



### **SFP-10GB-PDAC3MLZ-OPC**

MSA and TAA 10GBase-CU SFP+ to SFP+ Direct Attach Cable (Passive Twinax, 3m, 30AWG, LSZH)

#### **Features**

- SFF-8431/8432 and INF-8074i Compliant
- Up to 10.3125Gbps
- IEEE802.3ba Standard
- 30AWG
- Passive copper
- Operating Temperature 0 to 70 Celsius
- RoHS 2.0 compliant and lead-free



#### **Applications:**

- 10GBase-CU

#### **Product Description**

This is an MSA compliant 10GBase-CU SFP+ to SFP+ LSZH direct attach cable that operates over passive copper with a maximum reach of 3.0m (9.8ft). It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This direct attach 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.

## Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883 Method 3015.
- ESD to the Duplex LC Receptacle: compatible with IEC 61000-4-2.
- Immunity: compatible with IEC 61000-4-3.
- EMI: compatible with FCC Part 15 Class B EN55022 Class B (CISPR 22B) VCCI Class B.
- Laser Eye Safety: compatible with FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1, 2.
- RoHS: compliant with 2002/95/EC 4.1&4.2 2005/747/EC.

## Absolute Maximum Ratings

| Parameter                  | Symbol | Min. | Typ. | Max. | Unit |
|----------------------------|--------|------|------|------|------|
| Supply Voltage             | Vcc    | 3.13 | 3.3  | 3.47 | V    |
| Storage Temperature        | Tstg   | -40  |      | 85   | °C   |
| Operating Case Temperature | Tc     | 0    |      | 70   | °C   |
| Humidity                   | RH     | 5    |      | 85   | %    |
| Data Rate                  |        |      | 10   |      | Gbps |

## Physical Characteristics

| Parameter       | Symbol      | Min. | Typ. | Max. | Unit |
|-----------------|-------------|------|------|------|------|
| Length          | L           |      |      | 3    | M    |
| AWG             |             |      |      | 30   | AWG  |
| Jacket Material | LSZH, Black |      |      |      |      |

## Electrical Characteristics

| Parameter                  | Symbol   | Min.                                                                                                                                                             | Typ. | Max.  | Unit |
|----------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------|
| Resistance                 | Rcon     |                                                                                                                                                                  |      | 3     | Ω    |
| Insulation Resistance      | Rins     |                                                                                                                                                                  |      | 10    | MΩ   |
| Raw Cable Impedance        | Zca      | 95                                                                                                                                                               | 100  | 110   | Ω    |
| Mated Connector Impedance  | Zmated   | 85                                                                                                                                                               | 100  | 110   | Ω    |
| Insertion Loss at 12.89GHz | SDD21    |                                                                                                                                                                  |      | 17.04 | dB   |
| Return Loss at 12.89GHz    | SDD11/22 | $\text{Return\_Loss}(f) \geq \begin{cases} 12 - 2\sqrt{f}, & 0.05 \leq f < 4.1 \\ 6.3 - 13\log_{10}\left(\frac{f}{5.5}\right), & 4.1 \leq f \leq 10 \end{cases}$ |      |       | dB   |
| Rise Time (20-80%)         |          |                                                                                                                                                                  |      | 34    | ps   |

