



### **QSFP28-100GB-SR4-40M-AR-OPC**

Arista Networks® Compatible TAA 100GBase-SR4 QSFP28 Transceiver (MMF, 850nm, 40m w/Reduced FEC, MPO, DOM)

#### **Features**

- Compliant with IEEE Std 802.3bm, 100G BASE SR4 Ethernet
- Compliant with QSFP28 MSA
- Management interface specifications per SFF-8636
- Single MPO connector receptacle
- 4 channels 850nm VCSEL array
- 4 channels PIN photo detector array
- Up to 103.1Gb/s data rates
- Class 1 laser safety certified
- Commercial Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



#### **Applications:**

- 100GBase Ethernet
- Access and Enterprise

#### **Product Description**

This Arista Networks® compatible QSFP28 transceiver provides 100GBase-SR4 throughput up to 40m w/reduced FEC over OM4 multi-mode fiber (MMF) using a wavelength of 850nm via an MPO connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Arista Networks®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows 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.

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

## Absolute Maximum Ratings

| Parameter                  | Symbol           | Min. | Typ.     | Max. | Unit | Notes |
|----------------------------|------------------|------|----------|------|------|-------|
| Power Supply Voltage       | V <sub>CC</sub>  | -0.5 |          | 4    | V    |       |
| Storage Temperature        | T <sub>stg</sub> | -40  |          | 85   | °C   |       |
| Case Operating Temperature | T <sub>c</sub>   | 0    | 25       | 70   | °C   |       |
| Relative Humidity          | RH               | 5    |          | 95   | %    |       |
| Data Rate                  | BR               |      | 25.78125 |      | Gbps |       |
| Transmission Distance      | TD               |      |          | 40   | m    | 1     |
| Transmission Distance      | TD               |      |          | 100  | m    | 2     |

### Notes:

1. On OM4 MMF without host FEC. Or up to 30m on OM3 MMF without host FEC.
2. On OM4 MMF with host Clause 91 (RS) FEC. Or up to 70m on OM3 MMF with host Clause 91 (RS) FEC.

## Electrical Characteristics

| Parameter                      | Symbol                         | Min.  | Typ. | Max.  | Unit              | Notes |
|--------------------------------|--------------------------------|-------|------|-------|-------------------|-------|
| Power Supply Voltage           | V <sub>CC</sub>                | 3.135 | 3.3  | 3.465 | V                 |       |
| Power Supply Current           | I <sub>CC</sub>                |       |      | 750   | mA                |       |
| Power Dissipation              | P <sub>D</sub>                 |       |      | 2.5   | W                 |       |
| Transmitter                    |                                |       |      |       |                   |       |
| Input Differential Impedance   | Z <sub>IN</sub>                |       | 100  |       | Ω                 |       |
| Differential Data Input Swing  | V <sub>IN, P-P</sub>           | 180   |      | 900   | mV <sub>P-P</sub> |       |
| Receiver                       |                                |       |      |       |                   |       |
| Output Differential Impedance  | Z <sub>O</sub>                 |       | 100  |       | Ω                 |       |
| Differential Data Output Swing | V <sub>OUT, P-P</sub>          | 300   |      | 850   | mV <sub>P-P</sub> | 1     |
| Transition Time (20% to 80%)   | T <sub>r</sub> ,T <sub>f</sub> | 12    |      |       | ps                |       |

### Notes:

1. Internally AC coupled but requires an external 100Ω differential load termination.

## Optical Characteristics

| Parameter                           | Symbol                      | Min. | Typ. | Max. | Unit | Notes |
|-------------------------------------|-----------------------------|------|------|------|------|-------|
| Transmitter                         |                             |      |      |      |      |       |
| Center Wavelength                   | $\lambda_C$                 | 840  | 850  | 860  | nm   |       |
| Optical Launch Power                | Po                          | -4.5 |      | +2.4 | dBm  | 1     |
| Transmit OMA per Lane               | OMA                         | -4.5 |      | +3   | dBm  |       |
| Extinction Ratio                    | EX                          | 2    |      |      | dB   | 2     |
| Spectral Width (RMS)                | $\Delta\lambda$             |      |      | 0.6  | nm   |       |
| TDEC per Lane                       | TDEC                        |      |      | 4.3  | dB   |       |
| Optical Return Loss Tolerance       | ORLT                        |      |      | 12   | dB   |       |
| Eye Diagram                         | IEEE Std 802.3bm compatible |      |      |      |      |       |
| Receiver                            |                             |      |      |      |      |       |
| Receiver Wavelength                 | $\lambda$                   | 840  | 850  | 860  | nm   |       |
| Average Receiver Sensitivity (Pavg) | S                           |      |      | -7   | dBm  | 3     |
| Receiver Overload (Pavg)            | POL                         | 2.4  |      |      | dBm  |       |
| Damage Threshold                    | POL                         | 3.4  |      |      | dBm  |       |
| Optical Reflectance                 | ORL                         |      |      | -12  | dB   |       |
| LOS De-Assert                       | LOSD                        |      |      | -11  | dBm  |       |
| LOS Assert                          | LOSA                        | -30  |      |      | dBm  |       |
| LOS Hysteresis                      |                             | 0.5  |      | 5    | dB   |       |

