing and PCB layout.

The linear ReDriver is protocol-agnostic and transparent to system link training. The on-chip CTLE equalizer, flat gain and output swing linearity settings provide programmable capability for signal integrity optimization on jitter reduction and eye opening. User can select either I2C control or pin-control mode to fit their system design.

### Ordering Information

Part Number	Package Code	Description
PI3UPI1608ZXCEX	ZXC	116-contact (aQFN) 7x13.5mm

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