

### **QSFP-100GB-AOC90MLP-C**

MSA and TAA 100GBase-AOC QSFP28 to QSFP28 Low Power Active Optical Cable (850nm, MMF, 90m, Infiniband EDR, LSZH)

#### **Features:**

- Up to 25.78Gbps per channel
- 4-channel full-duplex
- Single 3.3V power supply
- Low power consumption: 1.65W per cable end
- Infiniband EDR
- LSZH cable jacket
- Hot pluggable
- Operating Temperature 0 to 70 Celsius
- RoHS compliant and lead-free



#### **Applications:**

- 100GBase Ethernet

#### **Product Description**

This is a MSA Compliant 100GBase-AOC QSFP28 to QSFP28 Infiniband EDR LSZH active optical cable that operates over active fiber with a maximum reach of 90m. It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. We stand behind the quality of our products and proudly offer a limited lifetime warranty. This cable is TAA (Trade Agreements Act) compliant and is built to comply with MSA (Multi-Source Agreement) standards.

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   | °C   |       |
| Power Supply Voltage       | Vcc    | 3.13 | 3.30 | 3.47 | V    |       |
| Supply Voltage             | VIN    | 0    |      | 4.0  | V    |       |
| Power Supply Current       | Icc    |      | 500  |      | mA   | 2     |
| Relative Humidity          | RH     | 0    |      | 85   | %    |       |
| Power Consumption          | PD     |      | 1.65 | 1.73 | W    | 2     |

### Notes:

1. Ambient.
2. Per end.

## Cable Specifications

| Parameter           | Value                            | Unit | Notes |
|---------------------|----------------------------------|------|-------|
| Cable Diameter      | LSZH: $\varnothing 3.0 \pm 0.15$ | mm   |       |
| Minimum Bend Radius | 30                               | mm   | 1     |
| Length Tolerance    | +300/-0                          | mm   |       |
| Cable Jacket        | LSZH, Aqua                       |      |       |

### Notes:

1. Without tension.

## Electrical Characteristics

| Parameter                      | Symbol  | Min. | Typ.  | Max.      | Unit     | Notes |
|--------------------------------|---------|------|-------|-----------|----------|-------|
| Data Rate Per Channel          | BR      |      | 25.78 |           | Gbps     |       |
| Transmitter                    |         |      |       |           |          |       |
| Input Differential Impedance   | RIN     |      | 100   |           | $\Omega$ |       |
| Differential Data Input Swing  | VIN,pp  | 200  |       | 900       | mV       |       |
| Receiver                       |         |      |       |           |          |       |
| Output Differential Impedance  | ROUT    |      | 100   |           | $\Omega$ |       |
| Differential Data Output Swing | VOUT,pp |      |       | 800       | mV       |       |
| Bit Error Ratio @25.78Gbps     |         |      |       | $10^{-8}$ |          | 1     |

### Notes:

1. Pre-FEC Bit Error Ratio with a PRBS  $2^{31}-1$  test pattern.

## Pin Descriptions

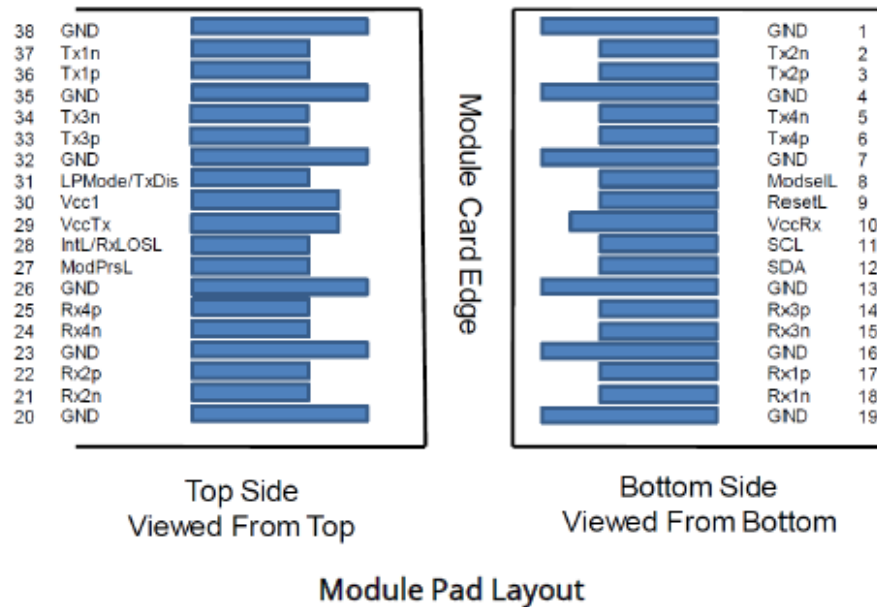
| Pin | Symbol  | Name/Description                     | Notes |
|-----|---------|--------------------------------------|-------|
| 1   | GND     | Module Ground.                       | 1     |
| 2   | Tx2-    | Transmitter Inverted Data Input.     |       |
| 3   | Tx2+    | Transmitter Non-Inverted 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  | LPMMode | 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 |

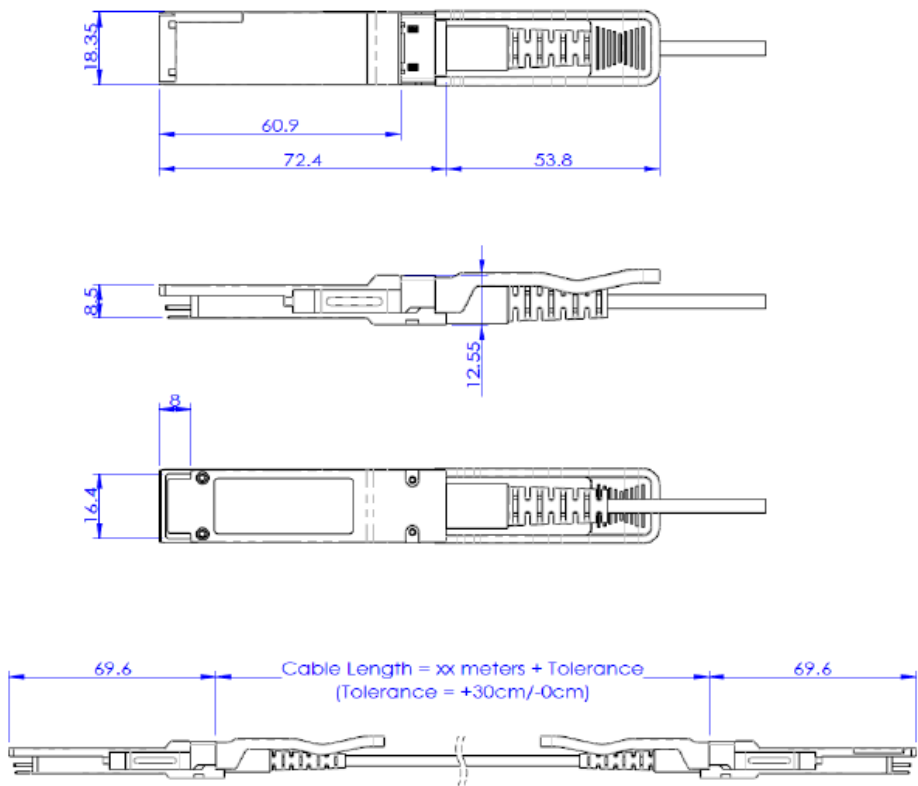
#### Notes:

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 voltage 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



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.



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