### Notes:

1. The optical power is launched into OM3 MMF.
2. Measured with a PRBS  $2^{31}-1$  test pattern @25.78125Gbps.
3. Measured with PRBS  $2^{31}-1$  test pattern, 25.78125Gb/s, BER<1E-12.

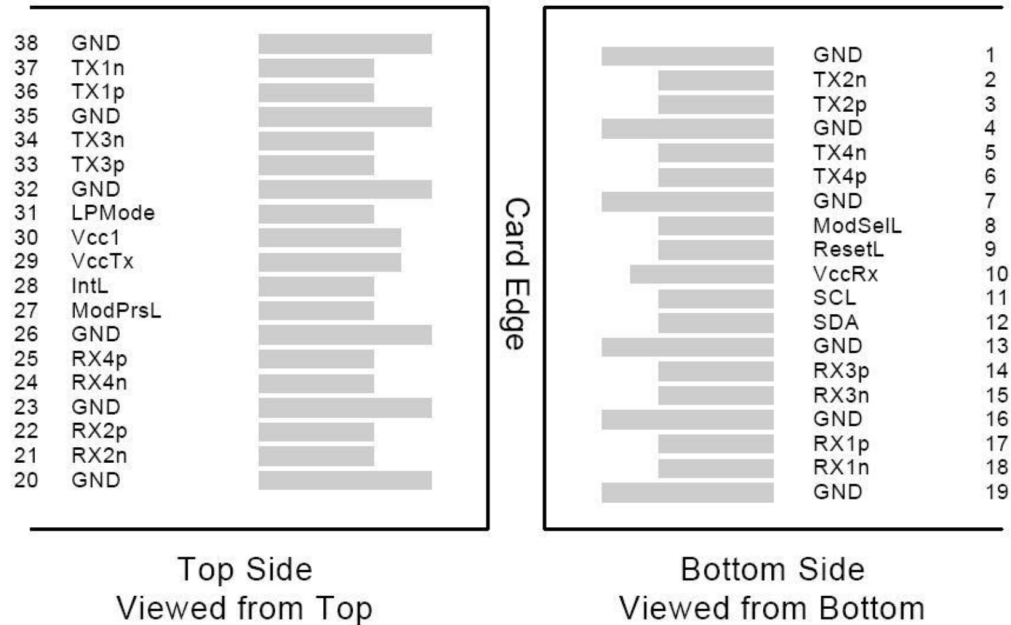
## Pin Descriptions

| Pin | Logic       | Symbol  | Name/Descriptions                                       | Ref. |
|-----|-------------|---------|---------------------------------------------------------|------|
| 1   |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 2   | CML-I       | Tx2-    | Transmitter Inverted Data Input.                        |      |
| 3   | CML-I       | Tx2+    | Transmitter Non-Inverted Data Input.                    |      |
| 4   |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 5   | CML-I       | Tx4-    | Transmitter Inverted Data Input.                        |      |
| 6   | CML-I       | Tx4+    | Transmitter Non-Inverted Data Input.                    |      |
| 7   |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 8   | LVTTL-I     | MODSEL  | Module Select.                                          | 2    |
| 9   | LVTTL-I     | ResetL  | Module Reset.                                           | 2    |
| 10  |             | VccRx   | +3.3V Receiver Power Supply.                            |      |
| 11  | LVC MOS-I   | SCL     | 2-Wire Serial Interface Clock.                          | 2    |
| 12  | LVC MOS-I/O | SDA     | 2-Wire Serial Interface Data.                           | 2    |
| 13  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 14  | CML-O       | Rx3+    | Receiver Non-Inverted Data Output.                      |      |
| 15  | CML-O       | Rx3-    | Receiver Inverted Data Output.                          |      |
| 16  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 17  | CML-O       | Rx1+    | Receiver Non-Inverted Data Output                       |      |
| 18  | CML-O       | Rx1-    | Receiver Inverted Data Output.                          |      |
| 19  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 20  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 21  | CML-O       | Rx2-    | Receiver Inverted Data Output.                          |      |
| 22  | CML-O       | Rx2+    | Receiver Non-Inverted Data Output.                      |      |
| 23  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 24  | CML-O       | Rx4-    | Receiver Inverted Data Output.                          |      |
| 25  | CML-O       | Rx4+    | Receiver Non-Inverted Data Output.                      |      |
| 26  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 27  | LVTTL-O     | ModPrsL | Module Present. Internally pulled down to GND.          |      |
| 28  | LVTTL-O     | IntL    | Interrupt output should be pulled up on the host board. | 2    |
| 29  |             | VccTx   | +3.3V Transmitter Power Supply.                         |      |
| 30  |             | Vcc1    | +3.3V Power Supply.                                     |      |
| 31  | LVTTL-I     | LPMODE  | Low-Power Mode.                                         | 2    |
| 32  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 33  | CML-I       | Tx3+    | Transmitter Non-Inverted Data Input.                    |      |
| 34  | CML-I       | Tx3-    | Transmitter Inverted Data Input.                        |      |
| 35  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |
| 36  | CML-I       | Tx1+    | Transmitter Non-Inverted Data Input.                    |      |
| 37  | CML-I       | Tx1-    | Transmitter Inverted Data Input.                        |      |
| 38  |             | GND     | Transmitter Ground. (Common with Receiver Ground.)      | 1    |

