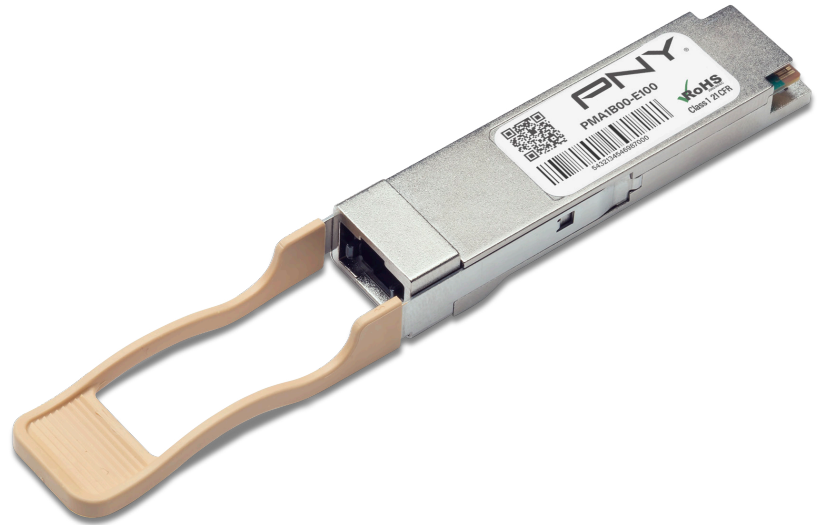


Features

- Supports 103.1Gb/s aggregate bit rate
- Hot pluggable QSFP28 form factor
- Power dissipation < 2.5W
- RoHS-6 compliant
- Commercial case temperature range of 0°C to 70°C
- Single 3.3 V power Supply
- Maximum link length of 100m on OM4 Multimode Fiber(MMF)
- 4X25Gb/s 850nm VCSEL-based transmitter
- 4X25G electrical interface



- Single MPO12 receptacle
- I2C management interface
- 100BASE-SR4 100G Ethernet

1. Absolute Maximum Ratings

| Parameter | Symbol | Min. | Max. | Unit |
|-------------------------------------|--------|------|------|------|
| Storage Temperature | TS | -40 | 85 | °C |
| Supply Voltage | VCC3 | -0.5 | 4 | V |
| Relative Humidity(Non-condensing) | RH | 15 | 85 | % |
| Receiver Damage Threshold ,per Lane | Prdmg | 3.4 | | dBm |

2. Recommended Operating Conditions

| Parameter | Symbol | Min. | Typical | Max. | Unit |
|----------------------------|--------|------|----------|------|------|
| Operating Case Temperature | TC | 0 | 25 | 70 | °C |
| Operating Case Temperature | TI | -40 | 25 | 85 | °C |
| Power Supply Voltage | VCC3 | 3.1 | 3.3 | 3.5 | V |
| Data Rate PER Channel | - | - | 25.78125 | - | Gbps |
| Supply Current | ICC3 | | | 0.8 | A |
| Module Total Power* | PD | | | 2.5 | W |

* Maximum total power value is specified across the full operational temperature and voltage range when CDRs are locked or a lack of input signal results in squelch being activated. If incorrect frequencies cause the CDRs to continuously attempt to lock, maximum power dissipation may reach 3.5 W

3. Electrical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|--------------------------------|---------------------|-------------------|---------|------|------|------|
| Transmitter | | | | | | |
| Signaling rate per lane | | 25.78125 ± 100ppm | | | Gb/s | |
| Differential Data Input Swing | V _{in,P-P} | | - | 900 | mV | |
| Single-ended voltage tolerance | V _{in,PP} | -0.35 | | 3.3 | V | |
| Receiver | | | | | | |
| Differential Date Output Swing | V _{out} | 100 | - | 400 | mVpp | 1 |
| | | 300 | | 600 | | |
| | | 400 | 600 | 800 | | |
| | | 600 | | 1200 | | |
| Eye width | | 0.57 | | | UI | |
| Eye Height, differential | | 228 | | | mV | |
| Vertical eye closure | VEC | 5.5 | | | dB | |
| Transition time(20% ~ 80%) | tr,tf | 12 | | | ps | |

