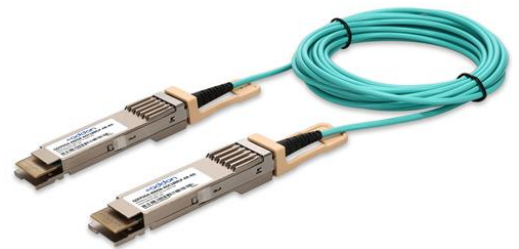


### **QSFPDD4-400GB-AOC18MLP-AR-AO**

Arista Networks® Compatible TAA 400GBase-AOC QSFP-DD to QSFP-DD Low Power Active Optical Cable (850nm, MMF, 18m)

#### **Features:**

- QSFP-DD MSA HW Rev. 5.0 compliant
- 8x26.56GBaud optical links with integrated CDR
- CMIS 4.0 compliant
- CML compatible electrical I/O
- PAM4 & NRZ compatible
- OM3 multi-mode fiber
- Operating Temperature 0 to 70 Celsius
- OFNP jacket
- RoHS compliant and lead-free
- Hot pluggable



#### **Applications:**

- 400GBase Ethernet

#### **Product Description**

This is an Arista Networks® compatible 400GBase-AOC QSFP28 to QSFP28 active optical cable that operates over active fiber with a maximum reach of 18.0m (59.1ft). At a wavelength of 850nm, it has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This active optical cable is TAA (Trade Agreements Act) compliant, and is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn'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 |
|-------------------------------|-------------------|------|-------|------|-------|-------|
| Storage Ambient Temperature   | T <sub>stg</sub>  | -40  |       | 85   | °C    |       |
| Operating Case Temperature    | T <sub>c</sub>    | 0    | 25    | 70   | °C    | 1     |
| Module Supply Voltage         | V <sub>cc</sub>   | 3.14 | 3.3   | 3.46 | V     |       |
| Power Consumption             | P <sub>d</sub>    |      | 7     | 7.27 | W     |       |
| Single Module Supply Current  | I <sub>IN</sub>   |      | 2100  |      | mA    |       |
| Relative Humidity – Storage   | RH <sub>stg</sub> | 0    |       | 95   | %     | 2     |
| Relative Humidity – Operating | RH <sub>op</sub>  | 0    |       | 85   | %     | 2     |
| Signaling Speed Per Channel   | S                 |      | 26.56 |      | GBaud |       |

### Notes:

1. Commercial temperature range.
2. RH is a non-condensing condition.
3. Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the conditions of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.

## Cable Specifications

| Parameter           | Value      | Unit |
|---------------------|------------|------|
| Cable Diameter      | 3.0 ± 0.15 | mm   |
| Minimum Bend Radius | 30         | mm   |

## Electrical Characteristics

| Parameter                             | Symbol           | Min. | Typ. | Max.               | Unit | Notes |
|---------------------------------------|------------------|------|------|--------------------|------|-------|
| Power Supply Voltage                  | V <sub>cc</sub>  | 3.14 | 3.3  | 3.46               | V    |       |
| Transmitter                           |                  |      |      |                    |      |       |
| Tx_Data Differential Input Voltage    | V <sub>IN</sub>  | 400  |      | 900                | mV   |       |
| Tx_Data Differential Input Impedance  | Z <sub>IN</sub>  |      | 100  |                    | Ω    |       |
| Receiver                              |                  |      |      |                    |      |       |
| Rx_Data Differential Output Voltage   | V <sub>OUT</sub> |      |      | 900                | mV   |       |
| Rx_Data Differential Output Impedance | Z <sub>OUT</sub> | 90   | 100  | 110                | Ω    |       |
| Link BER                              | BER              |      |      | 2.4E <sup>-4</sup> |      | 1     |

