**ADD-QCIQF5-AOC10M**

Cisco® QSFP-H40G-AOC10M to F5 Networks® F5-UPG-QSFP+ Compatible TAA Compliant 40GBase-CU QSFP to QSFP Direct Attach Cable (850nm, MMF, 10m)

**Features:**

- Support up to 4x10 Gbps bi-directional operation
- Compliant to the IEEE802.3ba
- SFF-8436 QSFP+ compliant
- Reliable VCSEL and PIN photonic devices
- I2C standard management interface
- Automatic power down while broken cable is detected to improve eye safety
- Low power consumption
- Excellent high speed signal integrity
- RoHS Compliant and Lead-Free
- Operating Case Temperature 0 to 70 Celsius



**Applications:**

- Proprietary high speed, high density data
- 10G/40GBase Ethernet
- High performance computing, server and data storage

**Product Description**

This Cisco® QSFP-H40G-AOC10M to F5 Networks® F5-UPG-QSFP+ dual OEM compatible 40GBase-AOC QSFP+ to QSFP+ active TAA (Trade Acts Agreement) compliant direct attach cable has a maximum reach of 10.0m (32.8ft). It is 100% Cisco® to F5 Networks® compatible and has been programmed, uniquely serialized, and data-traffic and application tested to ensure that it is compliant and functional. This direct attach cable will initialize and perform identically to Cisco® and F5 Networks®'s individual cables and is built to meet or exceed Cisco® and F5 Networks®'s specifications, and comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products."

TAA COMPLIANT

**Absolute Maximum Ratings**

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| **Supply Voltage** | Vcc | -0.5 | | 3.6 | V |
| **Storage Temperature** | Tstg | -40 | | 85 | ℃ |
| **Operating Case Temperature** | Tc | 0 | 25 | 70 | ℃ |
| **Relative Humidity** | RH | 5 | | 85 | % |
| **Data Rate Per Channel** | | | 4*10.3 | | Gbps |

**Electrical Specifications**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Supply Voltage** | Vcc | 3.135 | 3.3 | 3.465 | V | |
| **Supply Current** | Icc | | | 400 | mA | |
| **Power Dissipation** | $P_{DISS}$ | | | 1500 | mW | |
| **Clock Rate - I2C** | | | | 400 | KHz | 1 |
| **Module Turn-on time** | | | | 2000 | ms | 2 |

**Notes:**

1. For the management interface.
2. Time from module power-on/insertion/ResetL de-assert to module fully functional.

**Optical Characteristics**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Transmitter** | | | | | | |
| **Reference Differential Input** | Zd | | 100 | | Ω | 1 |
| **Optical Return Loss Tolerance** | | | | 12 | dB | |
| **Differential Data Input Swing** | VIN,pp | 180 | | 1200 | mV | |
| **Differential Data Input Threshold** | | | 50 | | mV | 2 |
| **Receiver** | | | | | | |
| **Reference Differential Input Impedance** | Zd | | 100 | | Ω | 1 |
| **Differential Data Output Swing** | VOUT,pp | 0 | | 800 | mV | |
| **Pre-Emphasis Pulse Amplitude Percentage** | | 0 | | | % | 4 |
| | | 10 | | | % | |
| | | 20 | | | % | |
| | | 40 | | | % | |
| **Pre-Emphasis Pulse Duration** | | | 30 | | ps | |
| **Signal Speed** | | | 4*10.3 | | Gbps | |
| **Differential Data Output Swing** | | 150 | | 850 | mV | |
| **Differential Data Output Swing When Squelched** | | | | 50 | mV | |
| **Rise/Fall Time (20-80%)** | | 24 | | | ps | |

**Notes:**

1. AC coupled inside the AOC module.
2. Input swing to trigger Tx-squelch.
3. User selectable. Percentage is the ratio of pre-emphasis amplitude to output swing. Users could change by writing to page 3 address 237, default value is “10.”