1. Output voltage is settable in 4 discrete ranges via I2C. Default range is Range 2 (400 800 mV).

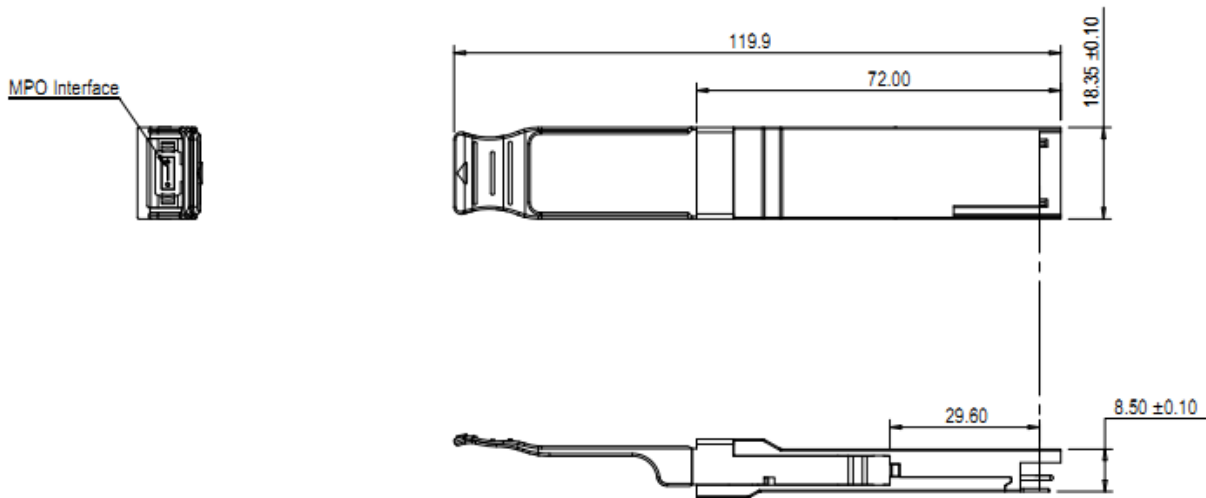
4. Optical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|--------------------------------------|------------------|------------------------------------|----------|------|------|------|
| Transmitter | | | | | | |
| Bit Rate | BR | 10.3125 | 25.78125 | - | Gbps | 1 |
| Center Wavelength Range | λ _c | 840 | 850 | 860 | nm | |
| RMS Spectral Width | Δλ | - | - | 0.6 | nm | |
| Average Launch Power per Lane | TXP _x | -8.4 | | 2.4 | dBm | |
| Average Launch power Tx_off | P _{off} | - | | -30 | dBm | |
| Transmit OMA per Lane | TxOMA | -6.4 | | 3 | dBm | |
| Extinction Ratio | ER | 2 | - | - | dB | |
| Eye Mask {X1, X2, X3, Y1, Y2, Y3} | | {0.3, 0.38, 0.45, 0.35, 0.41, 0.5} | | | | 2 |
| Receiver | | | | | | |
| Signaling Speed per Lane | BR | 10.3125 | 25.78125 | - | Gbps | |
| Center Wavelength Range | λ _c | 840 | - | 860 | nm | |
| Damage Thredhold | DT | 3.4 | | | dBm | |

| | | | | | | |
|--------------------------------------|--------|-------|---|------|-----|---|
| Average Receive Power per Lane | RXPX | -10.3 | | 2.4 | dBm | 3 |
| Stressed receiver sensitivity in OMA | RxSOMA | | | -5.2 | dBm | 4 |
| Receive Power (OMA) per Lane | RxOMA | | | 3 | dBm | |
| LOS Assert | - | -30 | - | - | dBm | |
| LOS De-Assert | - | - | - | -12 | dBm | |
| LOS Hysteresis | | 0.5 | 2 | | dB | |

1. Transmitter consists of 4 lasers operating at a maximum speed of 25.78125Gb/s ±100ppm each.
2. Hit Ratio 1.5 x 10 hits/sample
3. Minimum value is informative only and not the principal indicator of signal strength.
4. Hit Ratio 5 x 10 5 hits/sample.

5. Mechanical Diagram



Note: External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.



6. Ordering Information

| PNY P/N | Mellanox Legacy P/N | Nvidia P/N | Product Description |
|-----------------|---------------------|------------------|---|
| PMA1B00-E100 | MMA1B00-E100 | 980-9117L-00E000 | 100% Mellanox Compatible transceiver, IB EDR, up to 100Gb/s, QSFP28, MPO, 850nm, SR4, up to 100m 5 Year Warranty |
| PMA1B00-E100-10 | MMA1B00-E100 | 980-9117L-00E000 | 100% Mellanox Compatible transceiver, IB EDR, up to 100Gb/s, QSFP28, MPO, 850nm, SR4, up to 100m 10 Year Warranty |

7. Contact Information

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