



### **QSFP28-2QSFP28-PDAC5M-OPC**

MSA and TAA Compliant 100GBase-CU QSFP28 to 2xQSFP28 Direct Attach Cable (Passive Twinax, 5m)

#### **Features**

- QSFP Module Complaint to SFF-8661
- Transmission Data Rate up to 25.78 Gbps per Channel
- Enable (4x25.78)100Gbps Transmission
- Built in EEPROM Functions
- Operating Temperature: 0 to 70 Celcius
- RoHS Complaint and Lead-Free



#### **Applications:**

- Switch, Storage, Server

#### **Product Description**

This is an MSA compliant 100GBase-CU QSFP28 to 2xQSFP28 direct attach cable that operates over passive copper with a maximum reach of 5.0m (16.4ft). 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.

## General Specifications

| Parameter             | Symbol | Min. | Typ. | Max. | Unit |
|-----------------------|--------|------|------|------|------|
| Supply Voltage        | Vcc    | 3.13 | 3.3  | 3.47 | V    |
| Storage Temperature   | Tstg   | -40  |      | 85   | °C   |
| Operating Temperature | Tc     | 0    |      | 70   | °C   |
| Relative Humidity     | RH     | 5    |      | 85   | %    |
| Data Rate             |        |      | 100  |      | Gbps |

## Electrical Specifications

| Parameter                                   | Symbol      | Min.                                                                                                                                                  | Typ. | Max.  | Unit       |
|---------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------------|
| Resistance                                  | Rcon        |                                                                                                                                                       |      | 3     | $\Omega$   |
| Insulation Resistance                       | Rins        |                                                                                                                                                       |      | 10    | M $\Omega$ |
| Raw Cable Impedance                         | Zca         | 95                                                                                                                                                    | 100  | 105   | $\Omega$   |
| Mated Connector Impedance                   | Zmated      | 85                                                                                                                                                    | 100  | 115   | $\Omega$   |
| Insertions Loss at 12.89 GHz                | SDD21       | 8                                                                                                                                                     |      | 22.48 | dB         |
| Return Loss at 12.89GHz                     | SDD11/22    | $\text{Return\_Loss}(f) \geq \begin{cases} 16.5-2\sqrt{f} & 0.5 \leq f < 4.1 \\ 10.66-14\log_{10}(f/5.5) & 4.1 \leq f \leq 19 \end{cases}$            |      |       | dB         |
| Differential to Common-Mode Return Loss     | SCD11/22    | $\text{Return\_Loss}(f) \geq \begin{cases} 22-(20/25.78)f & 0.01 \leq f \leq 12.89 \\ 15-(6/25.78)f & 12.89 \leq f \leq 19 \end{cases}$               |      |       | dB         |
| Differential to Common-Mode Conversion Loss | SCD21-SDD21 | $\text{Conversion\_Loss}(f) \geq \begin{cases} 10 & 0.01 \leq f < 12.89 \\ 27-(29/22)f & 0.01 \leq f < 15.7 \\ 6.3 & 15.7 \leq f \leq 19 \end{cases}$ |      |       | dB         |
| Minimum COM                                 | COM         | 3                                                                                                                                                     |      |       | dB         |

