

|                                                             |                                    |                                                        |
|-------------------------------------------------------------|------------------------------------|--------------------------------------------------------|
| <b>TITLE</b><br><br><b>200G QSFP56 Active Optical Cable</b> | <b>DOC No. RFD-20220926004-003</b> |                                                        |
|                                                             | <b>REVISION :</b><br><b>01</b>     | <b>AUTHORIZED BY :</b><br><b>Andy Yang</b>             |
|                                                             | <b>DATE :</b><br><b>2024.11.04</b> | <b>CLASSIFICATION :</b><br><b>Active Optical Cable</b> |

## 1. PRODUCT FEATURES

- ✓ Supports IBTA InfiniBand HDR
- ✓ Up to 200Gb/s data rate
- ✓ 4x 50Gb/s PAM4 modulation
- ✓ SFF-8665 compliant QSFP56 port
- ✓ SFF-8636 compliant I2C management
- ✓ Single 3.3V power supply
- ✓ 4.5W power dissipation each end, with retiming
- ✓ Operating case temp Commercial: 0°C to +70 °C
- ✓ Hot pluggable
- ✓ RoHS compliant
- ✓ Digital Diagnostic Monitor supported

## 2. PRODUCT DESCRIPTION

### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

#### 200G QSFP56 AOC

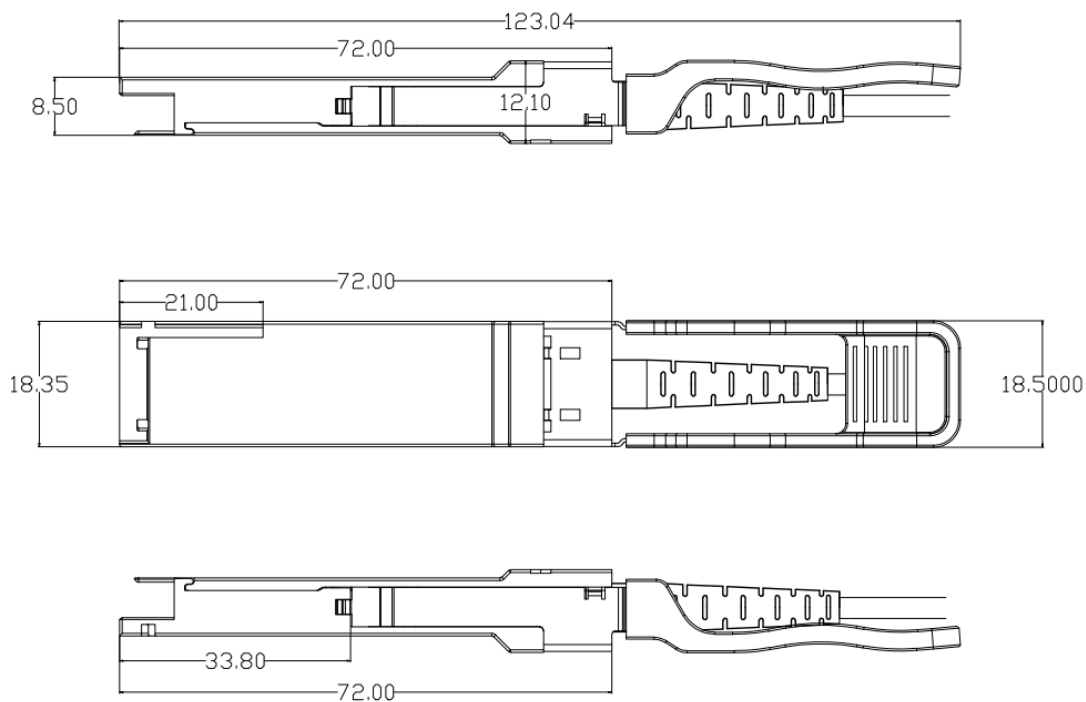
| JPC P/N        | Bit Rate   | Laser(nm) | Distance | Fiber Type | Connector | Temp |
|----------------|------------|-----------|----------|------------|-----------|------|
| P74**RC00**M-1 | 212.5 Gb/s | 850nm     | 1~100m   | MMF        | N/A       | C    |

Note-1 : \*\* Indicates the customer code.

