



### **MFA2P10-A004-OPC**

Mellanox® MFA2P10-A004 Compatible TAA Compliant 25GBase-AOC SFP28 to SFP28 Active Optical Cable (850nm, MMF, 4m)

#### **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 Case temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



#### **Applications:**

- 25Gbase-SR Ethernet

#### **Product Description**

This is a Mellanox® MFA2P10-A004 compatible 25GBase-AOC SFP28 to SFP28 active optical cable that operates over active fiber with a maximum reach of 4m. 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.

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

## 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    |       |

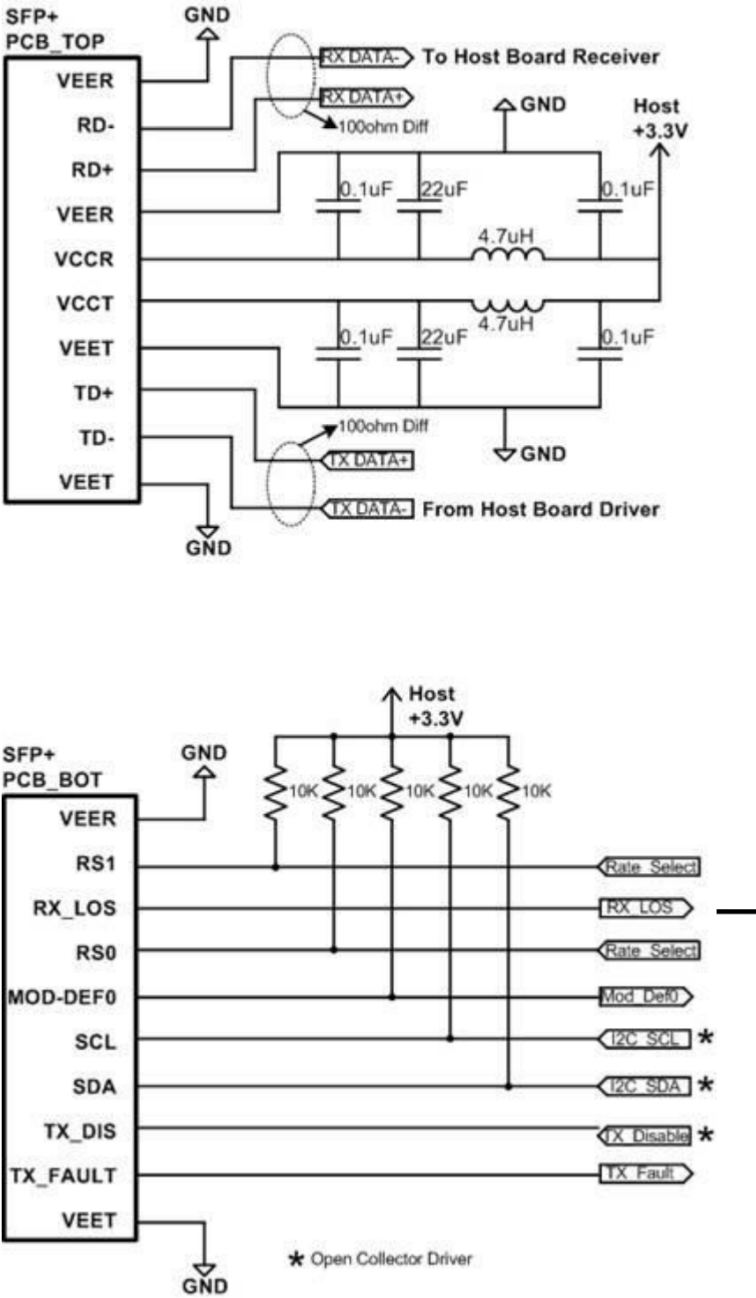
## Pin Descriptions

| 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.              |       |

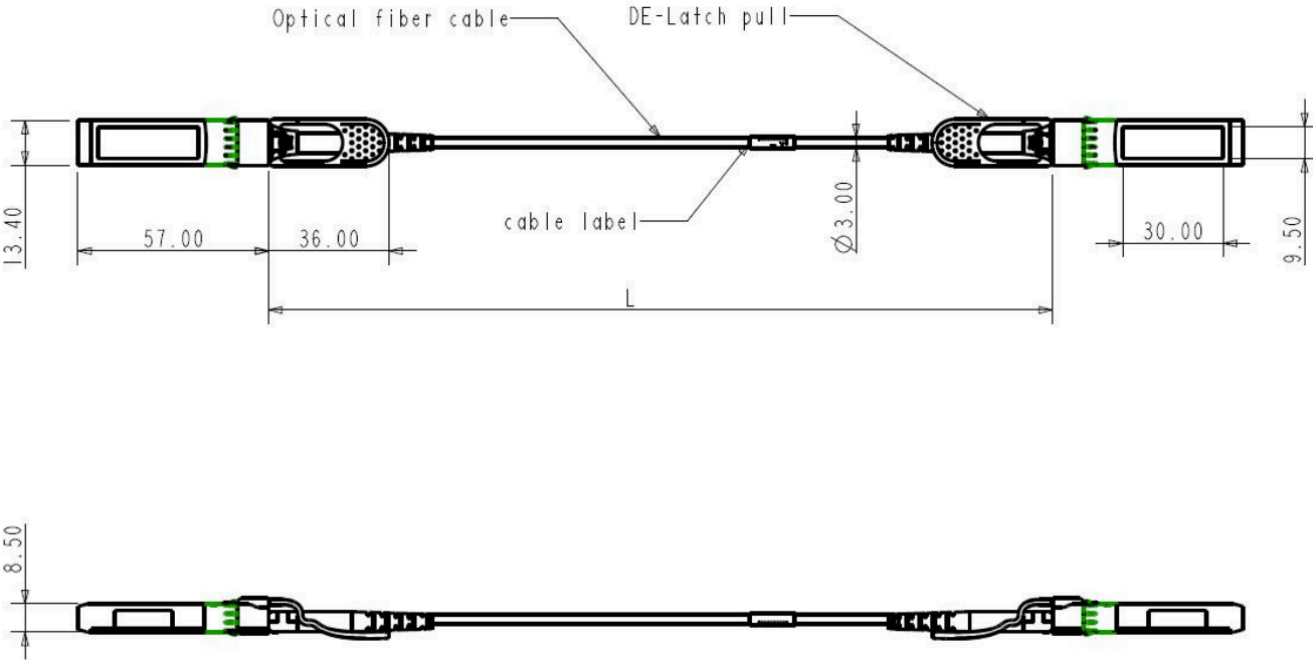
### Note:

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

Host Board



Mechanical Specification



## **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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