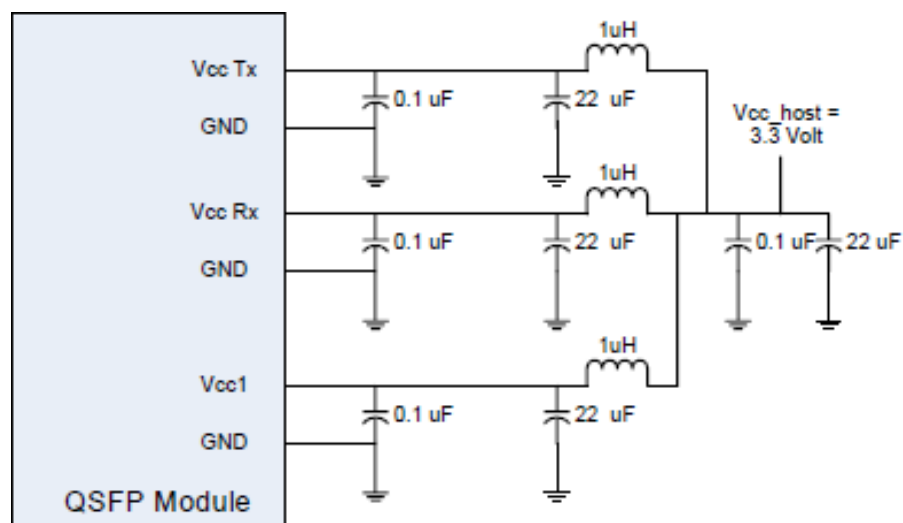
### Notes:

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

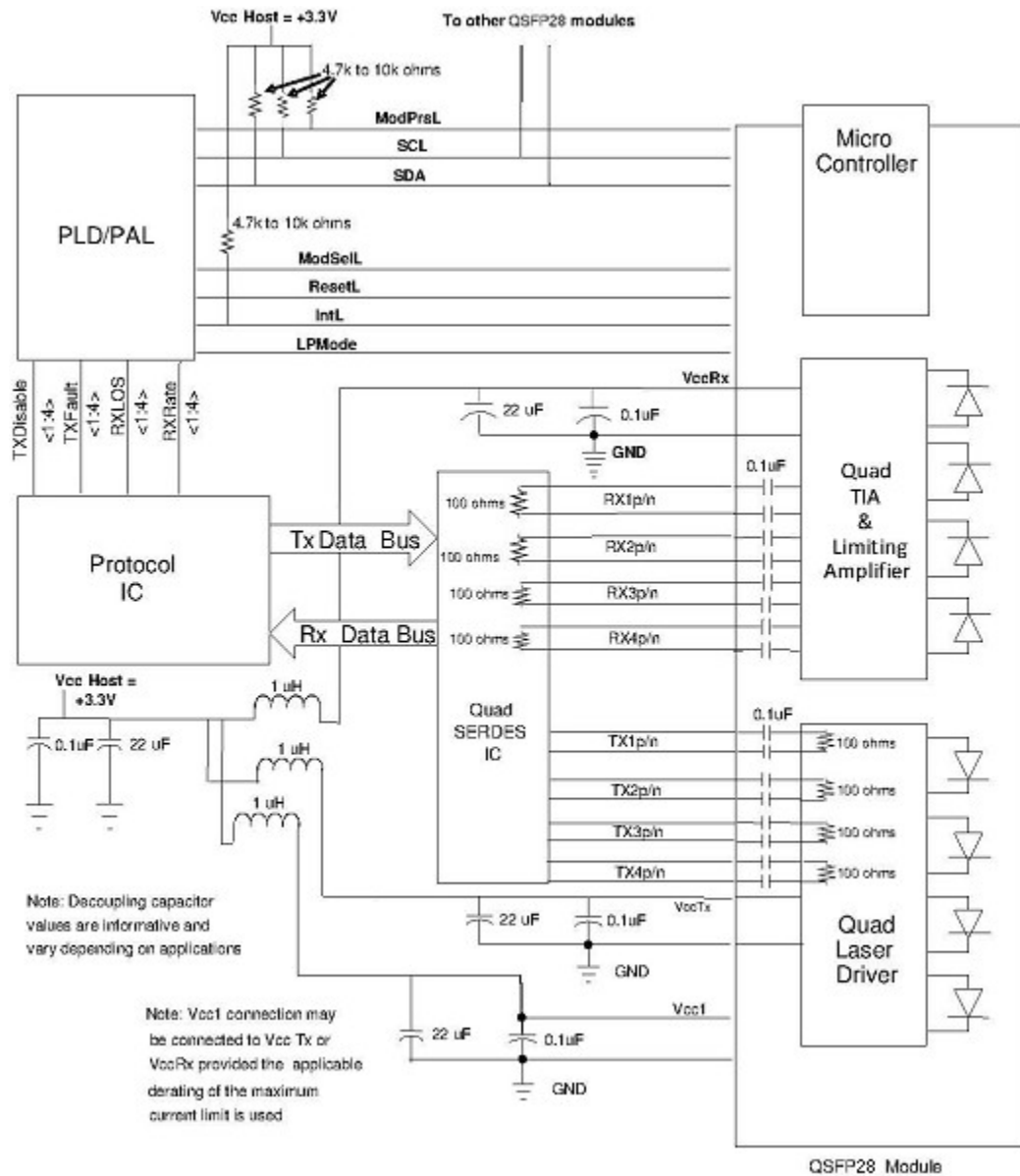
### Electrical Pin-Out Details



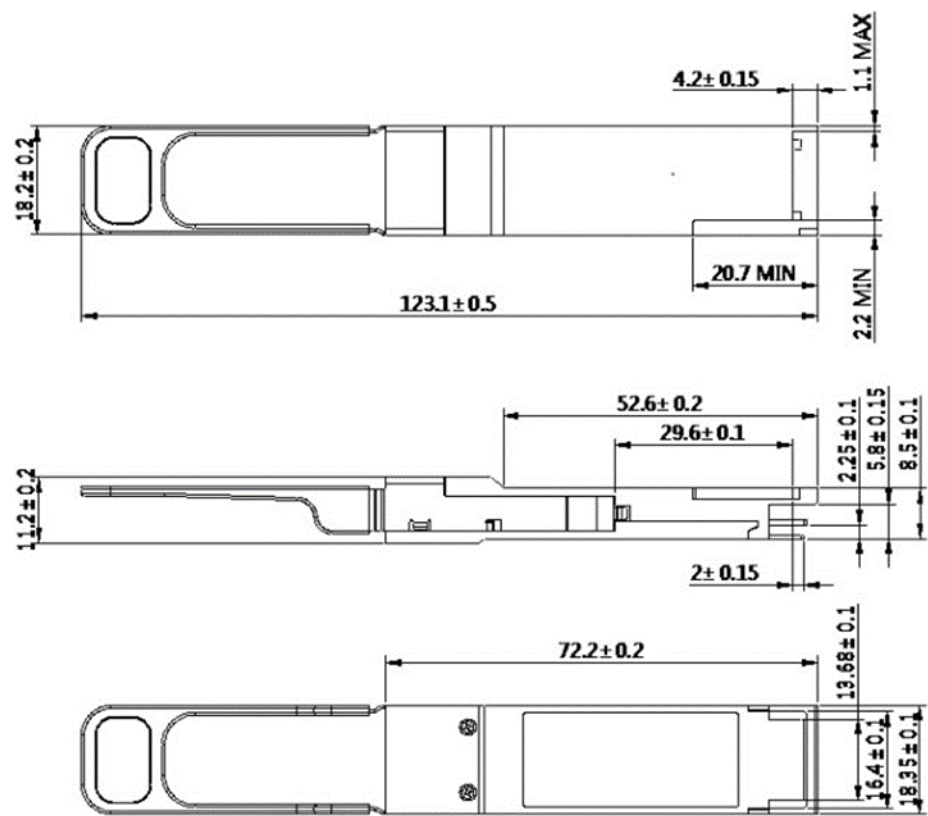
### Recommended Host Board Power Supply Filter Network



## Transceiver Interface Block Diagram



Mechanical Specifications



## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

#### **Who We Are**

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

#### **What We Do**

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

#### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

#### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

#### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

#### **Let's Connect**

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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