**Pin Descriptions**

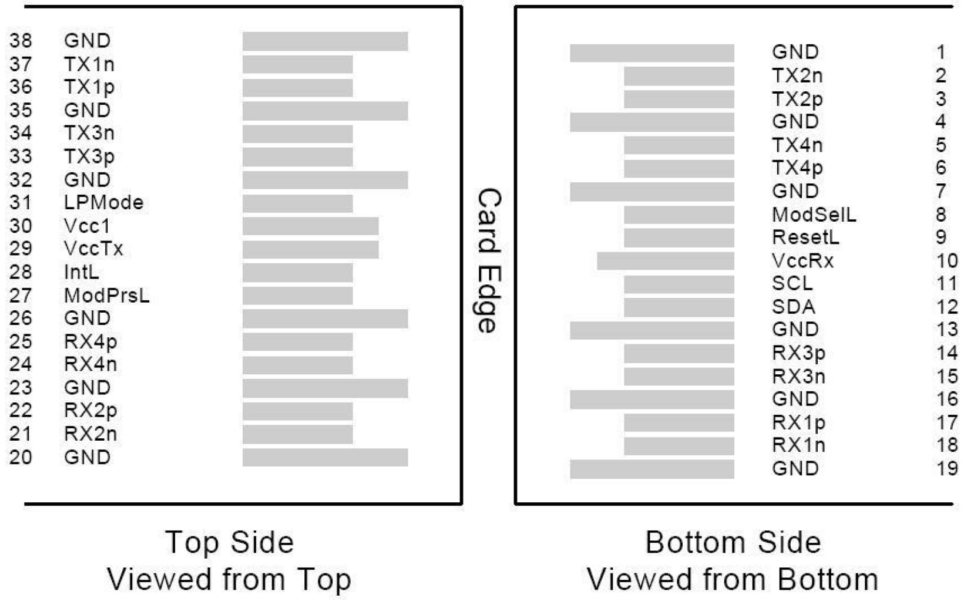
| Pin | Logic | Symbol | Name/Description | Note |
|---|---|---|---|---|
| **1** | | GND | Module Ground. | 1 |
| **2** | CML-I | Tx2- | Transmitter Inverted Data Input. | |
| **3** | CML-I | Tx2+ | Transmitter Non-Inverted Data Input. | |
| **4** | | GND | Module Ground. | 1 |
| **5** | CML-I | Tx4- | Transmitter Inverted Data Input. | |
| **6** | CML-I | Tx4+ | Transmitter Non-Inverted Data Input. | |
| **7** | | GND | Module Ground. | 1 |
| **8** | LVTTL-I | ModSelL | Module Select. | 2 |
| **9** | LVTTL-I | ResetL | Module Reset. | 2 |
| **10** | | VccRx | +3.3V Receiver Power Supply. | |
| **11** | LVCMOS-I/O | SCL | 2-Wire Serial Interface Clock. | 2 |
| **12** | LVCMOS-I/O | SDA | 2-Wire Serial Interface Data. | 2 |
| **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. Internally pulled down to the GND. | |
| **28** | LVTTL-O | IntL | Interrupt output should be pulled up on the host board. | 2 |
| **29** | | VccTx | +3.3V Transmitter Power Supply. | |
| **30** | | Vcc1 | +3.3V Power Supply. | |
| **31** | LVTTL-I | LPMode | Low-Power Mode. | 2 |
| **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. | |

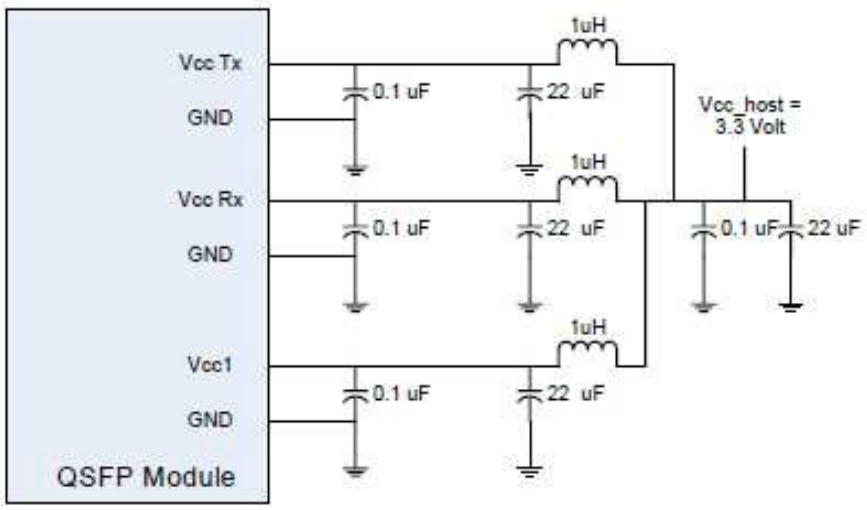
**Notes:**

1. GND is the symbol for signal and supply (power). Connect these directly to the host board signal common ground plane.
2. VccRx, Vcc1, and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. VccRx, Vcc1, and VccTx may be internally connected within the QSFP+. The connector pins are each rated for a maximum current of 500mA.