Note-2 : \*\* Indicates the length.

|                                                             |                                    |                                              |
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## 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKING



Unit is millimeter. All dimensions are mm unless otherwise specified.

## 3. APPLICABLE DOCUMENTS AND SPECIFICATIONS

- ✓ 200Gb/s InfiniBand HDR systems
- ✓ Other optical links

## 4. Absolute Maximum Ratings & Recommended Operating Conditions

### 4.1 ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Conditions | Min. | Max. | Unit |
|-----------|--------|------------|------|------|------|
|-----------|--------|------------|------|------|------|

|                                                             |                                    |                                              |
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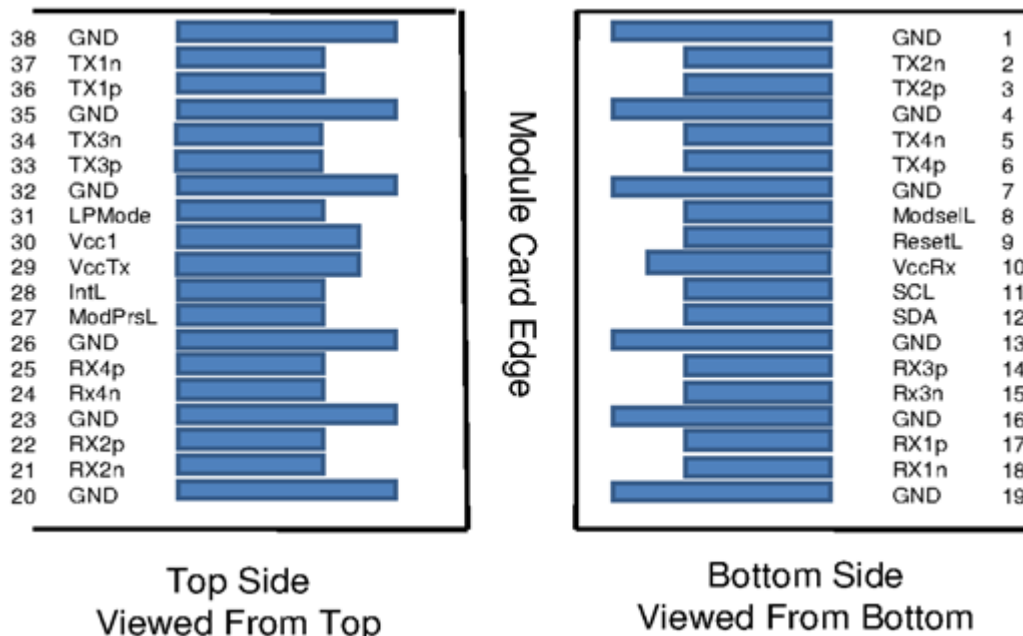
|                     |                      |     |     |    |
|---------------------|----------------------|-----|-----|----|
| Storage Temperature | T <sub>Storage</sub> | -40 | +85 | °C |
| Relative Humidity   | RH                   | 0   | +85 | %  |

## 4.2 RECOMMENDED OPERATING CONDITIONS

| Parameter                   | Symbol          | Conditions | Min.  | Typ.    | Max.   | Unit |
|-----------------------------|-----------------|------------|-------|---------|--------|------|
| Case Temperature            | T <sub>C</sub>  |            | 0     |         | 70     | °C   |
| Power Supply Voltage        | V <sub>CC</sub> |            | 3.135 | 3.3     | 3.465  | V    |
| Power Consumption           |                 |            |       |         | 4.5    | W    |
| Signaling Rate each Channel |                 |            |       | 26.5625 |        | Gbps |
| Data Rate Accuracy          |                 |            | -100  |         | 100    | ppm  |
| Error Bit Rate              |                 |            |       |         | 2.4E-4 |      |

