

Q28-100GP4-BXU2733-10-I-J-PRO

Juniper Networks® Compatible TAA Compliant 100GBase-BX PAM4 QSFP28 Single Lambda Transceiver (SMF, 1271nmTx/1331nmRx, DOM, -40 to 85C, LC)

Features

- Compliant with 100G Lambda MSA 100G-LR Specifications
- Single 3.3V Power Supply
- Compliant with SFF-8636
- Bidi LC Connectors
- Industrial Temperature -40 to 85 Celsius
- Single-mode Fiber
- Metal with Lower EMI
- Hot Pluggable
- RoHS Compliant and Lead Free
- Excellent ESD Protection



Applications:

- 100GBase Ethernet
- Datacenter

Product Description

This Juniper Networks® QSFP28 transceiver provides 100GBase-BX throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1271nmTx/1331nmRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent Juniper Networks® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Proline's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products.



Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------------------------------|------------------|------|--------|----------------------|------|-------|
| Maximum Supply Voltage | V _{cc} | 0 | | 3.6 | V | |
| Data Input Voltage | | -0.3 | | 3.6 | V | |
| Control Input Voltage | | -0.3 | | 4 | V | |
| Storage Temperature | T _{stg} | -40 | | 85 | °C | |
| Operating Case Temperature | T _c | 0 | | 70 | °C | |
| Relative Humidity | RH | 5 | | 85 | % | |
| Data Rate | BR | | 53.125 | | GBd | |
| Bit Error Rate | BER | | | 2.4x10 ⁻⁴ | | 1 |
| Supported Link Length on 9/125um SMF, 53.125 GBd | L | | 10 | | km | 2 |

Notes:

1. Tested with a PRBS31Q test pattern for 53.125 GBd operation.
2. Distances are based on FC-PI-6 Rev. 3.1 and IEEE 802.3 standards, with FEC.

Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------------|------------------------|-------|------|-------|-------|-------|
| Power Supply Voltage | V _{cc} | 3.135 | 3.3 | 3.465 | V | |
| Module Supply Current | I _{cc} | | | 1212 | mA | |
| Power Dissipation | P _{DISS} | | | 4000 | mW | |
| Transmitter | | | | | | |
| Differential Data Input Swing | V _{IN} , p-p | 90 | 100 | 110 | mVp-p | |
| Differential Input Impedance | Z _{IN} | 90 | 100 | 110 | Ω | |
| Receiver | | | | | | |
| Differential Data Output Swing | V _{OUT} , p-p | 300 | | 900 | mVp-p | |
| Differential Output Impedance | Z _{OUT} | 90 | 100 | 110 | Ω | |

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---------------------------------------------------------|-------------|--------|------|--------|-------|-------|
| Transmitter | | | | | | |
| Center Wavelength | λ_C | 1264.5 | 1271 | 1277.5 | nm | |
| Extinction Ratio | ER | 3.5 | | | dB | |
| Launch Optical Power (Average) | Po | -1.4 | | 4.5 | dBm | 1 |
| Launch Optical Power (OMA) | Poma | 0.7 | | 4.7 | dBm | |
| Transmitter and dispersion penalty eye closure for PAM4 | TDECQ | | | 3.4 | dB | |
| RIN17.1OMA (max) | RIN | | | -136 | dB/Hz | |
| Optical Return Loss Tolerance | ORLT | | | 15.6 | dB | |
| Pout @TX-Disable Asserted | Poff | | | -30 | dBm | |
| Receiver | | | | | | |
| Center Wavelength | λ_C | 1324.5 | 1331 | 1337.5 | nm | |
| Receiver Sensitivity (OMA) | RxSENS | | | -6.1 | dBm | 2 |
| Receiver Overload (Pavg) | POL | 4.5 | | | dBm | |
| Receiver reflectance | | | | -26 | dB | |
| LOS De-Assert | LOSD | | | -12 | dBm | |
| LOS Assert | LOSA | -18 | | | dBm | |
| LOS Hysteresis | | 0.5 | | | dB | |

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. Measured with PRBS31Q test pattern, 53.125GBd, BER<2.4×10⁻⁴.

