



### **Q56-2Q56-200GB-ADAC7MIB-OPC**

MSA and TAA 200GBase-CU QSFP56 to 2xQSFP56 Direct Attach Cable (Active Twinax, 7m, Infiniband HDR)

#### **Features**

- QSFP Module Compliant to SFF-8667
- Compliant to InfiniBand HDR
- Transmission Data Rate up to PAM4 53.125Gbps Per Channel
- Enables 212.5Gbps to 2x106.25Gbps Transmission
- Fully Preserves Effects of Transmit Pre-Emphasis or Amplitude Adjustments
- Low Power Consumption:
- Independent Equalization Setting and Standby Control
- Operating Case Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



#### **Applications:**

- 200GBase

#### **Product Description**

This is an MSA compliant 200GBase-CU QSFP56 to 2xQSFP56 Infiniband HDR direct attach cable that operates over active copper with a maximum reach of 7.0m (23.0ft). 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.

### Absolute Maximum Ratings

| Parameter                  | Symbol | Min. | Typ.  | Max. | Unit |
|----------------------------|--------|------|-------|------|------|
| Supply Voltage             | Vcc    | -0.3 | 3.3   | 3.6  | V    |
| Storage Temperature        | Tstg   | -40  |       | 85   | °C   |
| Operating Case Temperature | Tc     | 0    |       | 70   | °C   |
| Relative Humidity          | RH     | 5    |       | 85   | %    |
| Data Rate                  |        |      | 212.5 |      | Gbps |

### Physical Characteristics

| Parameter       | Symbol | Min.       | Typ. | Max. | Unit |
|-----------------|--------|------------|------|------|------|
| Length          | L      |            |      | 7    | M    |
| AWG             |        |            | 27   |      | AWG  |
| Jacket Material |        | PVC, Black |      |      |      |

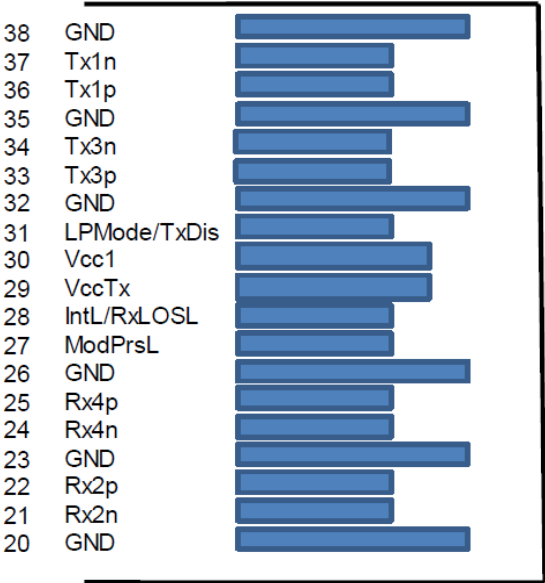
### Electrical Characteristics

| Parameter                                                  | Symbol   | Min | Typ | Max | Unit |
|------------------------------------------------------------|----------|-----|-----|-----|------|
| Power Supply Voltage                                       | Vcc      | 3.1 | 3.3 | 3.5 | V    |
| Current Draw for Each Active Channel                       | Iact-Ch  |     | 45  |     | mA   |
| Current Draw When Both Channels are Placed in Standby Mode | Istdby   |     | 1   |     | mA   |
| Input Voltage - High (PROGEN, SCL, SDA)                    | VIH      | 3.1 | 3.3 | 3.5 | V    |
| Input Voltage - High (ADDR0/1/2)                           | VIH_ADDR | 2.3 | 2.5 | 2.7 | V    |
| Input Voltage - Low                                        | VIL      | 0   |     | 0.4 | V    |
| Time from Valid Vcc to Operation of the IC                 | TStartUp |     |     | 10  | ms   |
| Time from Valid Vcc to VIH of 12C Signals                  | Ti2C     | 0   |     |     | ms   |

High-Speed Channel Characteristics

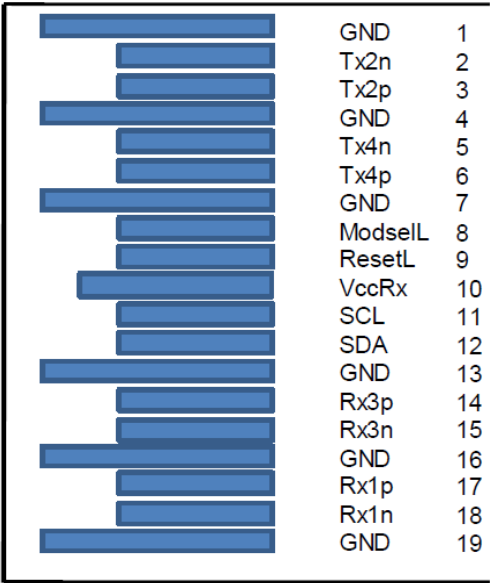
| Parameter                          | Symbol | Min.                          | Typ. | Max.             | Unit |
|------------------------------------|--------|-------------------------------|------|------------------|------|
| Raw Cable Differential Impedance   | Zca    | 90                            |      | 110              | Ω    |
| PCBA Differential Impedance        | Zpcba  | 85                            |      | 115              | Ω    |
| Maximum Insertion Loss at 13.28GHz | SDD21  | 6                             |      | 14               | dB   |
| Other SI Performance               |        | Compliant with Infiniband HDR |      |                  |      |
| Minimum COM                        | COM    | 3                             |      |                  | dB   |
| Bit Error Ratio                    |        |                               |      | 1E <sup>-8</sup> |      |

