

QSFP28-100GB-BX-D-70-AR-C

Arista Networks® Compatible TAA 100GBase-ZR4 Lite BX QSFP28 Transceiver (SMF, 1310.19nmTx/1272.55nmRx, 70km, LC, DOM)

Features:

- Compliant with QSFP28 MSA
- Hot Pluggable
- Supports 103.1Gbps Aggregate Bit Rate
- Up to 70km Reach for G.652 SMF
- Single 3.3V Power Supply
- Cooled 4x25Gbps LAN WDM Transmitter TOSA, Receiver ROSA
- Maximum Power Consumption: 5.0W
- Single LC Receptacle
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



Applications:

- 100GBase Ethernet
- Datacenter

Product Description

This Arista Networks® QSFP28 transceiver provides 100GBase-BX ZR4L throughput up to 70km over single-mode fiber (SMF) using a wavelength of 1310.19nmTx/1272.55nmRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent Arista 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.

ProLabs' 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 |
|----------------------------|--------|------|----------|------|------|-------|
| Storage Temperature | Tstg | -40 | | 85 | °C | |
| Operating Case Temperature | Tc | 0 | | 70 | °C | |
| Relative Humidity | RH | 0 | | 90 | % | |
| Supply Voltage | Vcc | -0.5 | | 3.6 | V | |
| Power Consumption | P | | | 5.0 | W | |
| Data Rate Per Lane | Gbps | | 25.78125 | | | |
| Signaling Speed Accuracy | | -100 | | 100 | ppm | |

Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|-----------------------------------|-------------------|-------|------|---------|------|--------|
| Power Supply Voltage | Vcc | 3.135 | 3.3 | 3.465 | V | |
| Power Supply Current | Icc | mA | | 1443 | mA | |
| Sustained Peak Current | Isp | mA | | 1650 | mA | |
| Instantaneous Peak Current | Iip | | | 2000 | | |
| Power Dissipation | PW | | | 5.0 | W | |
| Low Power Dissipation | P _{DISS} | | | 1.5 | W | |
| Transmitter | | | | | | |
| Differential Voltage Pk-Pk | | | | 900 | mV | |
| Common-Mode Noise (RMS) | | | | 17.5 | mV | |
| Eye Height | | 95 | | | mV | |
| Eye Width | | 0.46 | | | UI | |
| Differential Termination Mismatch | | | | 10 | % | |
| Transition Time | | 10 | | | ps | 20-80% |
| Common-Mode Voltage | | -0.3 | | 2.8 | V | |
| Receiver | | | | | | |
| Differential Voltage Pk-Pk | | | | 900 | mV | |
| Common-Mode Noise (RMS) | | | | 17.5 | mV | |
| Eye Height | | 228 | | | mV | |
| Eye Width | | 0.57 | | | UI | |
| Differential Termination Mismatch | | | | 10 | % | |
| Transition Time | | 9.5 | | | ps | 20-80% |
| Vertical Eye Closure | VEC | | | 5.5 | dB | |
| 3.3V LVTTTL | | | | | | |
| Input High Voltage | VIH | 2.0 | | Vcc+0.3 | V | |

| | | | | | | |
|---------------------------------|-----|---------|--|---------|-----|--|
| Input Low Voltage | VIL | -0.3 | | 0.8 | V | |
| Input Leakage Current | IIN | -10 | | +10 | uA | |
| Output High Voltage (IOH=100uA) | VOH | Vcc-0.5 | | Vcc+0.3 | V | |
| Output Low Voltage (IOL=100uA) | VOL | 0 | | 0.4 | V | |
| 3.3V LVCMOS | | | | | | |
| Input High Voltage | VIH | Vcc*0.7 | | Vcc+0.5 | V | |
| Input Low Voltage | VIL | -0.3 | | Vcc*0.3 | V | |
| Output High Voltage (IOH=100uA) | VOH | Vcc-0.5 | | Vcc+0.3 | VOH | |
| Output Low Voltage (IOL=100uA) | VOL | 0 | | 0.4 | VOL | |
| I/O Pin Capacitance | Ci | | | 14 | Ci | |

