

### **C-Q28AR2Q28MX-O10M**

Arista Networks® AOC-Q-Q-100G-10M to Mellanox® MFA1A00-C010 100GBase-AOC QSFP28 to 2xQSFP28 Active Optical Cable (850nm, MMF, 10m)

#### **Features:**

- Single 3.3V Power Supply
- Up to 25.78 Gbps per channel
- Low power consumption: 1.65W on 100G end
- 0.95W on 50G end with all CDRs enabled
- Operating temperature: 0 to 70 Celsius
- Hot Pluggable
- RoHS compliant and Lead Free



#### **Applications:**

- 50/100G Ethernet
- Data center: Switches, servers, storages and NIC adapters

#### **Product Description**

This Arista Networks® AOC-Q-Q-100G-10M to Mellanox® MFA1A00-C010 dual OEM compatible 100GBase-AOC QSFP28 to 2xQSFP28 active optical cable has a maximum reach of 10.0m. It is 100% Arista Networks® to Mellanox® compatible and has been programmed, uniquely serialized, data-traffic and application tested to ensure that it is compliant and functional. This active optical cable will initialize and perform identically to Arista Networks® and Mellanox®'s individual cables and is built to meet or exceed Arista Networks® and Mellanox®'s specifications. This product complies with MSA (Multi-Source Agreement) standards and is TAA (Trade Acts Agreement) 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   | 1     |
| Operating Case Temperature | Tc     | 0                |       | 70   |      |       |
| Power Supply Voltage       | Vcc    | 0                |       | 3.6  | V    |       |
| Relative Humidity          | RH     | 0                |       | 85   | %    |       |
| Data Rate (Per Lane)       | DR     |                  | 25.78 |      | Gbps |       |
| Minimum Bend Radius        |        | 30               |       |      | mm   | 2     |
|                            |        | 60               |       |      | mm   | 3     |
| Length Tolerance           |        | 30m: +500mm/-0mm |       |      |      |       |

### Notes:

1. Ambient.
2. Without tension.
3. Under maximum tension.

## Electrical Characteristics

| Parameter                        |          | Symbol  | Min. | Typ. | Max.             | Unit | Notes |
|----------------------------------|----------|---------|------|------|------------------|------|-------|
| Power Supply Voltage             |          | Vcc     | 3.13 | 3.3  | 3.47             | V    |       |
| Power Supply Current             | 100G End | Icc     |      | 500  |                  | mA   | 1     |
|                                  | 50G End  |         |      | 290  |                  |      |       |
| Power Consumption                | 100G End |         |      | 1.65 | 1.73             | W    | 1     |
|                                  | 50G End  |         |      | 0.95 | 1                |      |       |
| Transmitter                      |          |         |      |      |                  |      |       |
| Input Differential Impedance     |          | RIN     | 90   | 100  | 110              | Ω    |       |
| Differential Data Input Voltage  |          | VIN,pp  | 200  |      | 900              | mV   |       |
| Receiver                         |          |         |      |      |                  |      |       |
| Output Differential Impedance    |          | ROUT    | 90   | 100  | 110              | Ω    |       |
| Differential Data Output Voltage |          | VOUT,pp |      | 800  |                  | mV   |       |
| Bit Error Ratio                  |          |         |      |      | 10 <sup>-8</sup> |      | 2     |

### Notes:

1. Per end.
2. Pre-FEC Bit Error Ratio with a PRBS 2<sup>31</sup> – 1 test pattern.

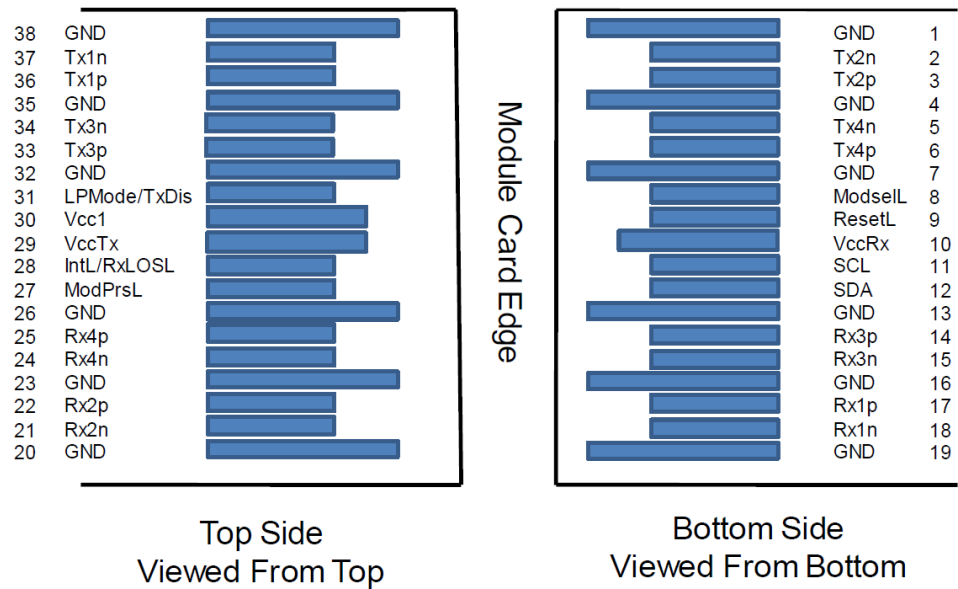
## Pin Descriptions

| 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    | Interrupt.                           |       |
| 29  | VccTx   | +3.3V Transmitter Power Supply.      | 2     |
| 30  | Vcc1    | +3.3V Power Supply.                  | 2     |
| 31  | LPMODE  | Low-Power Mode.                      | 3     |
| 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     |