Notes: PRBS31Q@26.5625Gbd PAM4

## 5. Applications Note:



## Pin Definitions

## Pin Assignment

|                                                             |                                    |                                                        |
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| PIN | Logic       | Symbol  | Name/Description                     | Note |
|-----|-------------|---------|--------------------------------------|------|
| 1   |             | GND     | Ground                               |      |
| 2   | CML-I       | Tx2n    | Transmitter Inverted Data Input      |      |
| 3   | CML-I       | Tx2p    | Transmitter Non-Inverted Data output |      |
| 4   |             | GND     | Ground                               |      |
| 5   | CML-I       | Tx4n    | Transmitter Inverted Data Input      |      |
| 6   | CML-I       | Tx4p    | Transmitter Non-Inverted Data output |      |
| 7   |             | GND     | Ground                               |      |
| 8   | LVTTL-I     | ModSelL | Module Select                        |      |
| 9   | LVTTL-I     | ResetL  | Module Reset                         |      |
| 10  |             | VccRx   | + 3.3V Power Supply Receiver         |      |
| 11  | LVC MOS-I/O | SCL     | 2-Wire Serial Interface Clock        |      |
| 12  | LVC MOS-I/O | SDA     | 2-Wire Serial Interface Data         |      |
| 13  |             | GND     | Ground                               |      |
| 14  | CML-O       | Rx3p    | Receiver Non-Inverted Data Output    |      |
| 15  | CML-O       | Rx3n    | Receiver Inverted Data Output        |      |
| 16  |             | GND     | Ground                               |      |
| 17  | CML-O       | Rx1p    | Receiver Non-Inverted Data Output    |      |
| 18  | CML-O       | Rx1n    | Receiver Inverted Data Output        |      |
| 19  |             | GND     | Ground                               |      |
| 20  |             | GND     | Ground                               |      |
| 21  | CML-O       | Rx2n    | Receiver Inverted Data Output        |      |
| 22  | CML-O       | Rx2p    | Receiver Non-Inverted Data Output    |      |
| 23  |             | GND     | Ground                               |      |
| 24  | CML-O       | Rx4n    | Receiver Inverted Data Output        |      |
| 25  | CML-O       | Rx4p    | Receiver Non-Inverted Data Output    |      |
| 26  |             | GND     | Ground                               |      |
| 27  | LVTTL-O     | ModPrsL | Module Present                       |      |
| 28  | LVTTL-O     | IntL    | Interrupt                            |      |
| 29  |             | VccTx   | +3.3 V Power Supply transmitter      |      |
| 30  |             | Vcc1    | +3.3 V Power Supply                  |      |
| 31  | LVTTL-I     | LPMODE  | Low Power Mode                       |      |
| 32  |             | GND     | Ground                               |      |
| 33  | CML-I       | Tx3p    | Transmitter Non-Inverted Data Input  |      |
| 34  | CML-I       | Tx3n    | Transmitter Inverted Data Output     |      |
| 35  |             | GND     | Ground                               |      |
| 36  | CML-I       | Tx1p    | Transmitter Non-Inverted Data Input  |      |
| 37  | CML-I       | Tx1n    | Transmitter Inverted Data Output     |      |
| 38  |             | GND     | Ground                               |      |