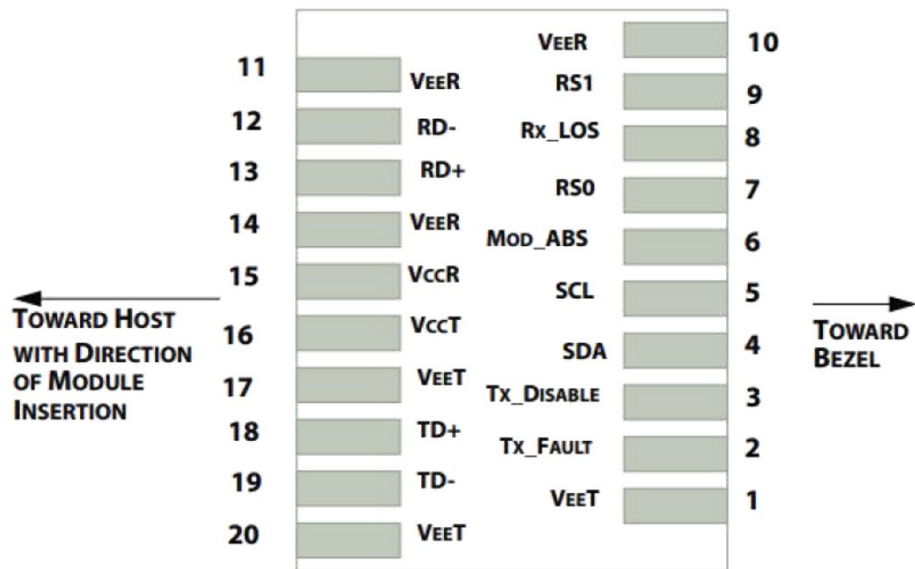
## Pin Descriptions

| Pin | Logic     | Symbol     | Name/Description                                                                                           | Plug Sequence | Note |
|-----|-----------|------------|------------------------------------------------------------------------------------------------------------|---------------|------|
| 1   |           | VeeT       | Module Transmitter Ground.                                                                                 | 1             | 3    |
| 2   | LVTTL-O   | Tx_Fault   | Module Transmitter Fault.                                                                                  | 3             | 4    |
| 3   | LVTTL-I   | Tx_Disable | Transmitter Disable. Turns off transmitter laser output.                                                   | 3             | 5    |
| 4   | LVTTL-I/O | SDA        | 2-Wire Serial Interface Data. Same as MOD_DEF2 in INF-8074i.                                               | 3             |      |
| 5   | LVTTL-I/O | SCL        | 2-Wire Serial Interface Clock. Same as MOD_DEF1 in INF-8074i.                                              | 3             |      |
| 6   |           | MOD_ABS    | Module Absent. Connected to VeeT or VeeR in the module.                                                    | 3             |      |
| 7   | LVTTL-I   | RS0        | Rate Select 0. Optionally controls the SFP+ module receiver.                                               | 3             | 6    |
| 8   | LVTTL-O   | Rx_LOS     | Receiver Loss of Signal indication. In FC, designated as Rx_LOS. In Ethernet, designated as Signal Detect. | 3             | 4    |
| 9   | LVTTL-I   | RS1        | Rate Select 1. Optionally controls SFP+ module transmitter.                                                | 3             | 6    |
| 10  |           | VeeR       | Module Receiver Ground.                                                                                    | 1             | 3    |
| 11  |           | VeeR       | Module Receiver Ground.                                                                                    | 1             | 3    |
| 12  | CML-O     | RD-        | Receiver Inverted Data Output.                                                                             | 3             |      |
| 13  | CML-O     | RD+        | Receiver Non-Inverted Data Output.                                                                         | 3             |      |
| 14  |           | VeeR       | Module Receiver Ground.                                                                                    | 1             | 3    |
| 15  |           | VccR       | Module Receiver 3.3V Supply.                                                                               | 2             |      |
| 16  |           | VccT       | Module Transmitter 3.3V Supply.                                                                            | 2             |      |
| 17  |           | VeeT       | Module Transmitter Ground.                                                                                 | 1             | 3    |
| 18  | CML-I     | TD+        | Transmitter Non-Inverted Data Input.                                                                       | 3             |      |
| 19  | CML-I     | TD-        | Transmitter Inverted Data Input.                                                                           | 3             |      |
| 20  |           | VeeT       | Module Transmitter Ground.                                                                                 | 1             | 3    |

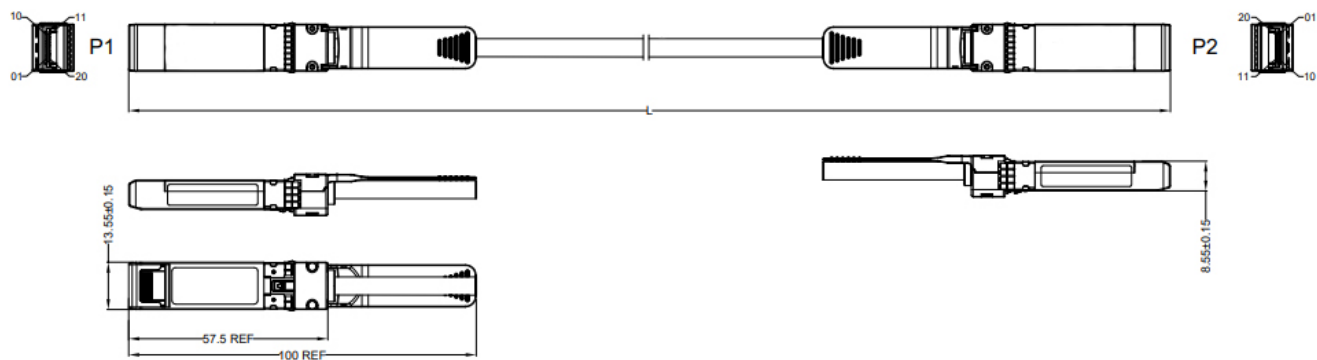
### Notes:

1. Labeling as inputs (I) and outputs (O) are from the perspective of the module.
2. The case makes electrical contact to the cage before any of the board edge contacts are made.
3. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
4. This contact is an open collector/drain output contact and shall be pulled up on the host. Pull-ups can be connected to one of several power supplies; however, the host board design shall ensure that no module contact has a voltage exceeding module VccT/R+0.5V.
5. Tx\_Disable is an input contact with a 4.7kΩ to 10kΩ pull-up to the VccT inside the module.
6. If implementing SFF-8079, contacts 7 and 9 in SFF-8431 are used for AS0 and AS1, respectively.

Electrical Pin-Out Details



Mechanical Specifications



Notes:

1. 2 pairs.
2. 100% conductor test conditions: 5V, insulation resistance of 10MΩ, and conduction resistance maximum of 3Ω.

## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

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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
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