### Notes:

1. Better than 2.4E<sup>-4</sup> @26.56GBaud PRBS31.

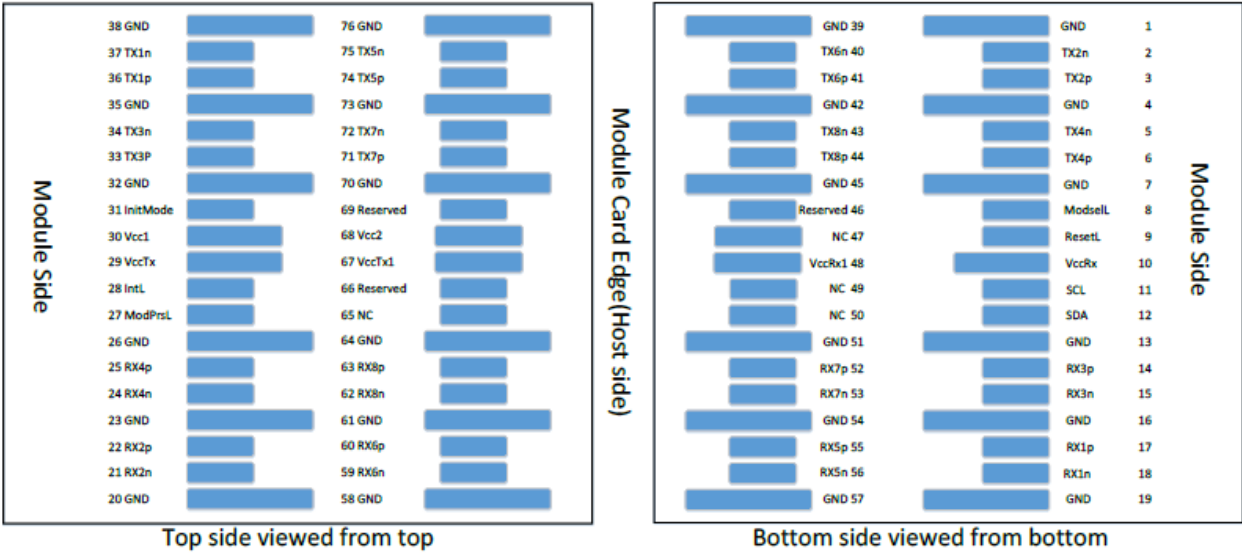
## Pin Descriptions

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

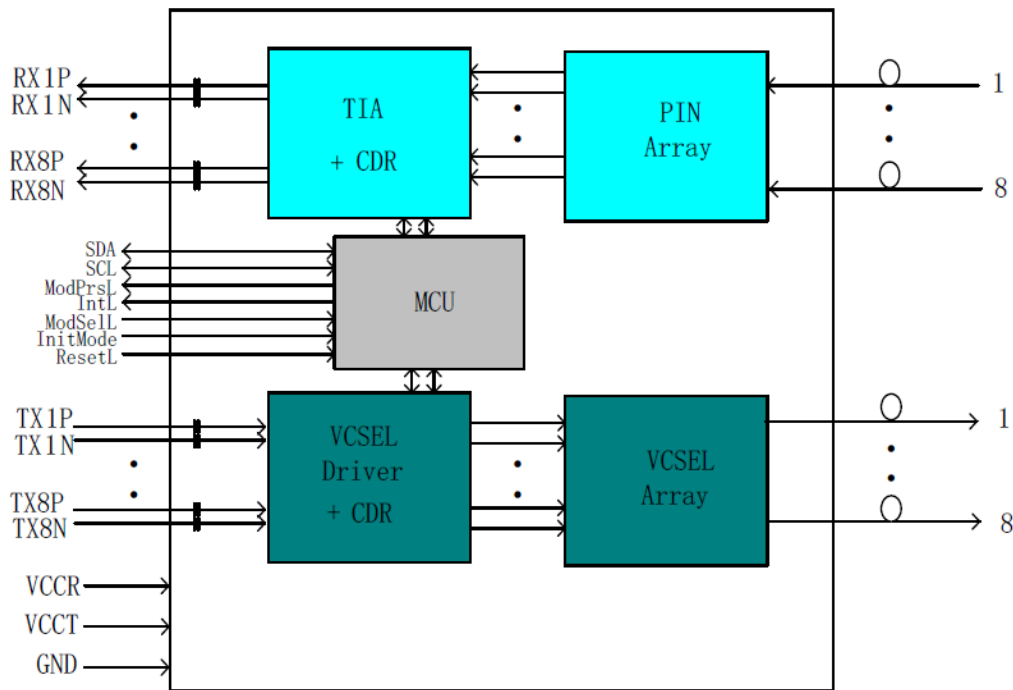
|    |           |                                            |  |
|----|-----------|--------------------------------------------|--|
| 36 | Tx1+      | Transmitter Non-Inverted Data Input.       |  |
| 37 | Tx1-      | Transmitter Inverted Data Input.           |  |
| 38 | GND       | Module Ground.                             |  |
| 39 | GND       | Module Ground.                             |  |
| 40 | Tx6-      | Transmitter Inverted Data Input.           |  |
| 41 | Tx6+      | Transmitter Non-Inverted Data Input.       |  |
| 42 | GND       | Module Ground.                             |  |
| 43 | Tx8-      | Transmitter Inverted Data Input.           |  |
| 44 | Tx8+      | Transmitter Non-Inverted Data Input.       |  |
| 45 | GND       | Module Ground.                             |  |
| 46 | Reserved. | Not Connected.                             |  |
| 47 | NC        | Not Connected.                             |  |
| 48 | VccRx1    | +3.3V DC Power Supply.                     |  |
| 49 | NC        | Not Connected.                             |  |
| 50 | NC        | Not Connected.                             |  |
| 51 | GND       | Module Ground.                             |  |
| 52 | Rx7+      | Receiver Non-Inverted Differential Output. |  |
| 53 | Rx7-      | Receiver Inverted Differential Output.     |  |
| 54 | GND       | Module Ground.                             |  |
| 55 | Rx5+      | Receiver Non-Inverted Differential Output. |  |
| 56 | Rx5-      | Receiver Inverted Differential Output.     |  |
| 57 | GND       | Module Ground.                             |  |
| 58 | GND       | Module Ground.                             |  |
| 59 | Rx6-      | Receiver Inverted Differential Output.     |  |
| 60 | Rx6+      | Receiver Non-Inverted Differential Output. |  |
| 61 | GND       | Module Ground.                             |  |
| 62 | Rx8-      | Receiver Inverted Differential Output.     |  |
| 63 | Rx8+      | Receiver Non-Inverted Differential Output. |  |
| 64 | GND       | Module Ground.                             |  |
| 65 | NC        | Not Connected.                             |  |
| 66 | Reserved. | Not Connected.                             |  |
| 67 | VccTx1    | +3.3V DC Power Supply.                     |  |
| 68 | Vcc2      | +3.3V DC Power Supply.                     |  |
| 69 | Reserved  | Not Connected.                             |  |
| 70 | GND       | Module Ground.                             |  |
| 71 | Tx7+      | Transmitter Non-Inverted Data Input.       |  |
| 72 | Tx7-      | Transmitter Inverted Data Input.           |  |

