

## QSFP-AOC-4X10G

### 40GBASE, QSFP+ to 4X10G, Active Optical Breakout Cable Assembly

#### Product Features

- Support 4x10GBASE-SR application
- Compliant to QSFP MSA SFF-8436 and SFP+ MSA SFF-8431 and SFF-8432
- Multi rate of up to 10.3125Gbps per lane
- +3.3V single power supply
- Low power consumption
- UL certification cables (optional)
- RoHS compliant
- Available Temperature ranges:
  - Commercial: 0°C to +70°C



#### Product Applications

- 4x10Gbe-SR
- Other optical links

#### I. Absolute Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

| Parameter                            | Symbol         | Min. | Typ. | Max. | Units |
|--------------------------------------|----------------|------|------|------|-------|
| Supply Voltage                       | Vcc3           | -0.5 |      | 3.6  | V     |
| Storage Temperature                  | T <sub>S</sub> | -5   |      | 75   | °C    |
| Operating Humidity (no condensation) | RH             | 5    |      | 85   | %     |

## II. Operating Specification

| Parameter                     | Symbol | Min. | Typ.    | Max. | Units |
|-------------------------------|--------|------|---------|------|-------|
| Operating Case Temperature    | Top    | 0    |         | 70   | °C    |
| Power Supply Voltage          | Vcc    | 3.14 | 3.3     | 3.47 | V     |
| Power Dissipation (per QSFP+) | Pd     |      |         | 1.5  | W     |
| Power Dissipation (per SFP+)  | Pd     |      |         | 1    | W     |
| Data Rate (per lane)          | BR     |      | 10.3125 |      | Gbps  |

## III. Electrical Characteristics (QSFP+)

| Parameter                      |                  | Symbol              | Min.                 | Typ. | Max.                 | Units | Notes |
|--------------------------------|------------------|---------------------|----------------------|------|----------------------|-------|-------|
| <b>Transmitter</b>             |                  |                     |                      |      |                      |       |       |
| Differential Data Input Swing  |                  | V <sub>out</sub>    | 200                  |      | 1000                 | mVpp  |       |
| Output Differential Impedance  |                  | Z <sub>D</sub>      | 90                   | 100  | 110                  | Ω     |       |
| ModSelL                        | Module Select    | V <sub>OL</sub>     | V <sub>EE</sub> -0.3 |      | 0.4                  | V     |       |
|                                | Module Unselect  | V <sub>OH</sub>     | 2.0                  |      | V <sub>CC</sub> +0.3 | V     |       |
| LPMode                         | Low Power Mode   | V <sub>IL</sub>     | V <sub>EE</sub> -0.3 |      | 0.8                  | V     |       |
|                                | Normal Operation | V <sub>IH</sub>     | 2.0                  |      | V <sub>CC</sub> +0.3 | V     |       |
| ResetL                         | Reset            | V <sub>IL</sub>     | V <sub>EE</sub> -0.3 |      | 0.8                  | V     |       |
|                                | Normal Operation | V <sub>IH</sub>     | 2.0                  |      | V <sub>CC</sub> +0.3 | V     |       |
| <b>Receiver</b>                |                  |                     |                      |      |                      |       |       |
| Differential Data Output Swing |                  | V <sub>in,p-p</sub> | 200                  |      | 1000                 | mVpp  |       |
| Input Differential Impedance   |                  | Z <sub>IN</sub>     | 90                   | 100  | 110                  | Ω     |       |
| ModPrsL                        | Normal Operation | V <sub>OL</sub>     | V <sub>EE</sub> -0.3 |      | 0.4                  | V     |       |
| IntL                           | Interrupt        | V <sub>OL</sub>     | V <sub>EE</sub> -0.3 |      | 0.4                  | V     |       |
|                                | Normal Operation | V <sub>OH</sub>     | 2.0                  |      | V <sub>CC</sub> +0.3 | V     |       |
| Bit Error Rate                 |                  | BER                 |                      |      | E-12                 |       | 1     |

Notes:

1. PRBS2^31-1@10.3125Gbps

## IV. Electrical Characteristics (SFP+)

| Parameter                      |                   | Symbol       | Min.         | Typ. | Max.         | Units    | Notes |
|--------------------------------|-------------------|--------------|--------------|------|--------------|----------|-------|
| <b>Transmitter</b>             |                   |              |              |      |              |          |       |
| Differential Data Input Swing  |                   | $V_{out}$    | 200          |      | 1600         | mVpp     |       |
| Output Differential Impedance  |                   | $Z_D$        | 90           | 100  | 110          | $\Omega$ |       |
| Tx_Fault                       | Normal Operation  | $V_{OL}$     | $V_{EE}-0.3$ |      | 0.4          | V        |       |
|                                | Transmitter Fault | $V_{OH}$     | 2.0          |      | $V_{CC}+0.3$ | V        |       |
| Tx_Disable                     | Normal Operation  | $V_{IL}$     | $V_{EE}-0.3$ |      | 0.8          | V        |       |
|                                | Laser Disable     | $V_{IH}$     | 2.0          |      | $V_{CC}+0.3$ | V        |       |
| <b>Receiver</b>                |                   |              |              |      |              |          |       |
| Differential Data Output Swing |                   | $V_{in,P-P}$ | 200          |      | 1000         | mVpp     |       |
| Input Differential Impedance   |                   | $Z_D$        | 90           | 100  | 110          | $\Omega$ |       |
| Rx_LOS                         | Normal Operation  | $V_{OL}$     | $V_{EE}-0.3$ |      | 0.4          | V        |       |
|                                | Lose Signal       | $V_{OH}$     | 2.0          |      | $V_{CC}+0.3$ | V        |       |
| Bit Error Rate                 |                   | BER          |              |      | E-12         |          | 1     |

Notes:

1. PRBS2^31-1@10.3125Gbps

## V. Ordering Information

| Part Number Breakdown    |                                                    |     |       |
|--------------------------|----------------------------------------------------|-----|-------|
| <b>QSFP-AOC-4X10G-XX</b> |                                                    |     |       |
| Parameter                | Min                                                | Max | Notes |
| Fiber Type               | OM2                                                | OM4 |       |
| Cable Length (meters)    | 0.5                                                | 50  | XX    |
| Platform Advantage       | Multi-Vendor coding options available upon request |     |       |

Notes:

1. Please contact sales for custom cable lengths and specific OEM Platform part numbers to fit your network.

### Warranty

<https://pivotaloptics.com/warranty/>

### Disclaimer

External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.