

### **SFP-28G-AOC20M-C**

MSA and TAA Compliant 25GBase-AOC SFP28 Active Optical Cable (850nm, MMF, 20m)

#### **Features:**

- Hot-pluggable SFP28 form factor
- Supports 25Gbps data rate
- 850nm VCSEL laser and PIN photo-detector
- Internal CDR on both Transmitter and receiver channel
- Single 3.3V power supply
- Power dissipation < 1W
- Digital diagnostics functions are available via the I2C interface
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



#### **Applications:**

- 25Gbase Ethernet

#### **Product Description**

This is an MSA compliant 25GBase-AOC SFP28 to SFP28 active optical cable that operates over multi-mode fiber with a maximum reach of 20.0m (65.6ft). 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.

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.")



## General Specifications

| Parameter                  | Symbol           | Min  | Typ. | Max. | Unit |
|----------------------------|------------------|------|------|------|------|
| Storage Temperature        |                  | -40  |      | 85   | °C   |
| Operating Case Temperature | T <sub>c</sub>   | 0    |      | 70   | °C   |
| Power Supply Voltage       | V <sub>cc</sub>  | 3.13 | 3.3  | 3.47 | V    |
| Supply Voltage             | V <sub>cc</sub>  | 0    |      | 3.6  | V    |
| Storage Temperature        | T <sub>stg</sub> | -40  |      | 85   | °C   |
| Operating Humidity         |                  | 5    |      | 85   | %    |

## Optical Characteristics

| Parameter                      |         | Symbol              | Min. | Typ.  | Max.            | Unit | Notes |
|--------------------------------|---------|---------------------|------|-------|-----------------|------|-------|
| Transmitter                    |         |                     |      |       |                 |      |       |
| Data Rate                      |         | BR                  |      | 25.78 |                 | Gbps |       |
| Centre Wavelength              |         | λ <sub>c</sub>      | 840  | 850   | 860             | nm   |       |
| Spectral Width (-20dB)         |         | σ                   |      |       | 0.6             | nm   |       |
| Average Output Power           |         | P <sub>avg</sub>    | -8.4 |       | 2.4             | dBm  |       |
| Optical Power OMA              |         | P <sub>OMA</sub>    | -6.4 |       | 3               | dBm  |       |
| Extinction Ratio               |         | ER                  | 2    |       |                 | dB   |       |
| Differential data input swing  |         | V <sub>IN,PP</sub>  | 40   |       | 1000            | mV   |       |
| Input Differential Impedance   |         | Z <sub>IN</sub>     | 90   | 100   | 110             | Ω    |       |
| TX Disable                     | Disable |                     | 2.0  |       | V <sub>cc</sub> | V    |       |
|                                | Enable  |                     | 0    |       | 0.8             | V    |       |
| TX Fault                       | Fault   |                     | 2.0  |       | V <sub>cc</sub> | V    |       |
|                                | Normal  |                     | 0    |       | 0.8             | V    |       |
| Receiver                       |         |                     |      |       |                 |      |       |
| Data Rate                      |         | BR                  |      | 25.78 |                 | Gbps |       |
| Centre Wavelength              |         | λ <sub>c</sub>      | 840  | 850   | 860             | nm   |       |
| Receiver Sensitivity (OMA)     |         | P <sub>sens</sub>   |      |       | -10             | dBm  |       |
| Stressed Sensitivity (OMA)     |         |                     |      |       | -5.2            | dBm  |       |
| Receiver Power (OMA)           |         |                     |      |       | 3               | dBm  |       |
| LOS De-Assert                  |         | LOS <sub>D</sub>    |      |       | -13             | dBm  |       |
| LOS Assert                     |         | LOS <sub>A</sub>    | -30  |       |                 | dBm  |       |
| LOS Hysteresis                 |         |                     | 0.5  |       |                 | dB   |       |
| Differential data output swing |         | V <sub>out,PP</sub> | 500  |       | 1130            | mV   |       |
| LOS                            | High    |                     | 2.0  |       | V <sub>cc</sub> | V    |       |
|                                | Low     |                     |      |       | 0.8             | V    |       |