|    |      |                                      |  |
|----|------|--------------------------------------|--|
| 73 | GND  | Module Ground.                       |  |
| 74 | Tx5+ | Transmitter Non-Inverted Data Input. |  |
| 75 | Tx5- | Transmitter Inverted Data Input.     |  |
| 76 | GND  | Module Ground.                       |  |

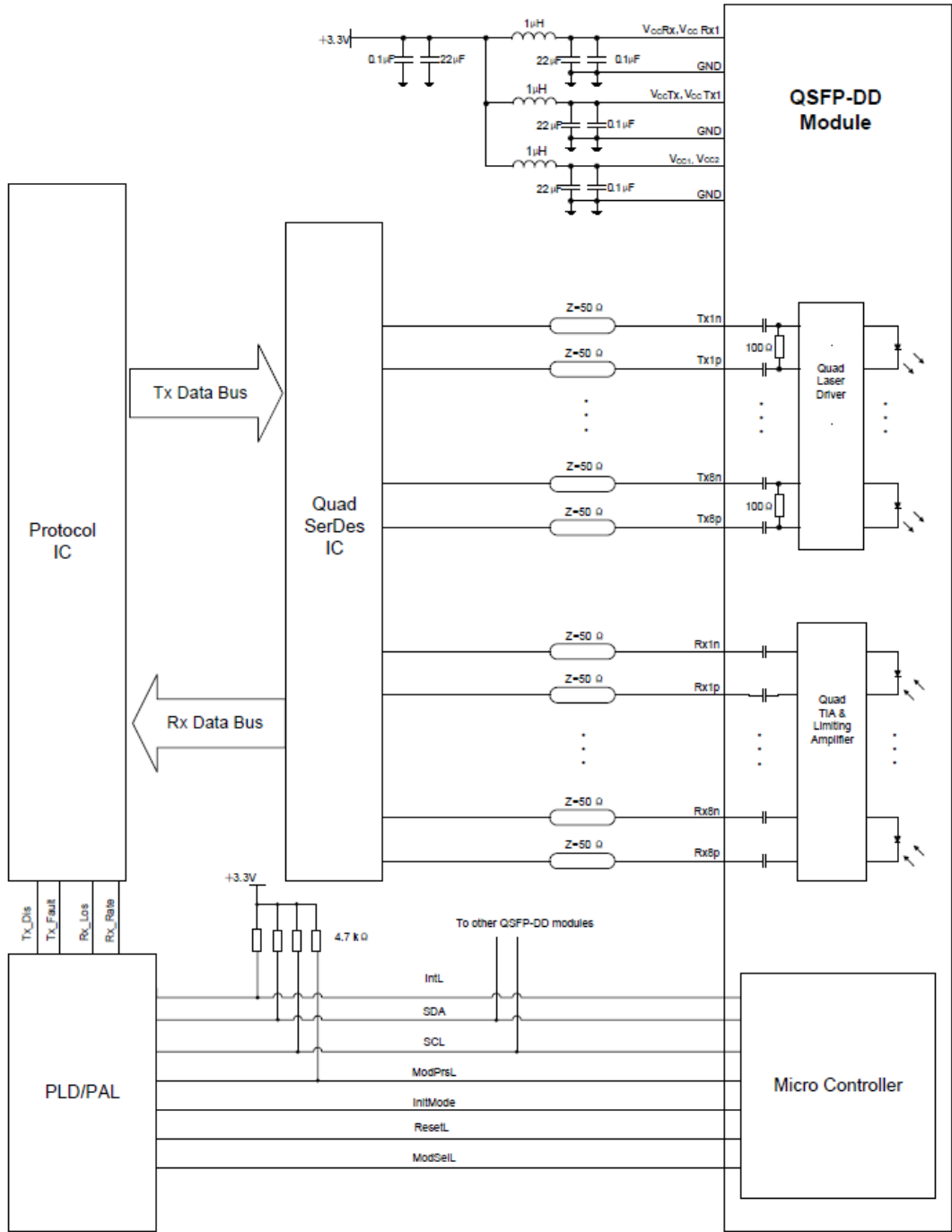
# Electrical Pin-Out Details



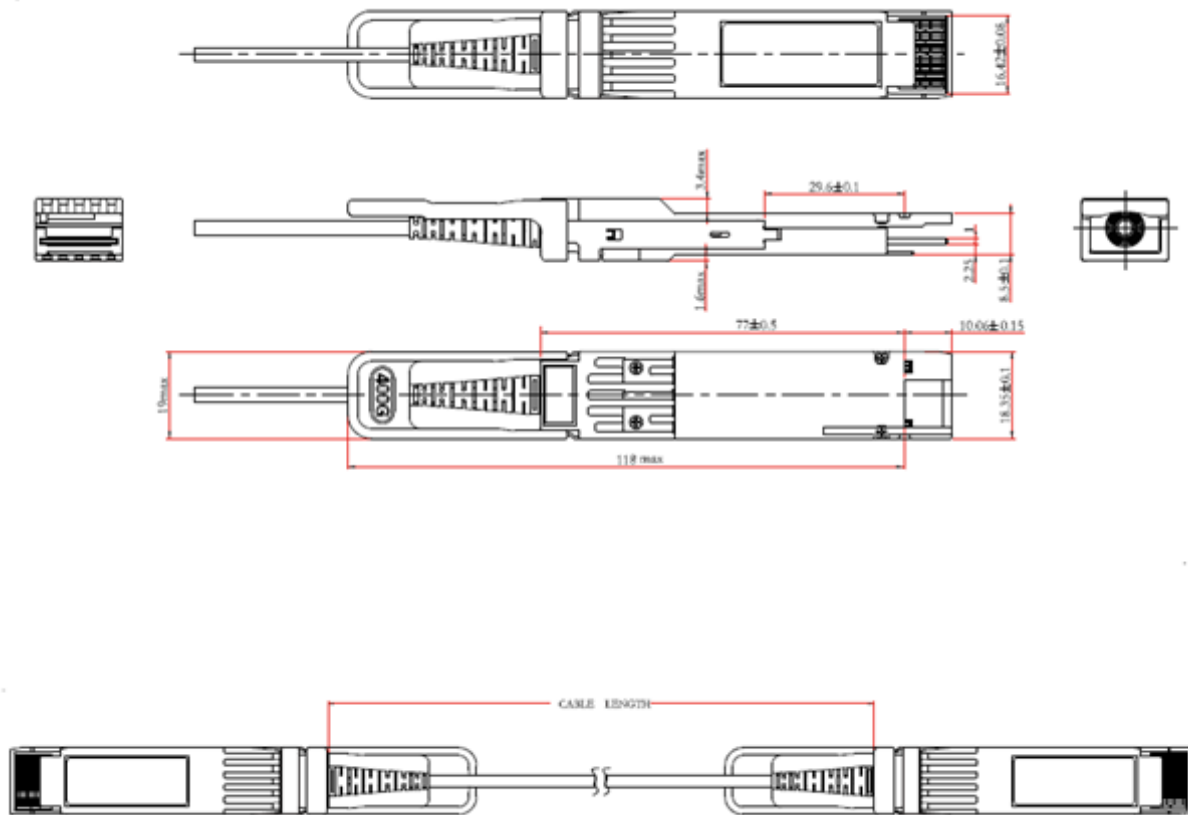
# Block Diagram



Electrical Interface



## Mechanical Specifications



### Notes:

1. Tolerance  $\pm 0.1$ mm.
2. Others according with QSFP-DD MSA or customer specifications.
3. Light Port according with fiber connector specifications.
4. For cable lengths greater than 5m, the cable length tolerance is  $+4\%/-0\%$ .

## About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is ingrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications ranging from NEBS Level 3 to ISO 9001:2015 with every new development while maintaining the signature reliability of its products.



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