

Q28-100GP4-BXD3129-20-PRO

MSA and TAA Compliant 100GBase-BX LR1 PAM4 QSFP28 Single Lambda Transceiver (SMF, 1311nmTx/1291nmRx, 20km, DOM, 0 to 70C, LC)

Features

- Compliant with QSFP28 MSA
- Supports 100Gbps
- Compliant with SFF-8636 Rev 2.10a
- 4x25G Electrical Interface Compliant with OIF CEI-28G-VSR
- Bidi LC Connectors
- Single 3.3V Power Supply
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- RoHS Compliant and Lead Free



Applications:

- 100GBase Ethernet
- Datacenter

Product Description

This MSA Compliant QSFP28 transceiver provides 100GBase-BX LR1 throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1311nmTx/1291nmRx via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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 |
|-----------------------------|--------------------|-------|------|-------|------|
| Power Supply Voltage | V _{cc} | 3.135 | 3.3 | 3.465 | V |
| Supply Voltage | V _{cc} | -0.5 | | 3.6 | V |
| Storage Temperature | T _{stg} | -40 | | 85 | °C |
| Operating Case Temperature | T _c | 0 | | 70 | °C |
| Operating Relative Humidity | RH | 5 | | 85 | % |
| Damage Threshold | R _x dmg | 7.6 | | | dBm |
| Power Dissipation | P _{DISS} | | | 4.5 | W |

Notes:

1. Exceeding any one of these values may damage the device permanently.
2. Power Supply Specifications, Instantaneous, Sustained, and Steady State Current are compliant with QSFP28 MSA Power Classification.

Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|--------------------------------|------|------|------|-------|-------------------------|
| Transmitter | | | | | | |
| Differential Data Input Swing Per Lane | | 900 | | | mVp-p | |
| Differential Input Impedance | Z _{IN} | 90 | 100 | 110 | Ω | |
| DC Common-Mode Voltage (V _{cm}) | | -350 | | 2850 | mV | |
| Receiver | | | | | | |
| Differential Output Amplitude | | | | 900 | mVp-p | |
| Differential Output Impedance | Z _{OUT} | 90 | 100 | 110 | Ω | |
| Output Rise/Fall Time | T _r /T _f | 12 | | | ps | 20-80% |
| Eye Width | | 0.57 | | | UI | |
| Eye Height Differential | | 228 | | | mV | @TP4, 1E ⁻¹⁵ |
| DC Common-Mode Voltage (V _{cm}) | | -350 | | 2850 | mV | 1 |

Notes:

1. V_{cm} is generated by the host. Specification includes effects of ground offset voltage.

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--|-------------|-----------|--------|--------------------|------|-------|
| Transmitter | | | | | | |
| Signaling Speed | | | 53.125 | | GBd | |
| Modulation Format | | PAM4 | | | | |
| Center Wavelength | λ_C | 1304.5 | 1311 | 1317.5 | nm | |
| Side-Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Extinction Ratio | ER | 3.5 | | | dB | |
| Transmit OMA for TDECQ<1.4dB | TxOMA | 2.8 | | 6.8 | dBm | |
| Transmit OMA for 1.4dB<TDECQ<TDECQ (Maximum) | TxOMA | 1.4+TDECQ | | 6.8 | dBm | |
| Transmit Average Power | TxAVG | -0.2 | | 6.6 | dBm | 1 |
| Transmitter and Dispersion Eye Closure | TDECQ | | | 3.6 | dB | |
| Optical Return Loss Tolerance | | | | 15.6 | dB | 2 |
| Receiver | | | | | | |
| Signaling Speed | | | 53.125 | | GBd | |
| Center Wavelength | λ_C | 1284.5 | 1291 | 1297.5 | nm | |
| Damage Threshold | | 7.6 | | | dBm | |
| Receive Power (OMA _{outer}) | RxOMA | | | 6.8 | dBm | |
| Average Receive Power | RxAVG | -10 | | 6.6 | dBm | |
| Receiver Sensitivity (OMA _{outer}) | SenOMA | | | MAX (-7.6, SECQ-9) | dBm | 3 |
| Receiver Reflectance | | | | -26 | dB | |
| LOS Assert | LOSA | -15 | | | dBm | |
| LOS De-Assert | LOSD | | | -12 | dBm | |
| LOS Hysteresis | | 0.5 | | | dB | |

Notes:

1. Average launch power (minimum) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
2. Transmitter reflectance is defined looking into the transmitter.
3. Sensitivity is specified at 2.4×10^{-4} BER.

