

Product Features

- Compliant with IEEE Std 802.3ba, 40G Ethernet SR4
- Compliant with QSFP+ MSA
- Management interface specifications per SFF-8436
- Single MPO connector receptacle
- 4 channels 850nm VCSEL array
- 4 channels PIN photo detector array
- Up to 10.3Gb/s per channel data links
- Single +3.3V power supply
- Class 1 laser safety certified
- Commercial operating temperature:0°C to +70°C
- Up to 100m on OM3 MMF and 150m on OM4 MMF
- RoHS6 Compliant



Applications

- 40GBASE-SR4 40G Ethernet
- Infiniband QDR and DDR interconnects
- Fiber channel

Descriptions

LX8001CDR QSFP+ transceivers are designed for use in 40Gb/s links over multimode fiber. They integrate four channel VCSEL array and four channel PIN photodiode array, each channel can operate at 10.3125Gb/s up to 100m using OM3 or 150m using OM4 MMF. They are compliant with the QSFP+ MSA and IEEE 802.3ba 40GBASE-SR4.

LX8001CDR are compliant with RoHS.

Ordering Information

Table 1. Ordering Information

| Part Number | Transmitter | Output Power | Receiver | Sensitivity | Reach | Temp | DDM | RoHS |
|-------------|-------------|----------------|----------|-------------|-------|---------|-----------|-----------|
| LX8001CDR | 850nm VCSEL | -7.6 ~ +2.4dBm | PIN | < -9.5dBm | 100m | 0~ 70°C | Available | Compliant |

Pin Description

Table 2. Pin Description

| Pin | Name | Function/Description | Notes |
|-----|---------|--|-------|
| 1 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 2 | Tx2- | Transmitter Inverted Data Input | |
| 3 | Tx2+ | Transmitter Non-Inverted Data output | |
| 4 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 5 | Tx4- | Transmitter Inverted Data Input | |
| 6 | Tx4+ | Transmitter Non-Inverted Data output | |
| 7 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 8 | ModSelL | Module Select | 2 |
| 9 | ResetL | Module Reset | 2 |
| 10 | VccRx | 3.3V Power Supply Receiver | |
| 11 | SCL | 2-Wire serial Interface Clock | 2 |
| 12 | SDA | 2-Wire serial Interface Data | 2 |
| 13 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 14 | Rx3+ | Receiver Non-Inverted Data Output | |
| 15 | Rx3- | Receiver Inverted Data Output | |
| 16 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 17 | Rx1+ | Receiver Non-Inverted Data Output | |
| 18 | Rx1- | Receiver Inverted Data Output | |
| 19 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 20 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 21 | Rx2- | Receiver Inverted Data Output | |
| 22 | Rx2+ | Receiver Non-Inverted Data Output | |
| 23 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 24 | Rx4- | Receiver Inverted Data Output | 1 |
| 25 | Rx4+ | Receiver Non-Inverted Data Output | |
| 26 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 27 | ModPrsl | Module Present | |
| 28 | IntL | Interrupt | 2 |
| 29 | VccTx | 3.3V power supply transmitter | |
| 30 | Vcc1 | 3.3V power supply | |
| 31 | LPMode | Low Power Mode | 2 |
| 32 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 33 | Tx3+ | Transmitter Non-Inverted Data Input | |
| 34 | Tx3- | Transmitter Inverted Data Output | |
| 35 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |
| 36 | Tx1+ | Transmitter Non-Inverted Data Input | |
| 37 | Tx1- | Transmitter Inverted Data Output | |
| 38 | GND | Transmitter Ground (Common with Receiver Ground) | 1 |

Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.