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--|------------------|------------------------------------|---------|---------|------|-------|
| Transmitter | | | | | | |
| Center Wavelength | λ_C | 1294.53 | 1295.56 | 1296.59 | nm | |
| | | 1299.02 | 1300.05 | 1301.09 | | |
| | | 1303.54 | 1304.58 | 1305.63 | | |
| | | 1308.09 | 1309.14 | 1310.19 | | |
| Side-Mode Suppression Ratio (Minimum) | SMSR | 30 | | | | |
| Total Average Launch Power | P _t | | | 13 | dBm | |
| Average Launch Power Per Lane | P _a | 1.0 | | 7.0 | dBm | 1 |
| Optical Modulation Amplitude Per Lane | OMA | 3 | | 8.8 | dBm | 2 |
| Difference in Launch Power Between Any Two Lanes (OMA) (Maximum) | | | | 3.6 | dB | |
| Average Launch Power of Off Transmitter Per Lane | P _{off} | | | -30 | dBm | |
| Extinction Ratio | ER | 6 | | | dB | |
| Optical Return Loss Tolerance | | | | 20 | dB | |
| Transmitter Reflectance | | | | 12 | dB | 3 |
| Eye Diagram | | | ≥10 | | | |
| Eye Mask Margin | | {0.25, 0.4, 0.45, 0.25, 0.28, 0.4} | | | | 4 |
| Receiver | | | | | | |
| Center Wavelength | λ_C | 1272.55 | 1273.55 | 1274.54 | nm | |
| | | 1276.89 | 1277.89 | 1278.89 | | |
| | | 1281.25 | 1282.26 | 1283.27 | | |
| | | 1285.65 | 1286.66 | 1287.68 | | |
| Damage Threshold | P _{max} | 5.5 | | | dBm | 5 |

| | | | | | | |
|---|--------|-----|--|------|-----|---|
| Average Receive Power Per Lane | Pin | -26 | | -5 | | 6 |
| Receive Power on OMA Per Lane | PinOMA | | | -3.5 | dBm | |
| Receiver Reflectance | dB | | | -26 | | |
| Receiver Sensitivity for Each Lane (100GbE) at BER= 5×10^{-5} BER CD=[-356/66] ps/nm | S | | | -24 | dBm | |
| LOS Hysteresis | | 0.5 | | 5 | dB | |

Notes:

1. Average launch power, per lane (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. Even if the TDP<1dB, the OMA (minimum) must exceed this value.
3. Transmitter reflectance is defined looking into the transmitter.
4. Eye mask hit ratio is $5E^{-5}$.
5. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.
6. Average receive power, each lane (minimum), is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
7. Receiver sensitivity (OMA), per lane (maximum) at 5×10^{-5} BER, is a normative specification.

Pin Descriptions

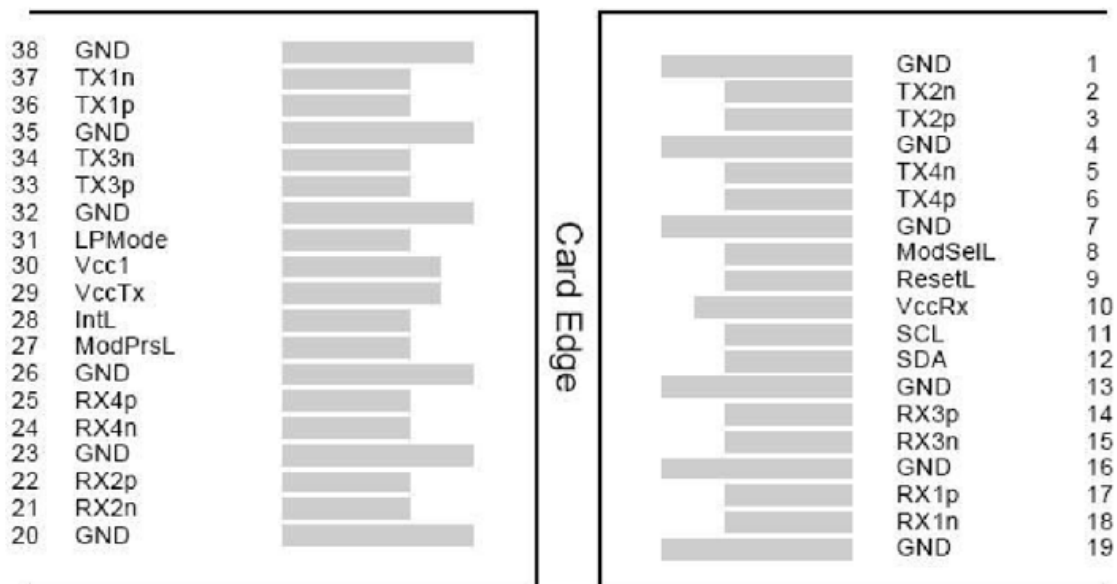
| Pin | Symbol | Name/Description | Notes |
|-----|--------------|---|-------|
| 1 | GND | Module Ground. | 1 |
| 2 | Tx2- | Transmitter Inverted Data Input. | |
| 3 | Tx2+ | Transmitter Non-Inverted Data Input. | |
| 4 | GND | Module Ground. | 1 |
| 5 | Tx4- | Transmitter Inverted Data Input. | |
| 6 | Tx4+ | Transmitter Non-Inverted Data Input. | |
| 7 | GND | Module Ground. | 1 |
| 8 | ModSelL | Module Select. | |
| 9 | ResetL | Module Reset. | |
| 10 | VccRx | +3.3V Receiver Power Supply. | 2 |
| 11 | SCL | 2-Wire Serial Interface Clock. | |
| 12 | SDA | 2-Wire Serial Interface Data. | |
| 13 | GND | Module Ground. | 1 |
| 14 | Rx3+ | Receiver Non-Inverted Data Output. | |
| 15 | Rx3- | Receiver Inverted Data Output. | |
| 16 | GND | Module Ground. | 1 |
| 17 | Rx1+ | Receiver Non-Inverted Data Output. | |
| 18 | Rx1- | Receiver Inverted Data Output. | |
| 19 | GND | Module Ground. | 1 |
| 20 | GND | Module Ground. | 1 |
| 21 | Rx2- | Receiver Inverted Data Output. | |
| 22 | Rx2+ | Receiver Non-Inverted Data Output. | |
| 23 | GND | Module Ground. | 1 |
| 24 | Rx4- | Receiver Inverted Data Output. | |
| 25 | Rx4+ | Receiver Non-Inverted Data Output. | |
| 26 | GND | Module Ground. | 1 |
| 27 | ModPrsL | Module Present. | |
| 28 | 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 | LPMode/TxDis | Low-Power Mode. Optionally configurable as TxDis via the management Interface (SFF-8636). | |
| 32 | GND | Module Ground. | 1 |
| 33 | Tx3+ | Transmitter Non-Inverted Data Input. | |
| 34 | Tx3- | Transmitter Inverted Data Input. | |
| 35 | GND | Module Ground. | 1 |