Pin Descriptions

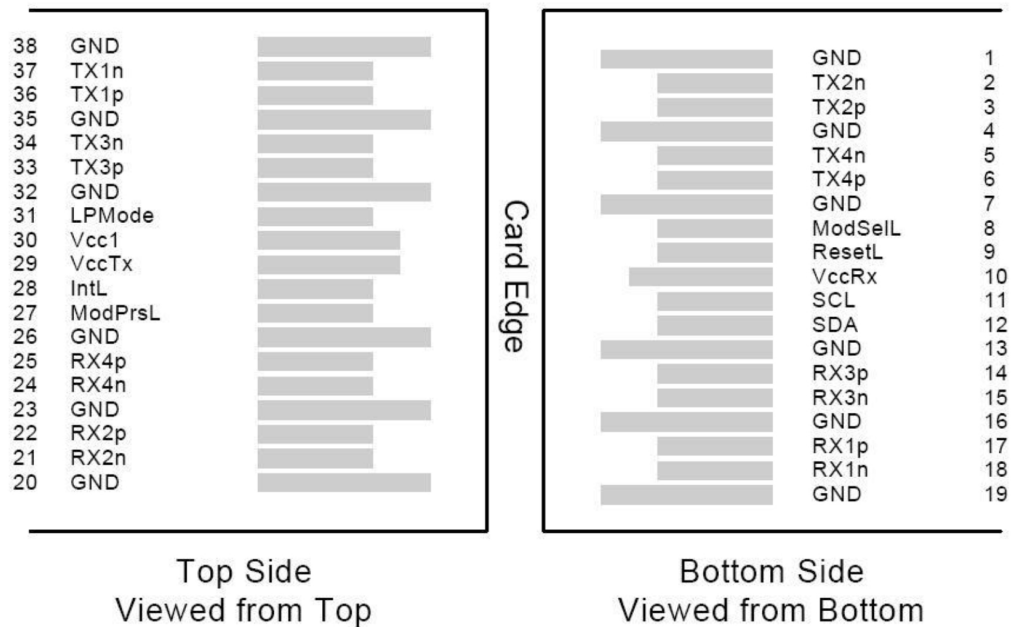
| Pin | Logic | Symbol | Name/Description | Notes |
|-----|------------|--------------|---|-------|
| 1 | | GND | Module Ground. | 1 |
| 2 | CML-I | Tx2- | Transmitter Inverted Data Input. | |
| 3 | CML-I | Tx2+ | Transmitter Non-Inverted Data Output. | |
| 4 | | GND | Module Ground. | 1 |
| 5 | CML-I | Tx4- | Transmitter Inverted Data Input. | |
| 6 | CML-I | Tx4+ | Transmitter Non-Inverted Data Input. | |
| 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 | LVCNOS-I/O | SCL | 2-Wire Serial Interface Clock. | |
| 12 | LVCNOS-I/O | SDA | 2-Wire Serial Interface Data. | |
| 13 | | GND | Module Ground. | 1 |
| 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/RxLOSL | Interrupt. Optionally configurable as RxLOSL via the management interface (SFF-8636). | |
| 29 | | VccTx | +3.3V Transmitter Power Supply. | 2 |
| 30 | | Vcc1 | +3.3V Power Supply. | 2 |
| 31 | LVTTL-I | LPMode/TxDis | Low-Power Mode. Optionally configurable as TxDis via the management interface (SFF-8636). | |
| 32 | | GND | Module Ground. | 1 |
| 33 | CML-I | Tx3+ | Transmitter Non-Inverted Data Input. | |
| 34 | CML-I | Tx3- | Transmitter Inverted Data Input. | |

| | | | | |
|----|-------|------|--------------------------------------|---|
| 35 | | GND | Module Ground. | 1 |
| 36 | CML-I | Tx1+ | Transmitter Non-Inverted Data Input. | |
| 37 | CML-I | Tx1- | Transmitter Inverted Data Input. | |
| 38 | | GND | Module Ground. | 1 |