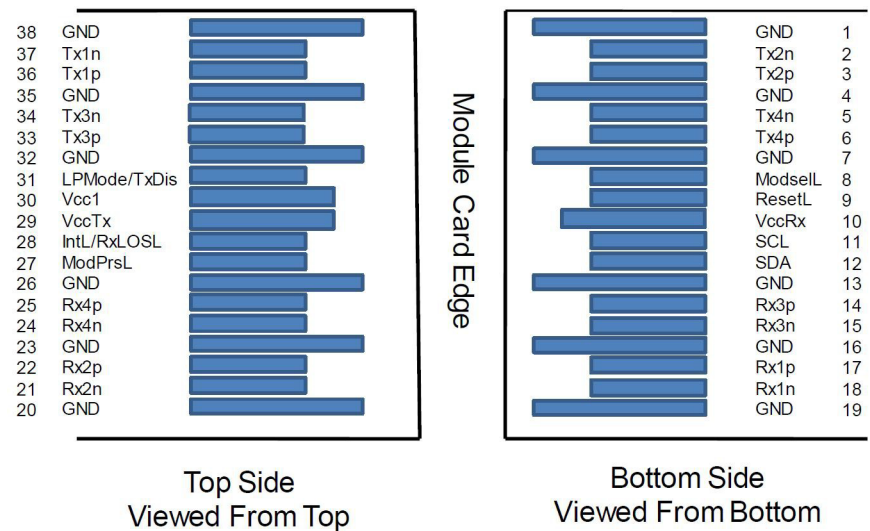
## Pin Descriptions

| Pin | Logic       | Symbol  | Name/Descriptions                                       | Plug Sequence | Ref. |
|-----|-------------|---------|---------------------------------------------------------|---------------|------|
| 1   |             | GND     | Module Ground.                                          | 1             | 1    |
| 2   | CML-I       | Tx2-    | Transmitter Inverted Data Input.                        | 3             |      |
| 3   | CML-I       | Tx2+    | Transmitter Non-Inverted Data Input.                    | 3             |      |
| 4   |             | GND     | Module Ground.                                          | 1             | 1    |
| 5   | CML-I       | Tx4-    | Transmitter Inverted Data Input.                        | 3             |      |
| 6   | CML-I       | Tx4+    | Transmitter Non-Inverted Data Input.                    | 3             |      |
| 7   |             | GND     | Module Ground.                                          | 1             | 1    |
| 8   | LVTTL-I     | MODSEIL | Module Select.                                          | 3             | 2    |
| 9   | LVTTL-I     | ResetL  | Module Reset.                                           | 3             | 2    |
| 10  |             | VccRx   | +3.3V Receiver Power Supply.                            | 2             |      |
| 11  | LVC MOS-I/O | SCL     | 2-Wire Serial Interface Clock.                          | 3             | 2    |
| 12  | LVC MOS-I/O | SDA     | 2-Wire Serial Interface Data.                           | 3             | 2    |
| 13  |             | GND     | Module Ground.                                          | 1             | 1    |
| 14  | CML-O       | Rx3+    | Receiver Non-Inverted Data Output.                      | 3             |      |
| 15  | CML-O       | Rx3-    | Receiver Inverted Data Output.                          | 3             |      |
| 16  |             | GND     | Module Ground.                                          | 1             | 1    |
| 17  | CML-O       | Rx1+    | Receiver Non-Inverted Data Output.                      | 3             |      |
| 18  | CML-O       | Rx1-    | Receiver Inverted Data Output.                          | 3             |      |
| 19  |             | GND     | Module Ground.                                          | 1             | 1    |
| 20  |             | GND     | Module Ground.                                          | 3             | 1    |
| 21  | CML-O       | Rx2-    | Receiver Inverted Data Output.                          | 3             |      |
| 22  | CML-O       | Rx2+    | Receiver Non-Inverted Data Output.                      | 1             |      |
| 23  |             | GND     | Module Ground.                                          | 1             | 1    |
| 24  | CML-O       | Rx4-    | Receiver Inverted Data Output.                          | 3             |      |
| 25  | CML-O       | Rx4+    | Receiver Non-Inverted Data Output.                      | 3             |      |
| 26  |             | GND     | Module Ground.                                          | 1             | 1    |
| 27  | LVTTL-O     | ModPrsL | Module Present. Internally pulled down to the GND.      | 3             |      |
| 28  | LVTTL-O     | IntL    | Interrupt output should be pulled up on the host board. | 3             | 2    |
| 29  |             | VccTx   | +3.3V Transmitter Power Supply.                         | 2             |      |
| 30  |             | Vcc1    | +3.3V Power Supply.                                     | 2             |      |
| 31  | LVTTL-I     | LPMode  | Low-Power Mode.                                         | 3             | 2    |
| 32  |             | GND     | Module Ground.                                          | 1             | 1    |
| 33  | CML-I       | Tx3+    | Transmitter Non-Inverted Data Input.                    | 3             |      |
| 34  | CML-I       | Tx3-    | Transmitter Inverted Data Input.                        | 3             |      |
| 35  |             | GND     | Module Ground.                                          | 1             | 1    |
| 36  | CML-I       | Tx1+    | Transmitter Non-Inverted Data Input.                    | 3             |      |
| 37  | CML-I       | Tx1-    | Transmitter Inverted Data Input.                        | 3             |      |
| 38  |             | GND     | Module Ground.                                          | 1             | 1    |

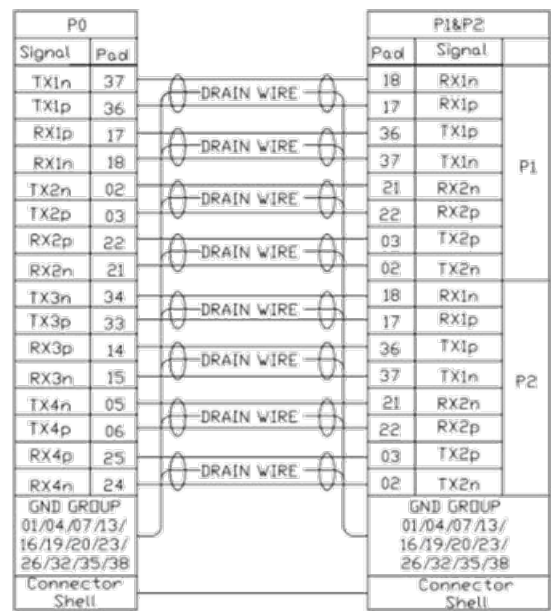
**Notes:**

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 voltages are references to this potential unless otherwise noted. Connect the 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. Requirements defined for the host board power supply filtering is shown in host board figure. VccRx, Vcc1, and VccTx may be internally connected within the QSFP+ module in any combination. The connector pins are each for a maximum current of 500mA.