Pin Descriptions

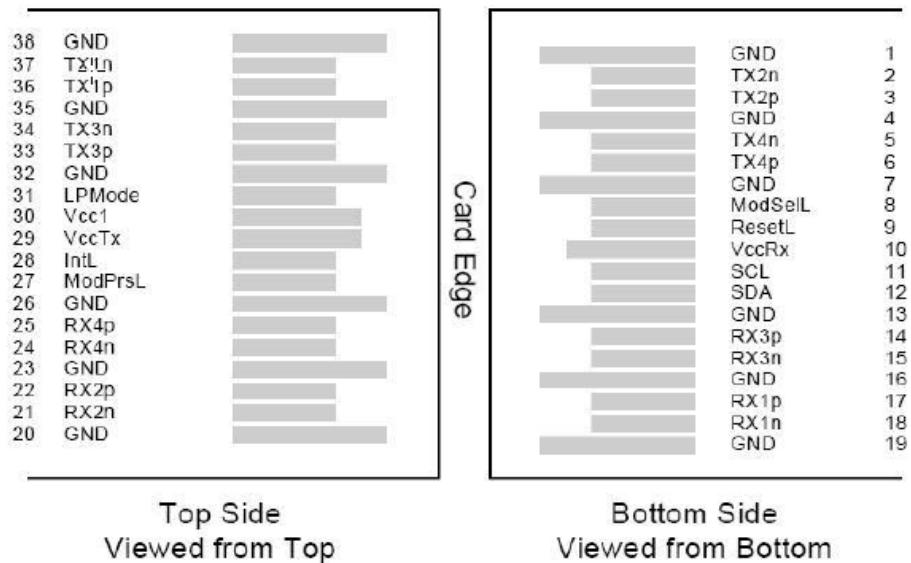
| Pin | Logic | Symbol | Name/Descriptions | Notes |
|-----|------------|---------|---------------------------------------|-------|
| 1 | | GND | Module Ground. | 1 |
| 2 | CML-I | Tx2- | Transmitter Inverted Data Input. | |
| 3 | CML-I | Tx2+ | Transmitter Non-Inverted Data Output. | |
| 4 | | GND | Module Ground. | 1 |
| 5 | CML-I | Tx4- | Transmitter Inverted Data Input. | |
| 6 | CML-I | Tx4+ | Transmitter Non-Inverted Data Output. | |
| 7 | | GND | Module Ground. | 1 |
| 8 | LVTLL-I | ModSelL | Module Select. | |
| 9 | LVTLL-I | ResetL | Module Reset. | |
| 10 | | VccRx | +3.3V Receiver Power Supply. | 2 |
| 11 | LVCMOS-I/O | SCL | 2-Wire Serial Interface Clock. | |
| 12 | LVCMOS-I/O | SDA | 2-Wire Serial Interface Data. | |
| 13 | | GND | Module Ground. | |
| 14 | CML-O | Rx3+ | Receiver Non-Inverted Data Output. | |
| 15 | CML-O | Rx3- | Receiver Inverted Data Output. | |
| 16 | | GND | Module Ground. | 1 |
| 17 | CML-O | Rx1+ | Receiver Non-Inverted Data Output. | |
| 18 | CML-O | Rx1- | Receiver Inverted Data Output. | |
| 19 | | GND | Module Ground. | 1 |
| 20 | | GND | Module Ground. | 1 |
| 21 | CML-O | Rx2- | Receiver Inverted Data Output. | |
| 22 | CML-O | Rx2+ | Receiver Non-Inverted Data Output. | |
| 23 | | GND | Module Ground. | 1 |
| 24 | CML-O | Rx4- | Receiver Inverted Data Output. | 1 |
| 25 | CML-O | Rx4+ | Receiver Non-Inverted Data Output. | |
| 26 | | GND | Module Ground. | 1 |
| 27 | LVTTL-O | ModPrsL | Module Present. | |
| 28 | LVTTL-O | IntL | Interrupt. | |
| 29 | | VccTx | +3.3V Transmitter Power Supply. | 2 |
| 30 | | Vcc1 | +3.3V Power Supply. | 2 |
| 31 | LVTTL-I | LPMoDe | Low-Power Mode. | |
| 32 | | GND | Module Ground. | 1 |
| 33 | CML-I | Tx3+ | Transmitter Non-Inverted Data Input. | |
| 34 | CML-I | Tx3- | Transmitter Inverted Data Output. | |
| 35 | | GND | Module Ground. | 1 |

| | | | | |
|----|-------|------|--------------------------------------|---|
| 36 | CML-I | Tx1+ | Transmitter Non-Inverted Data Input. | |
| 37 | CML-I | Tx1- | Transmitter Inverted Data Output. | |
| 38 | | GND | Module Ground. | 1 |