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

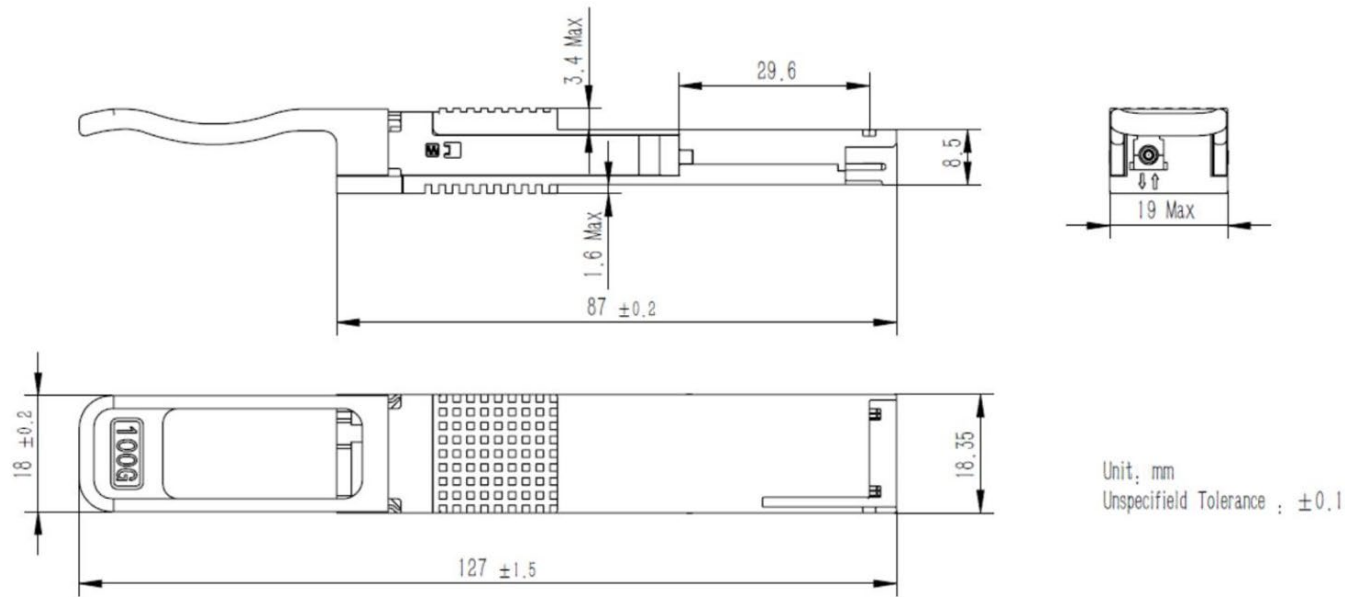
Notes:

1. GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the 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 receiving and transmission power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. VccRx, Vcc1, and VccTx may be internally connected within the module in any combination. The connector pins are each rated for a maximum current of 1000mA.

Electrical Pin-Out Details



Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



Contact Information

ProLabs US

Email: sales@prolabs.com

Telephone: 952-852-0252

ProLabs UK

Email: salesupport@prolabs.com

Telephone: +44 1285 719 600