Transceiver Electrical Characteristics

Table 5. Transceiver Electrical Characteristics

| Parameter | Symbol | Minimum | Typical | Maximum | Unit | Notes |
|----------------------------------|---------------------------------|---------|---------|---------|-------------------|-------|
| Module Supply Current | I _{cc} | - | - | 430 | mA | - |
| Power Dissipation | P _D | - | - | 1.5 | W | - |
| Transmitter | | | | | | |
| Input Differential Impedance | Z _{IN} | - | 100 | - | Ω | - |
| Differential Data Input Swing | V _{IN, P-P} | 180 | - | 900 | mV _{P-P} | - |
| Receiver | | | | | | |
| Output Differential Impedance | Z _O | - | 100 | - | Ω | - |
| Differential Data Output Swing | V _{OUT, P-P} | 300 | - | 850 | mV _{P-P} | 1 |
| Data Output Rise Time, Fall Time | t _r , t _f | 28 | - | - | ps | 2 |

Notes:

- Internally AC coupled, but requires an external 100Ω differential load termination.
- 20 – 80 %.

Transmitter Optical Characteristics

Table 6. Transmitter Optical Characteristics

| Parameter | Symbol | Minimum | Typical | Maximum | Unit | Notes |
|------------------------------------|-----------------------------|---------|---------|---------|------|-------|
| Launch Optical Power | P _o | -7.6 | - | +2.4 | dBm | 1 |
| Center Wavelength Range | λ _c | 830 | 850 | 860 | nm | - |
| Extinction Ratio | EX | 3 | - | - | dB | 2 |
| Spectral width(RMS) | Δλ | - | - | 0.65 | nm | |
| Transmitter and Dispersion Penalty | TDP | - | - | 3.2 | dB | - |
| Optical Return Loss Tolerance | ORLT | - | - | 12 | dB | - |
| Eye Diagram | IEEE Std 802.3ba compatible | | | | | |

Notes:

- The optical power is launched into OM3 MMF.
- Measured with a PRBS 2³¹-1 test pattern @10.3125Gbps.

Receiver Optical Characteristics

Table 7. Receiver Optical Characteristics

| Parameter | Symbol | Minimum | Typical | Maximum | Unit | Notes |
|--|------------------|---------|---------|---------|------|-------|
| Center Wavelength | λ _c | 830 | 850 | 860 | nm | - |
| Receiver Sensitivity (P _{avg}) | S | - | - | -9.5 | dBm | 1 |
| Damage Threshold | P _{OL} | 2.5 | - | - | dBm | 1 |
| Optical Return Loss | ORL | 12 | - | - | dB | - |
| LOS De-Assert | LOS _D | - | - | -11 | dBm | - |

| | | | | | | |
|----------------|------------------|-----|---|---|-----|---|
| LOS Assert | LOS _A | -30 | - | - | dBm | - |
| LOS Hysteresis | - | 0.5 | - | - | dB | - |

Notes:

1. Measured with PRBS 2³¹-1 test pattern, 10.3125 Gb/s, BER<10⁻¹².

Recommended Host Board Power Supply Filter Network

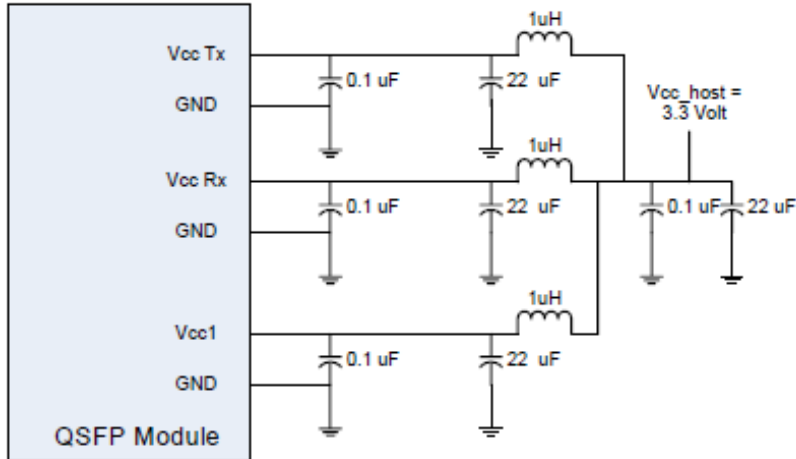


Figure 2. Recommended Host Board Power Supply Filter Network

Recommended Application Interface Block Diagram

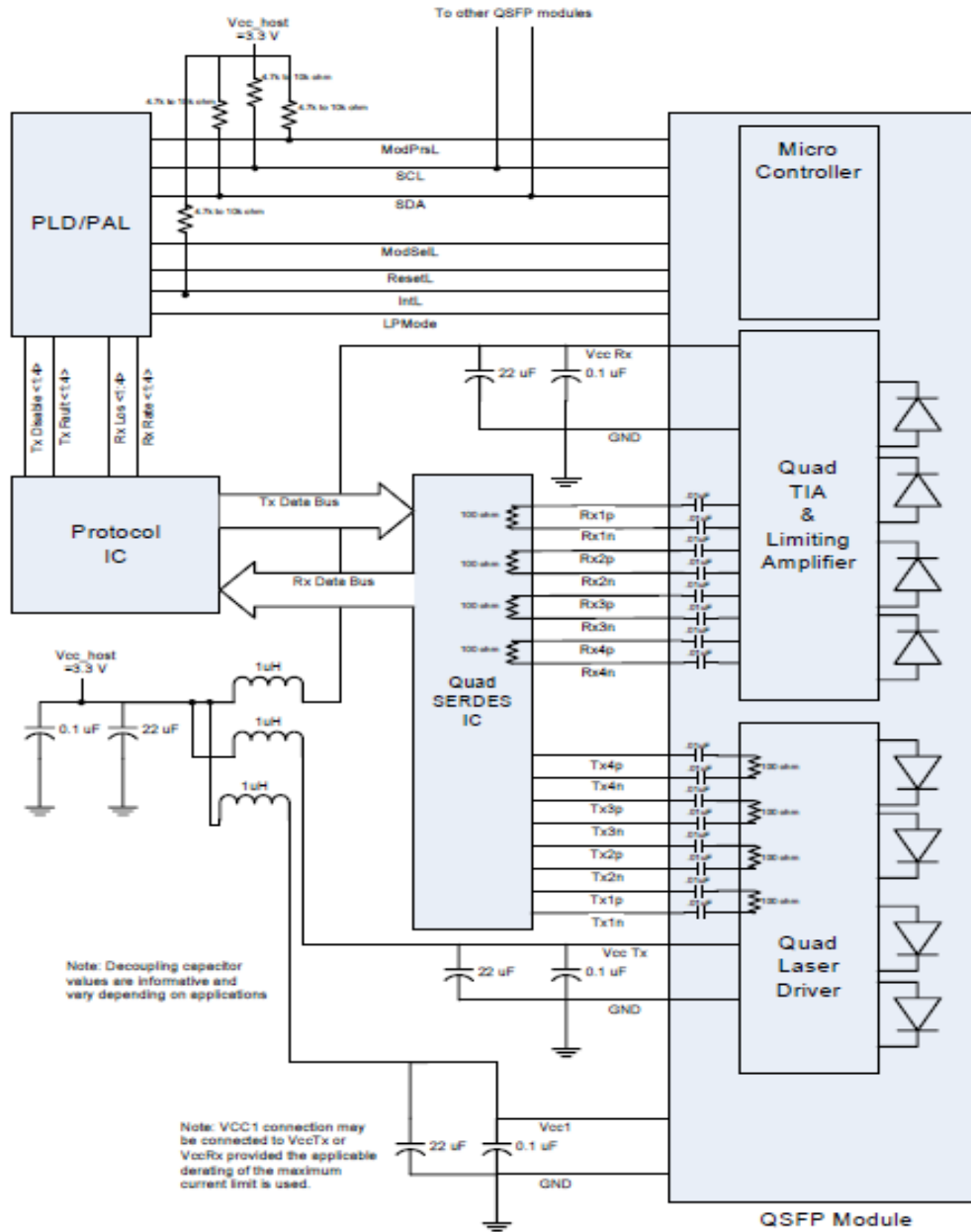


Figure 3. Recommended Application Interface Block Diagram

Mechanical specifications

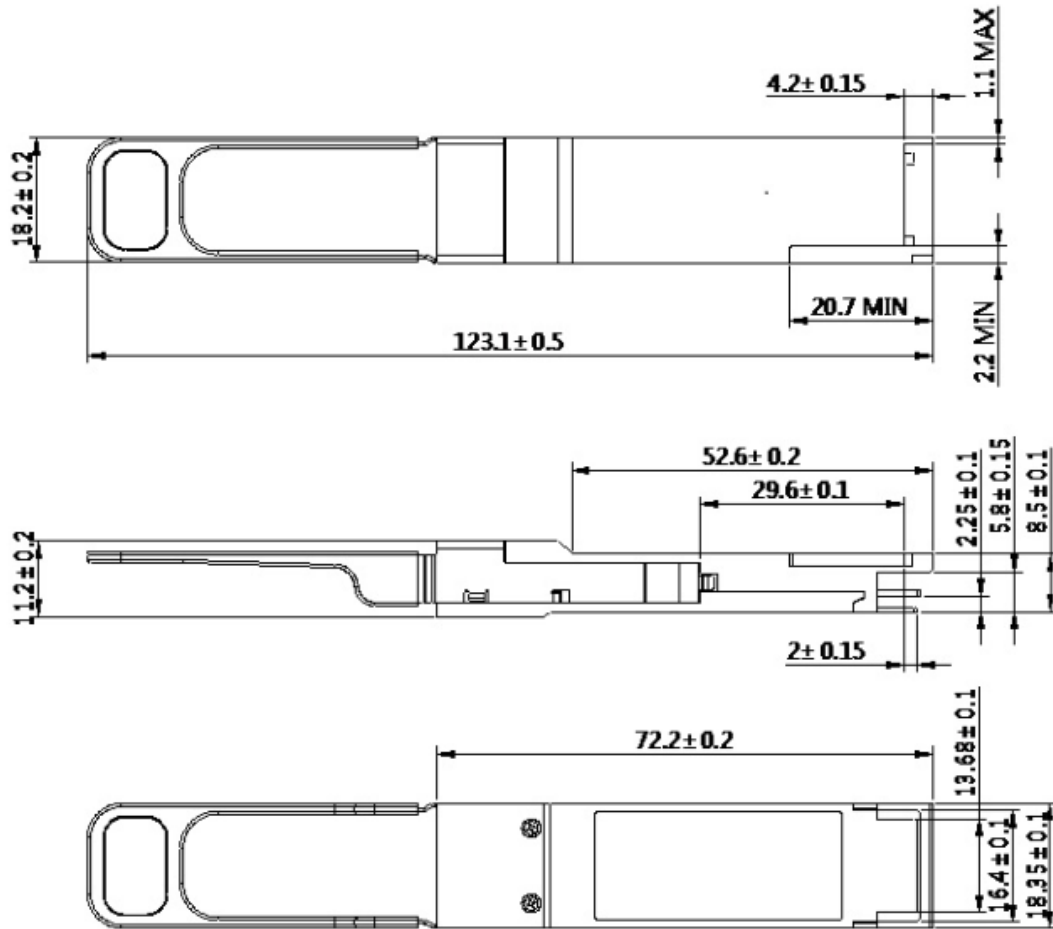


Figure 4. Outline Drawing

Revision History

| Date | Rev | Description | Modified By |
|------------|------|---------------------|----------------|
| 09/04/2020 | V1.0 | Preliminary Release | Shizheng Huang |
| | | | |

For More Information

Linktel Technologies Co., Ltd

info@linkteltech.com

www.linkteltech.com

Linktel USA

1601 McCarthy Blvd #9, Milpitas, CA 95035, USA

Tel: +1 408 807 0482

Email: linktelus@linkteltech.com

jimli@linkteltech.com

Linktel International (Except USA)

E12, No. 52 Liufang Road, East-Lake Hi-tech Development Zone, Wuhan, China

Tel: +86 27 8792 9207

Email: ailsagong@linkteltech.com

Linktel China

E12, No. 52 Liufang Road, East-Lake Hi-tech Development Zone, Wuhan, China

Tel: +86 27 8792 9213

Email: lifan@linkteltech.com