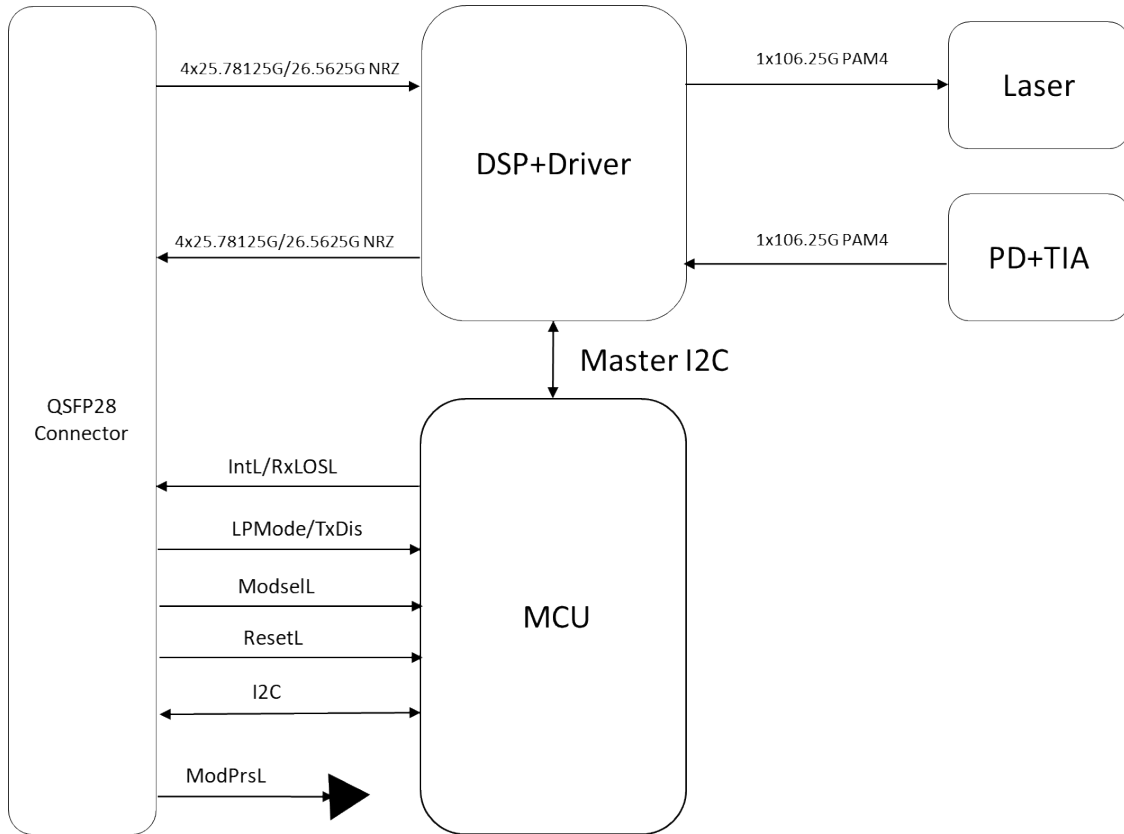
Notes:

1. GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the QSFP28 module, and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. VccRx, Vcc1, and VccTx are the receiver and transmitter power supplies and shall be applied concurrently. Recommended host board power supply filtering is shown below. VccRx, Vcc1, and VccTx may be internally connected within the QSFP28 transceiver module in any combination. The connector pins are each rated for a maximum current of 1000mA.

Electrical Pin-Out Details



Block Diagram



About Us:

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.



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