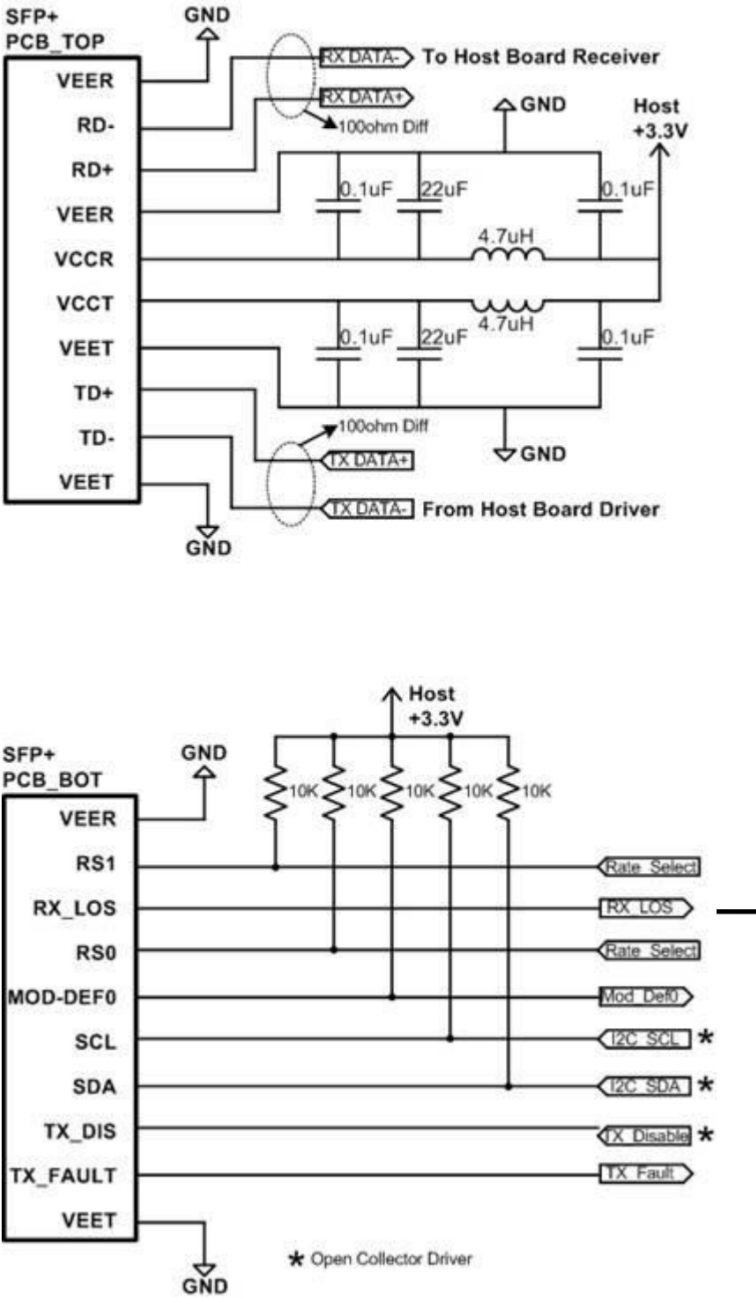
## Pin Descriptions

| Pin | Logic      | Symbol   | Name/Description                 | Notes |
|-----|------------|----------|----------------------------------|-------|
| 1   |            | VeeT     | Transmitter Ground.              |       |
| 2   | LV-TTL-O   | TX_Fault | N/A                              | 1     |
| 3   | LV-TTL-I   | TX_DIS   | Transmitter Disable.             |       |
| 4   | LV-TTL-I/O | SDA      | 2-Wire Serial Data.              |       |
| 5   | LV-TTL-I   | SCL      | 2-Wire Serial Clock.             |       |
| 6   |            | MOD_DEF0 | Module present, connect to VeeT. |       |
| 7   | LV-TTL-I   | RS0      | N/A                              | 1     |
| 8   | LV-TTL-O   | LOS      | LOS of Signal.                   |       |
| 9   | LV-TTL-I   | RS1      | N/A                              | 1     |
| 10  |            | VeeR     | Receiver Ground.                 |       |