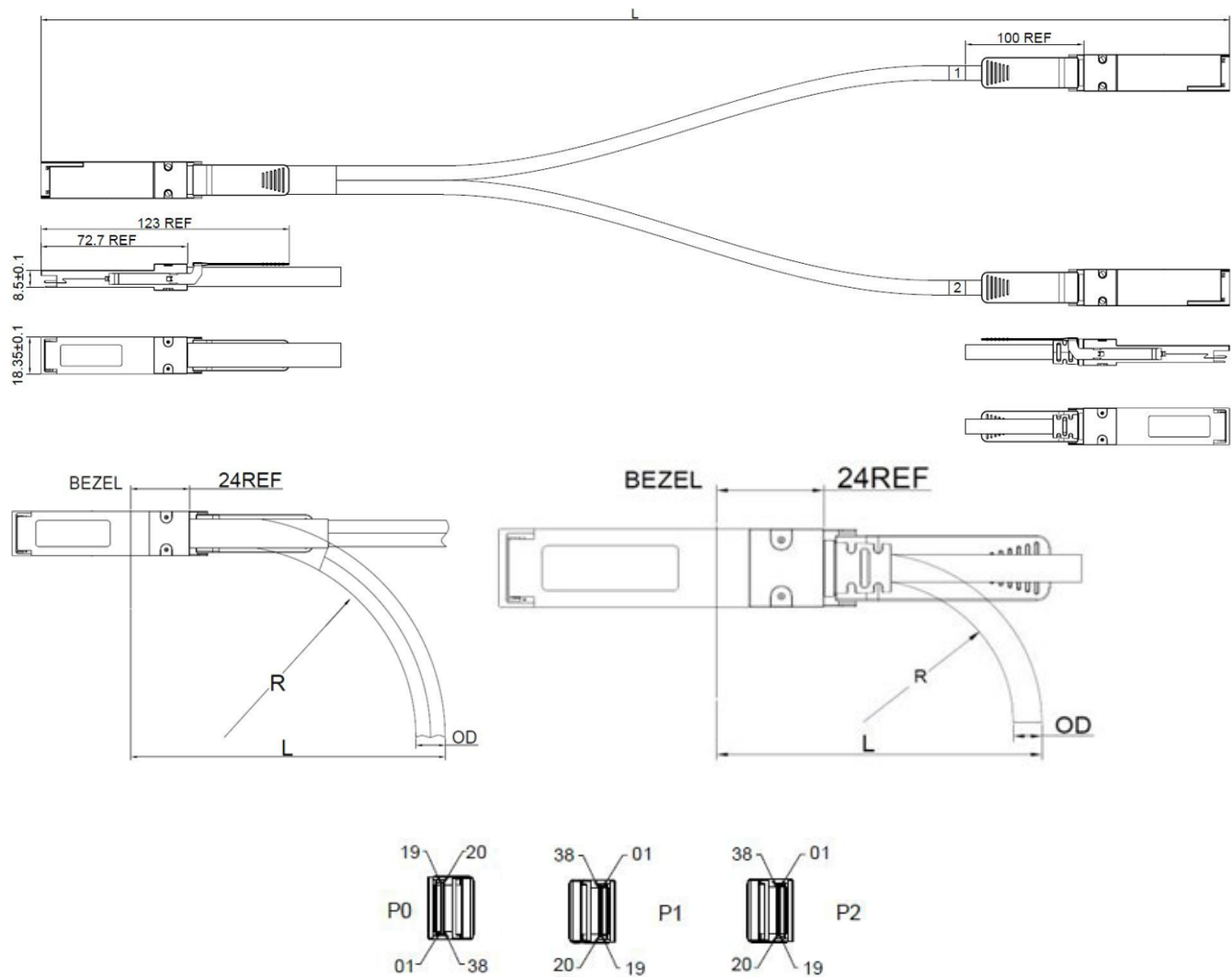
**Electrical Pin-out Details**



**Wire Diagram**



Mechanical Specifications



Cable Specifications

| Parameter           |         | Symbol | Min.                          | Typ.  | Max. | Unit |
|---------------------|---------|--------|-------------------------------|-------|------|------|
| Length              |         | L      | 0.5                           |       | 5.0  | M    |
| AWG                 |         |        |                               | 26    |      | AWG  |
| Jacket Material     |         |        | PVC, Black (or Customization) |       |      |      |
| OD                  | P0      |        |                               | 15MM  |      |      |
|                     | P1 & P2 |        |                               | 7.5MM |      |      |
| Bend Radius         | P0      | R      |                               | 75MM  |      |      |
|                     | P1 & P2 |        |                               | 38MM  |      |      |
| Minimum Bend Radius | P0      | L      |                               | 114MM |      |      |
|                     | P1 & P2 |        |                               | 70MM  |      |      |

## **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.

[www.optioconnect.com](http://www.optioconnect.com) | [info@optioconnect.com](mailto:info@optioconnect.com)