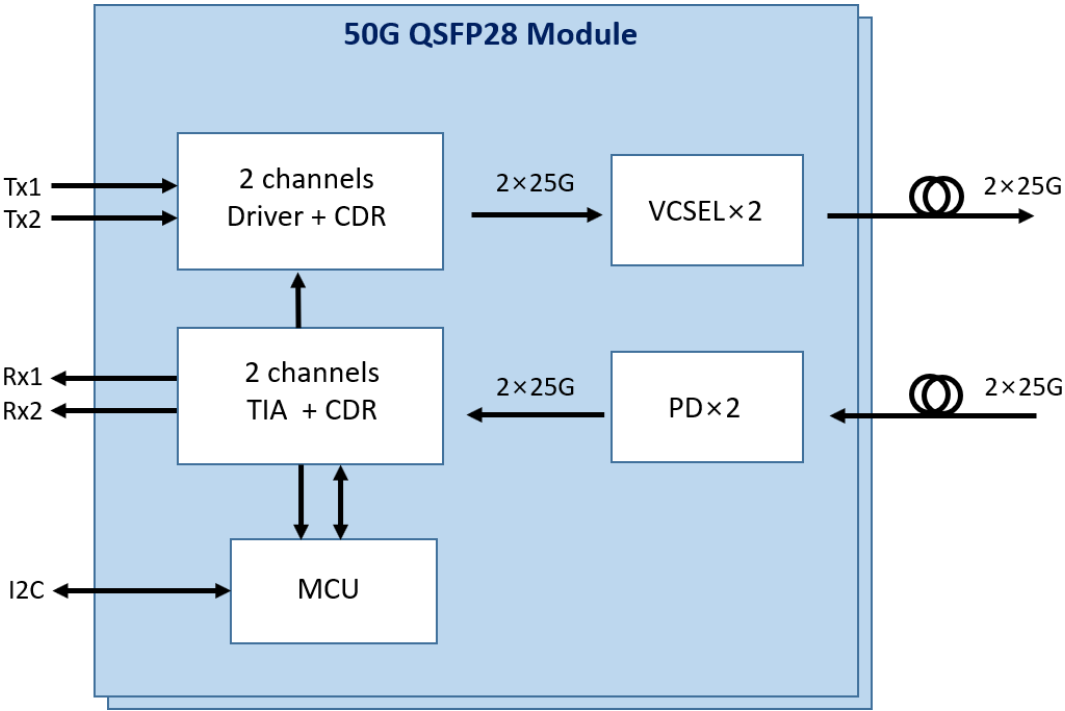
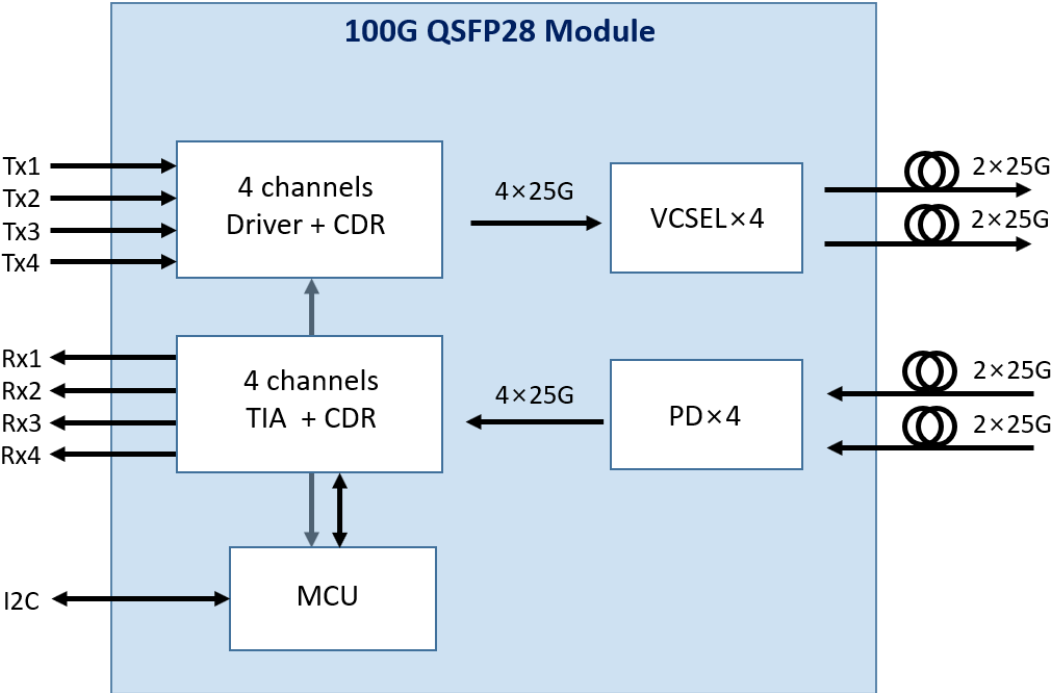
**Notes:**

1. GND is the symbol for signal and supply (power) common for the QSFP module. All are common within the QSFP 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 QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.
3. Not in use.

