# 200Gb/s HDR QSFP56 Active Optical Cable

## Features

- Supports IBTA InfiniBand HDR
- Up to 200Gb/s data rate
- 4x 50Gb/s PAM4 modulation
- Programmable Rx output amplitude and pre-emphasis
- SFF-8665 compliant QSFP56 port
- Single 3.3V power supply
- 4.35W power dissipation each end, with re-timing
- Bit Error Rate (BER) 1E-15 with InfiniBand systems
- Up to 100m length
- Operating case temp Commercial: 0°C to +70 °C
- Hot pluggable
- RoHS compliant
- SFF-8636 compliant I2C management interface

## Description

Q56-200G-AOCH is a QSFP56 VCSEL-based (Vertical Cavity Surface-Emitting Laser) active optical cable (AOC) designed for use in 200Gb/s InfiniBand HDR systems. The 200G AOC offers high port density and configurability, and a much longer reach than passive copper cables in the data centers. Since the AOC is hot pluggable, it is easy to install and replace.

Q56-200G-AOCH has a standard SFF-8665 compliant QSFP56 port on the electrical side towards the host system. It contains four multi-mode fibers (MMF) optic transceivers per end; each operating at data rates of up to 50Gb/s. Q56-200G-AOCH offers selectable retiming per lane for both its optical transmitters and receivers up to 50Gbp/s rates.

Rigorous production testing ensures the best out-of-the-box installation experience, performance and durability. NADDOD's unique quality active fiber cable solutions provide power-efficient connectivity for data center interconnects. They enable higher port bandwidth, density and configurability at a low cost, and reduced power requirement in the data centers.

## Absolute Maximum Ratings

**Table1-Absolute Maximum Ratings**

| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
|---|---|---|---|---|---|---|
| Supply Voltage | $Vcc_3$ | -0.5 | - | +3.6 | V | |
| Storage Temperature | $T_S$ | -40 | - | +85 | °C | |
| Operating Humidity | RH | +5 | - | +85 | % | 1 |
| Data input voltage | Vcc | -0.3 | | 4.0 | V | |

Note:

[1] No condensation

## Recommended Operating Conditions

**Table2-Recommended Operating Conditions**

| Parameter | Min. | Typical | Max. | Unit | Note |
|---|---|---|---|---|---|
| Operating Case Temperature | 0 | - | +70 | °C | |
| Power Supply Voltage | 3.14 | 3.3 | 3.47 | V | |
| Power Dissipation | 4.35 | - | 4.55 | W | 1 |
| Supply noise tolerance (10Hz-10MHz) | 66 | - | - | mVpp | |
| Operating relative humidity | 5 | - | 85 | % | |

Note:

[1] Per terminal

## Mechanical

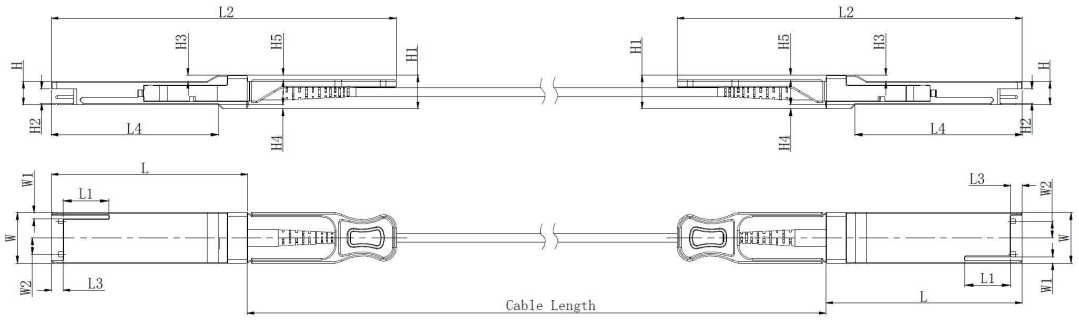


Figure 1 Mechanical Diagram

## Unit mm

| | L | L1 | L2 | L3 | L4 | W | W1 | W2 | H | H1 | H2 | H3 | H4 | H5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Max | 72.2 | - | 128 | 4.35 | 61.4 | 18.45 | - | 6.2 | 8.6 | 12.4 | 5.35 | 2.5 | 1.6 | 2.0 |
| Type | 72.0 | - | - | 4.20 | 61.2 | 18.35 | - | - | 8.5 | 12.2 | 5.2 | 2.3 | 1.5 | 1.8 |
| Min | 68.8 | 16.5 | 124 | 4.05 | 61.0 | 18.25 | 2.2 | 5.8 | 8.4 | 12.0 | 5.05 | 2.1 | 1.3 | 1.6 |

## Regulatory Compliance

**Table3-Regulatory Compliance**

| Parameter | Value | Units |
|---|---|---|
| Diameter | 3±0.2 | mm |
| Minimum bend radius | 30 | mm |
| Length tolerance | 1 m ≤ length < 5 m: +300 / -0 | m |
| | 5 m ≤ length < 50 m: +500 / -0 | m |
| | Length ≥ 50 m +1000/ -0 | m |
| Cable color | Aqua | |

## Part Numbers and Descriptions

**Table4-Part Numbers and Descriptions**

| Part Number | Description |
|---|---|
| Q56-200G-A3H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 3m |
| Q56-200G-A5H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 5m |
| Q56-200G-A10H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 10m |
| Q56-200G-A15H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 15m |
| Q56-200G-A20H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 20m |
| Q56-200G-A30H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 30m |
| Q56-200G-A50H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 50m |
| Q56-200G-A100H | Active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 100m |

## Warnings

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

## Further Information:


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## Disclaimer

1. We are committed to continuous product improvement and feature upgrades, and the contents contained in this manual are subject to change without notice.

2. Nothing herein should be construed as constituting an additional warranty.

3. NADDOD assumes no responsibility for the use or reliability of equipment or software not provided by NADDOD.