| 11  |            | VeeR     | Receiver Ground.                 |       |
| 12  | CML-O      | RD-      | Receiver Data Inverted.          |       |
| 13  | CML-O      | RD+      | Receiver Data Non-inverted.      |       |
| 14  |            | VeeR     | Receiver Ground.                 |       |
| 15  |            | VccR     | Receiver Supply +3.3V.           |       |
| 16  |            | VccT     | Transmitter Supply +3.3V.        |       |
| 17  |            | VeeT     | Transmitter Ground.              |       |
| 18  | CML-I      | TD+      | Transmitter Data Non-Inverted.   |       |
| 19  | CML_I      | TD-      | Transmitter Data Inverted.       |       |
| 20  |            | VeeT     | Transmitter Ground.              |       |

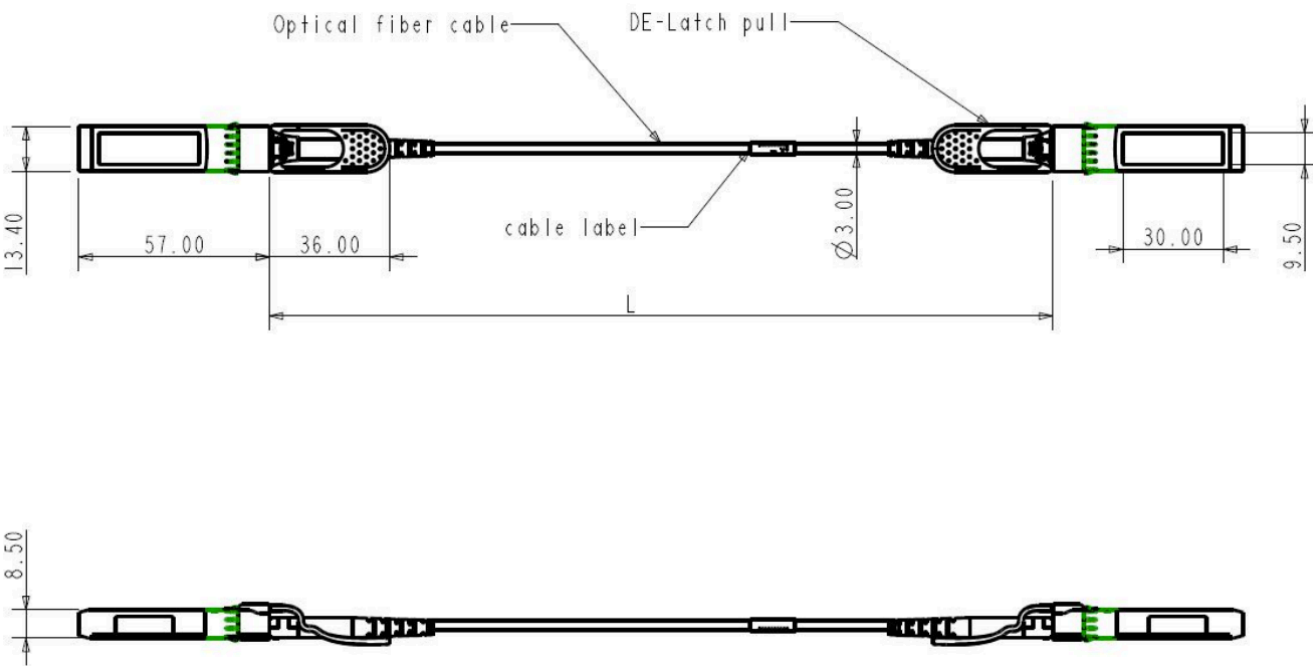
### Note:

1. Signals not supported in SFP28 Copper pulled-down to VeeT with 30kΩ resistor.

Host Board



Mechanical Specification



## 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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