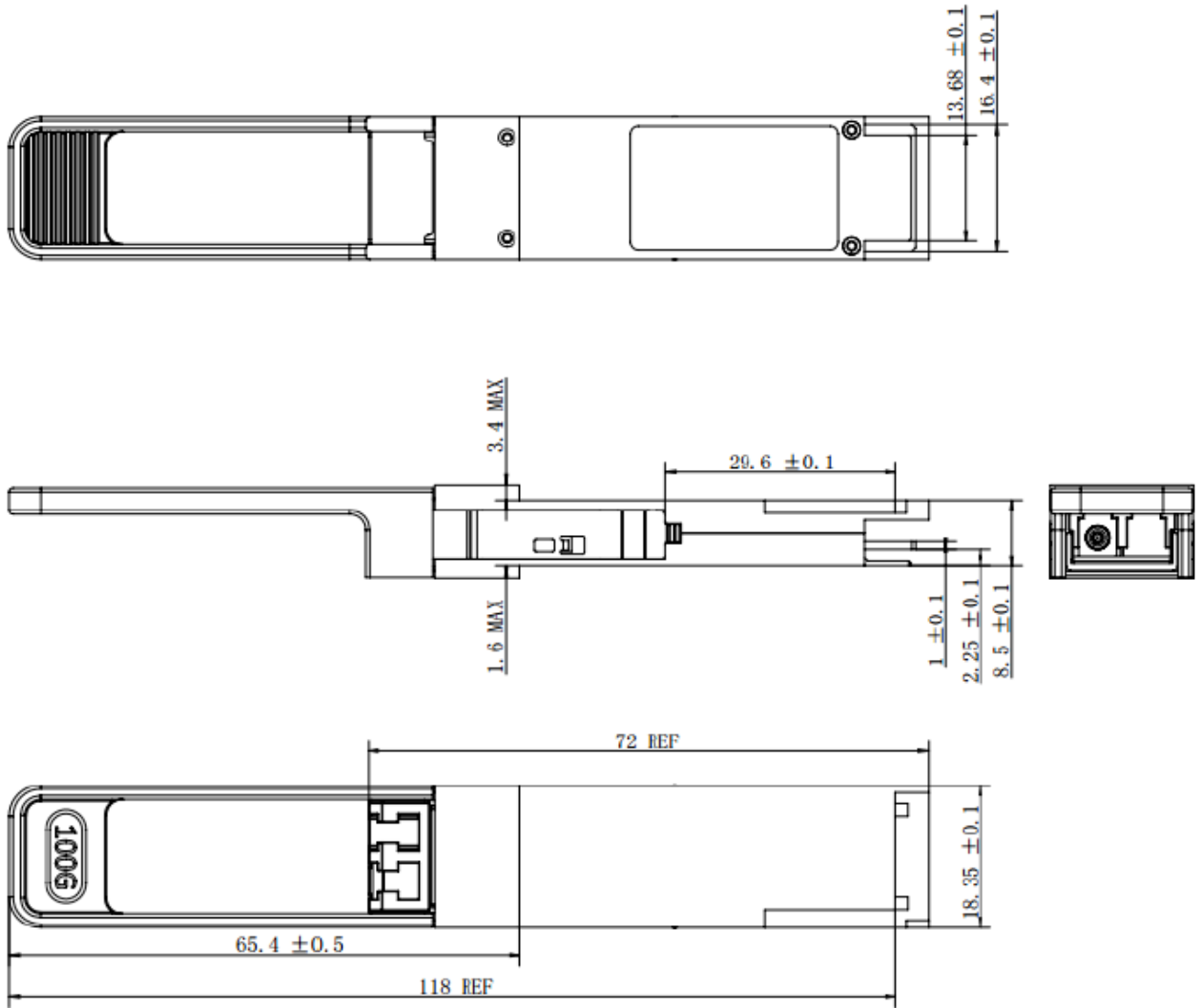
Notes:

1. GND is the symbol for signal and supply (power) common for QSFP28 modules. 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. 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



Mechanical Specifications



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.



Tel: 855.933.3223

Email: sales@prolineoptions.com

Email: techsupport@prolineoptions.com

Web: <https://www.prolineoptions.com>