**Pin Assignment and Pin Description**

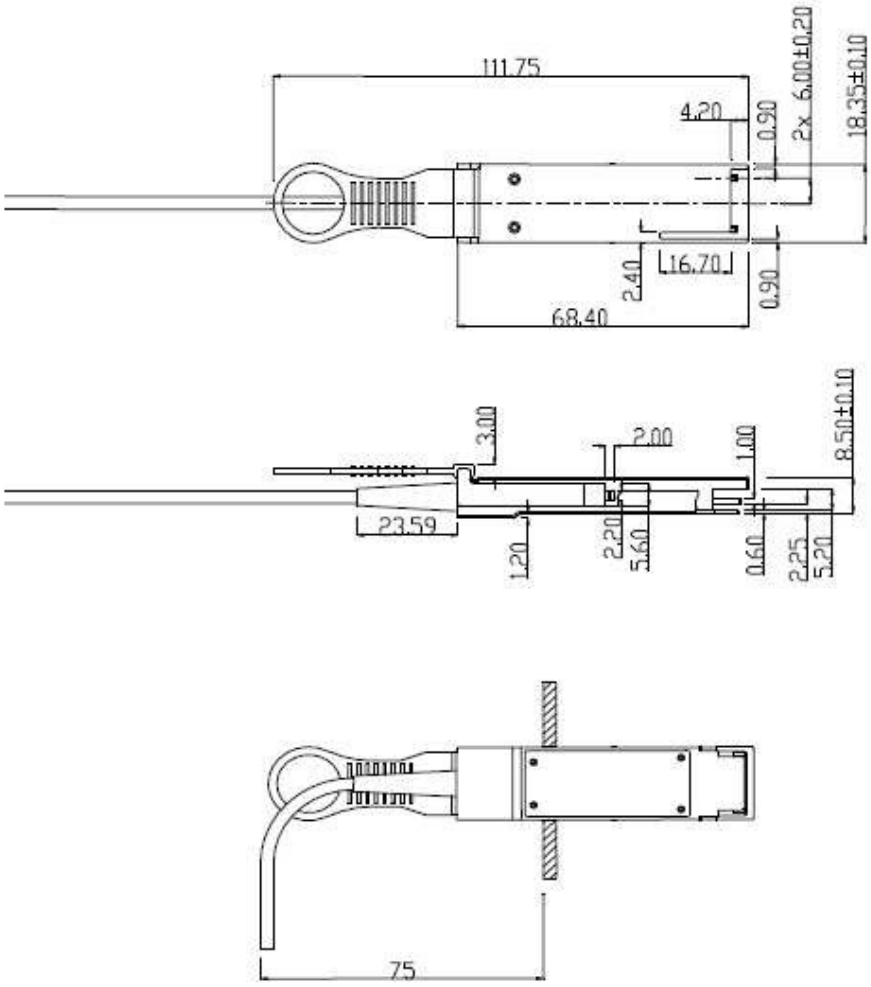



**Recommended Application Interface Circuit**



## Mechanical Specifications

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **AOC Cable Length (L<5m)** | L | L-0.06 | L | L+0.06 | M | |
| **Module Retention** | | 90 | | 170 | N | |
| **Module Insertion** | | 0 | | 18 | N | |
| **Module Extraction** | | 0 | | 25 | N | |
| **Cable Pull Strength – Apply Load at 0°** | | 44 | | | N | |
| **Cable Pull Strength – Apply Load at 90°** | | 33 | | | N | |
| **Clearance Out of IO Bezel** | | 75 | | | nm | |
| **Cable Bending Radius** | | 3 | | | cm | |
| **Insertion/Removal Cycles** | | 50 | | | Cycles | |




Clearance 75mm Is Required.

Cable Type: Low Smoke Zero Halogen

**About AddOn Networks**

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is ingrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications ranging from NEBS Level 3 to ISO 9001:2015 with every new development while maintaining the signature reliability of its products.




**U.S. Headquarters**

Email: sales@addonnetworks.com

Telephone: +1 877.292.1701

Fax: 949.266.9273

**Europe Headquarters**

Email: salesemea@addonnetworks.com

Telephone: +44 1285 842070