



### **SFP-25GB-PDAC2-5MLZ-OPC**

MSA and TAA 25GBase-CU SFP28 to SFP28 Direct Attach Cable (Passive Twinax, 2.5m, 30AWG, LSZH)

#### **Features**

- SFF-8431/8432, INF-8074i
- 25.78125Gbps
- SFP28 to SFP28
- 30AWG
- Passive copper
- Operating Temperature 0 to 70 Celsius
- RoHS 2.0 compliant and lead-free



#### **Applications:**

- 25GBase-CU

#### **Product Description**

This is an MSA compliant 25GBase-CU SFP28 to SFP28 direct attach cable that operates over passive copper with a maximum reach of 2.5m (8.2ft). 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                  |        |      | 25.78125 |      | Gbps |

## Physical Characteristics

| Parameter       | Symbol                                | Min. | Typ. | Max. | Unit |
|-----------------|---------------------------------------|------|------|------|------|
| Length          | L                                     |      |      | 2.5  | M    |
| AWG             |                                       |      |      | 30   | AWG  |
| Jacket Material | LSZH, Black                           |      |      |      |      |
| Top Shell       | Zinc Alloy, Nickel-Plated Over Copper |      |      |      |      |
| Bottom Shell    | Zinc Alloy, Nickel-Plated Over Copper |      |      |      |      |
| Pull Tab        | Pull Ring, PA66 S1300, Deep Blue      |      |      |      |      |
| EMI Shell       | Stainless Steel SUS301                |      |      |      |      |

## Electrical Specifications

| Parameter                                   | Symbol      | Min.                                                                                                                                                                                          | Typ. | Max.  | Unit       |
|---------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------------|
| Resistance                                  | Rcon        |                                                                                                                                                                                               |      | 3     | $\Omega$   |
| Insulation Resistance                       | Rins        |                                                                                                                                                                                               |      | 10    | M $\Omega$ |
| Raw Cable Impedance                         | Zca         | 95                                                                                                                                                                                            | 100  | 110   | $\Omega$   |
| Mated Connector Impedance                   | Zmated      | 85                                                                                                                                                                                            | 100  | 110   | $\Omega$   |
| Insertion Loss at 12.89GHz                  | SDD21       | 8                                                                                                                                                                                             |      | 22.48 | dB         |
| Return Loss at 12.89GHz                     | SDD11/22    | $\text{Return\_Loss}(f) \geq \begin{cases} 16.5 - 2\sqrt{f} & 0.05 \leq f < 4.1 \\ 10.66 - 14\log_{10}\left(\frac{f}{5.5}\right) & 4.1 \leq f \leq 19 \end{cases}$                            |      |       | dB         |
| Differential to Common-Mode Return Loss     | SCD11/22    | $\text{Return\_Loss}(f) \geq \begin{cases} 22 - \left(\frac{20}{25.78}\right)f, & 0.01 \leq f < 12.89 \\ 15 - \left(\frac{6}{25.78}\right)f & 12.89 \leq f \leq 19 \end{cases}$               |      |       | dB         |
| Differential to Common-Mode Conversion Loss | SCD21-SDD21 | $\text{Conversion\_Loss}(f) - \text{IL}(f) \geq \begin{cases} 10, & 0.01 \leq f < 12.89 \\ 27 - \left(\frac{29}{22}\right)f, & 12.89 \leq f < 15.7 \\ 6.3, & 15.7 \leq f \leq 19 \end{cases}$ |      |       | dB         |
| Minimum COM                                 | COM         | 3                                                                                                                                                                                             |      |       | dB         |
| Rise Time (20-80%)                          |             |                                                                                                                                                                                               |      | 25    | ps         |

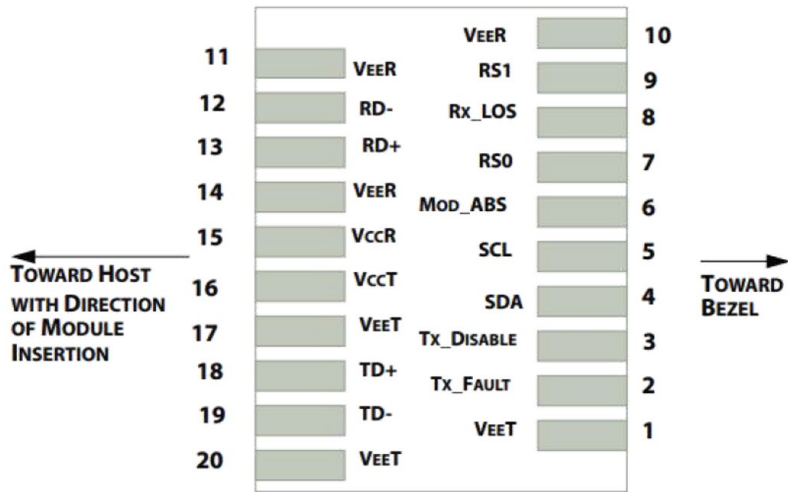
## Pin Descriptions

| Pin  | Logic     | Symbol     | Name/Description                                                                                           | Plug Sequence | Note |
|------|-----------|------------|------------------------------------------------------------------------------------------------------------|---------------|------|
| Case |           | Case       | Module Case.                                                                                               | See 2         |      |
| 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 the 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 the 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 the 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       | +3.3V Receiver Power Supply.                                                                               | 2             |      |
| 16   |           | VccT       | +3.3V Transmitter Power 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:

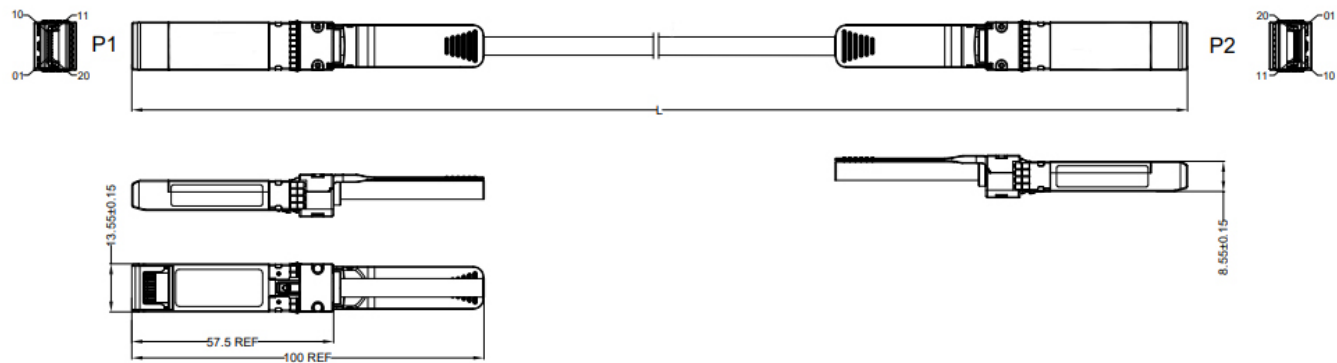
1. Labelling as inputs (I) and outputs (O) are from the perspective of the module.
2. The case makes electrical contact to the cage before any of the board edge contacts are made.
3. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
4. This contact is an open 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 the module VccT/R+0.5V.
5. Tx\_Disable is an input contact with a 4.7kΩ to 10Ω 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



Electrical Pin-out Details for SFP

Mechanical Specifications



Notes:

1. 2 pairs.
2. 100% conductor test conditions: 5V, insulation resistance of 10MΩ, and conduction resistance maximum of 3Ω. IEEE802.3bj standard.

## **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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