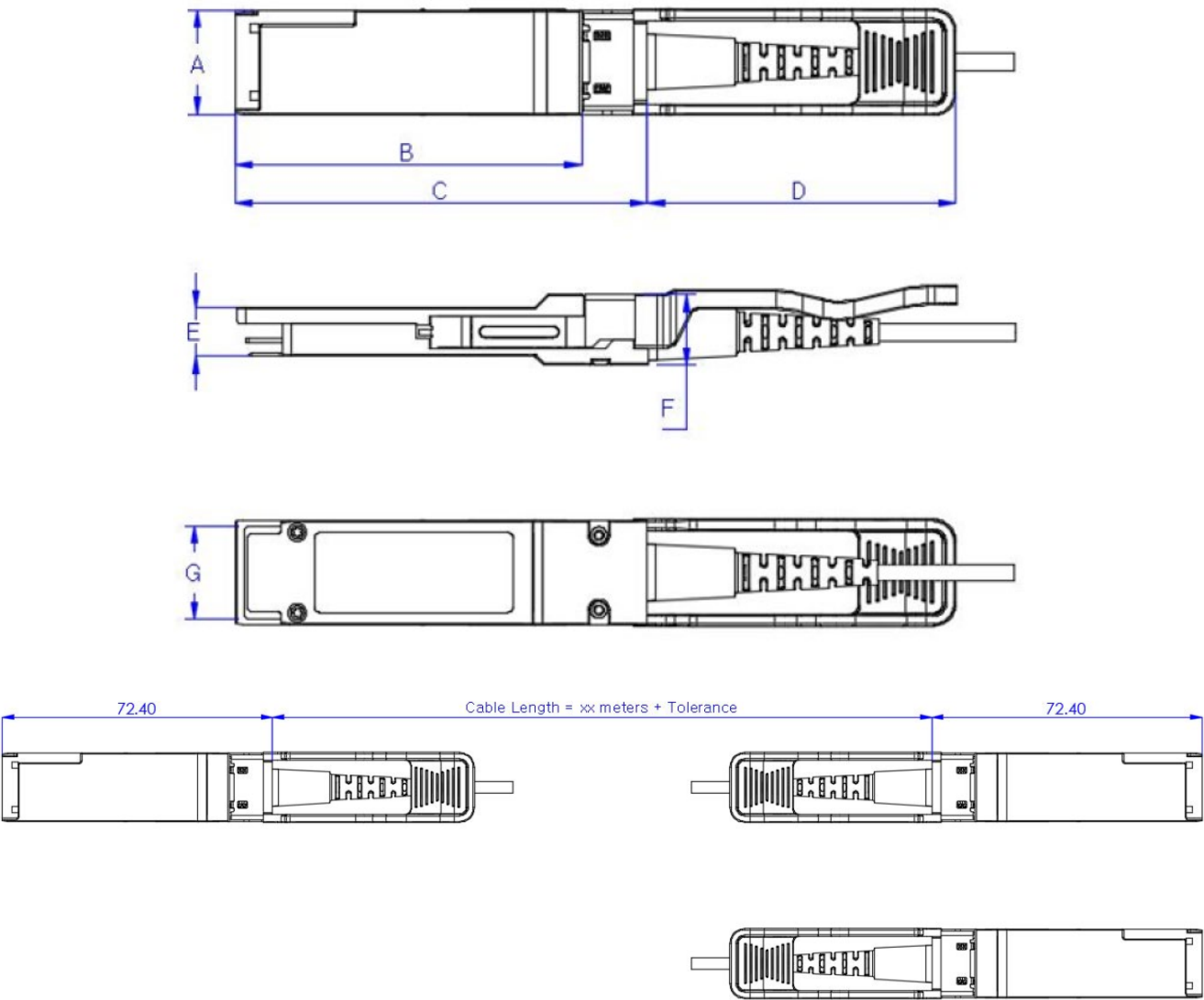
**Electrical Pin-Out Details**



Recommended Power Supply Filter



Mechanical Specifications



| Num. | DIM (mm) | TOL (mm) |
|------|----------|----------|
| A    | 18.35    | ±0.10    |
| B    | 60.90    | ±0.20    |
| C    | 72.40    | ±0.20    |
| D    | 53.80    | ±0.30    |
| E    | 8.50     | ±0.10    |
| F    | 12.55    | ±0.20    |
| G    | 16.40    | ±0.10    |

## About ProLabs

Our extensive experience comes as standard. For over 20 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 more than 100 optical switching and transport platforms.

## A 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 1.6T 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.

## The Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure compatible products, and immediate answers to your questions. 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.



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