Electrical Pin-Out Details for QSFP



Top Side  
Viewed From Top

Module Card Edge



Bottom Side  
Viewed From Bottom

## Pin Descriptions

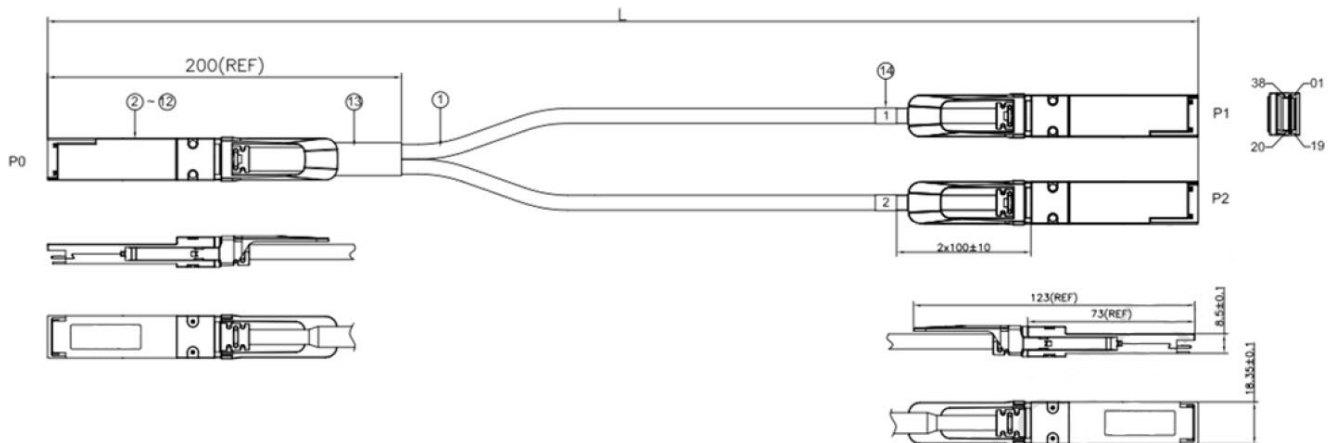
| Pin | Logic       | Symbol  | Name/Description                     | Notes |
|-----|-------------|---------|--------------------------------------|-------|
| 1   |             | GND     | Module Ground.                       | 1     |
| 2   | CML-I       | Tx2-    | Transmitter Inverted Data Input.     |       |
| 3   | CML-I       | Tx2+    | Transmitter Non-Inverted Data Input. |       |
| 4   |             | GND     | Module Ground.                       | 1     |
| 5   | CML-I       | Tx4-    | Transmitter Inverted Data Input.     |       |
| 6   | CML-I       | Tx4+    | Transmitter Non-Inverted Data Input. |       |
| 7   |             | GND     | Module Ground.                       | 1     |
| 8   | LVTTL-I     | ModSelL | Module Select.                       |       |
| 9   | LVTTL-I     | ResetL  | Module Reset.                        |       |
| 10  |             | VccRx   | +3.3V Receiver Power Supply.         | 2     |
| 11  | LVC MOS-I/O | SCL     | 2-Wire Serial Interface Clock.       |       |
| 12  | LVC MOS-I/O | SDA     | 2-Wire Serial Interface Data.        |       |
| 13  |             | GND     | Module Ground.                       | 1     |
| 14  | CML-O       | Rx3+    | Receiver Non-Inverted Data Output.   |       |
| 15  | CML-O       | Rx3-    | Receiver Inverted Data Output.       |       |
| 16  |             | GND     | Module Ground.                       | 1     |
| 17  | CML-O       | Rx1+    | Receiver Non-Inverted Data Output.   |       |
| 18  | CML-O       | Rx1-    | Receiver Inverted Data Output.       |       |
| 19  |             | GND     | Module Ground.                       | 1     |
| 20  |             | GND     | Module Ground.                       | 1     |
| 21  | CML-O       | Rx2-    | Receiver Inverted Data Output.       |       |
| 22  | CML-O       | Rx2+    | Receiver Non-Inverted Data Output.   |       |
| 23  |             | GND     | Module Ground.                       | 1     |
| 24  | CML-O       | Rx4-    | Receiver Inverted Data Output.       |       |
| 25  | CML-O       | Rx4+    | Receiver Non-Inverted Data Output.   |       |
| 26  |             | GND     | Module Ground.                       | 1     |
| 27  | LVTTL-O     | ModPrsL | Module Present.                      |       |
| 28  | LVTTL-O     | IntL    | Interrupt.                           |       |
| 29  |             | VccTx   | +3.3V Transmitter Power Supply.      | 2     |
| 30  |             | Vcc1    | +3.3V Power Supply.                  | 2     |
| 31  | LVTTL-I     | LPMode  | Low-Power Mode.                      |       |
| 32  |             | GND     | Module Ground.                       | 1     |
| 33  | CML-I       | Tx3+    | Transmitter Non-Inverted Data Input. |       |
| 34  | CML-I       | Tx3-    | Transmitter Inverted Data Input.     |       |

|    |       |      |                                      |   |
|----|-------|------|--------------------------------------|---|
| 35 |       | GND  | Module Ground.                       | 1 |
| 36 | CML-I | Tx1+ | Transmitter Non-Inverted Data Input. |   |
| 37 | CML-I | Tx1- | Transmitter Inverted Data Input.     |   |
| 38 |       | GND  | Module Ground.                       | 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 referenced to this potential unless otherwise noted. Connect these 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. VccRx, Vcc1, and VccTx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

#### Mechanical Specifications



## **OptioConnect**

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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.

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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:

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- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

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