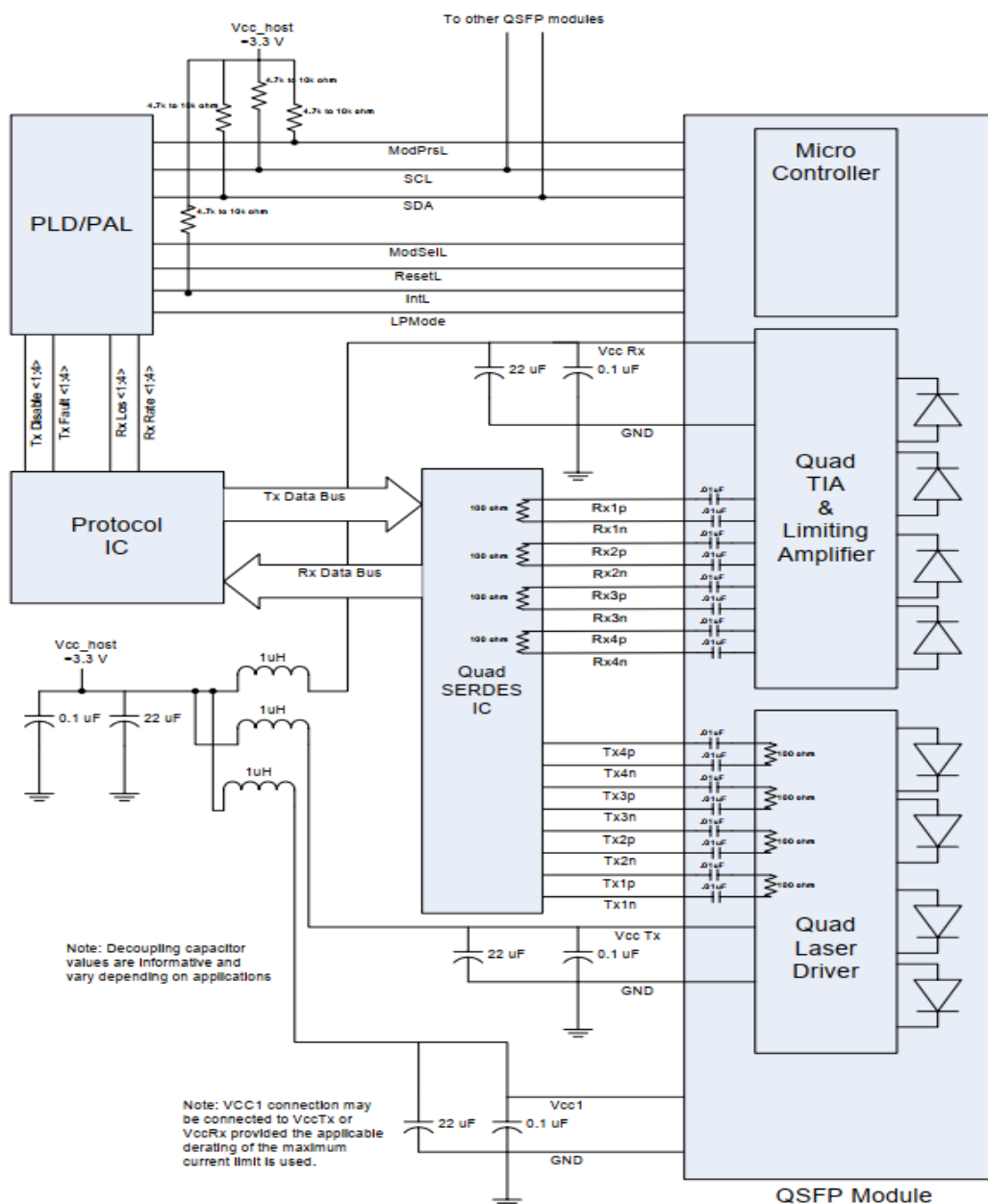
## DIGITAL DIAGNOSTIC SPECIFICATION

| Parameter                             | Accuracy | Units | Notes                |
|---------------------------------------|----------|-------|----------------------|
| Transceiver Case Temperature          | ±3       | ℃     | Over operating temp  |
| Supply voltage monitor absolute error | ±3       | %     | Full operating range |
| Channel Bias current monitor          | ±10      | %     | Per channel          |

|                                                             |                                    |                                                        |
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|                                         |    |    |             |
|-----------------------------------------|----|----|-------------|
| Channel RX power monitor absolute error | ±3 | dB | Per channel |
| Channel TX power monitor absolute error | ±3 | dB | Per channel |

## Electrical Interface



|                                                             |                                    |                                                        |
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**6. Modification History**

| <b>Rev.</b> | <b>Comments</b> | <b>Date</b> | <b>Originator</b> | <b>Approval</b> |
|-------------|-----------------|-------------|-------------------|-----------------|
| 01          | Initial         | 2024.11.04  | Andy Yang         | Mike Sun        |
|             |                 |             |                   |                 |

JPC connectivity