

OSFP-800GB-ADAC2M-MX-C

Mellanox® Compatible TAA 800GBase-CU OSFP to OSFP Direct Attach Cable (Active Twinax, 2m) Infiniband Only

Features:

- Compliant to OSFP MSA Specifications
- PAM4 106.25Gbps Transmission Per Channel
- Infiniband NDR Compatible
- Low Power Consumption
- Enables Auto-Negotiation and Link Training
- 3.3V Power Supply
- Linear PAM4 Programmable Equalizer Optimized for 56GBaud Copper Link
- Low Latency: <10ps
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



Applications:

- 800GBase Ethernet

Product Description

This is a Mellanox® compatible 800GBase-CU OSFP to OSFP direct attach cable that operates over active copper with a maximum reach of 2.0m (6.6ft). 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.

ProLabs' 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.")



General Specifications

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|-----------------------------|--------|------|------|------|------|
| Storage Temperature | Tstg | -40 | | 85 | °C |
| Operating Case Temperature | Tc | 0 | | 70 | °C |
| Supply Voltage | Vcc | -0.3 | 3.3 | 3.6 | V |
| Relative Operating Humidity | RH | 5 | | 85 | % |
| Data Rate | DR | | 800 | | Gbps |

Physical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|-----------------|--------|-------------------------------------|------|------|------|-------|
| Length | L | | | 2 | M | |
| AWG | | | 30 | | AWG | |
| Jacket Material | | Plastic Braided Mesh Technology Net | | | | |

Electrical Specifications

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|-------------|----------------------|--|----------------------|----------|-------|
| Power Supply Voltage | Vcc | 3.1 | 3.3 | 3.5 | | |
| Input Amplitude | | 800 | | 1200 | mVp-p | |
| Input Low Voltage | VIL | -0.3 | | 0.35 x Vcc | V | |
| Input High Voltage | VIH | 0.65 x Vcc | | Vcc + 0.3 | V | |
| Output Logic - Low | VOL | | | 0.25 x Vcc | V | |
| I2C Master-Mode Output | | | 400 | | kHz | |
| Power Consumption | | | 1.2 | 1.5 | W | |
| Raw Cable Impedance | Zca | 90 | 100 | 110 | Ω | |
| Mated Connector Impedance | Zmated | 85 | 100 | 115 | Ω | |
| Maximum Insertion Loss @26.56GHz | SDD21 | 11 | | 19.75 | dB | |
| Differential to Common-Mode Return Loss | SDD11/22 | RLcd(f) \geq | $\begin{cases} 22 - 10(f/26.56) & 0.05 \leq f < 26.56 \\ 15 - 3(f/26.56) & 26.56 \leq f \leq 40 \end{cases}$ | | dB | 1 |
| Differential to Common-Mode Conversion Loss | SCD11/22 | Conversion_loss(f) - | $\begin{cases} 10 & 0.05 \leq f < 12.89 \\ 14 - 0.3108f & 12.89 \leq f \leq 40 \end{cases}$ | | dB | 1 |
| Common-Mode to Common-Mode Return Loss | SCD21-SDD21 | RLcc(f) \geq 1.08 | | | dB | 1 |
| Minimum COM | COM | 3 | | | dB | |
| Minimum Cable Assembly | ERL | 8.25 | | | dB | |
| BER | | | | 2.4×10^{-4} | | |

Notes:

1. For $0.05 \leq f \leq 40$ GHz, where f is the frequency in GHz.

Pin Descriptions

| Pin | Symbol | Name/Description | Logic | Plug Sequence | Direction | Notes |
|-----|-----------|--------------------------------|-------------|---------------|------------------|-------|
| 1 | GND | Module Ground. | | 1 | | |
| 2 | Tx2+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 3 | Tx2- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 4 | GND | Module Ground. | | 1 | | |
| 5 | Tx4+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 6 | Tx4- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 7 | GND | Module Ground. | | 1 | | |
| 8 | Tx6+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 9 | Tx6- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 10 | GND | Module Ground. | | 1 | | |
| 11 | Tx8+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 12 | Tx8- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 13 | GND | Module Ground. | | 1 | | |
| 14 | SCL | 2-Wire Serial Interface Clock. | LVCMOS-I/O | 3 | Bi-Directional | 1 |
| 15 | Vcc | +3.3V Power. | | 2 | Power from Host | |
| 16 | Vcc | +3.3V Power. | | 2 | Power from Host | |
| 17 | LPWn/PRSn | Low-Power Mode/Module Present. | Multi-Level | 3 | Bi-Directional | 2 |
| 18 | GND | Module Ground. | | 1 | | |
| 19 | Rx7- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 20 | Rx7+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |
| 21 | GND | Module Ground. | | 1 | | |
| 22 | Rx5- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 23 | Rx5+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |
| 24 | GND | Module Ground. | | 1 | | |
| 25 | Rx3- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 26 | Rx3+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |
| 27 | GND | Module Ground. | | 1 | | |
| 28 | Rx1- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 29 | Rx1+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |
| 30 | GND | Module Ground. | | 1 | | |
| 31 | GND | Module Ground. | | 1 | | |
| 32 | Rx2+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |
| 33 | Rx2- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 34 | GND | Module Ground. | | 1 | | |
| 35 | Rx4+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |

| | | | | | | |
|-----------|----------|--------------------------------|-------------|---|------------------|---|
| 36 | Rx4- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 37 | GND | Module Ground. | | 1 | | |
| 38 | Rx6+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |
| 39 | Rx6- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 40 | GND | Module Ground. | | 1 | | |
| 41 | Rx8+ | Receiver Data Non-Inverted. | CML-O | 3 | Output from Host | |
| 42 | Rx8- | Receiver Data Inverted. | CML-O | 3 | Output from Host | |
| 43 | GND | Module Ground. | | 1 | | |
| 44 | INT/RSTn | Module Interrupt/Module Reset. | Multi-Level | 3 | Bi-Directional | 2 |
| 45 | Vcc | +3.3V Power. | | 2 | Power from Host | |
| 46 | Vcc | +3.3V Power. | | 2 | Power from Host | |
| 47 | SDA | 2-Wire Serial Interface Data. | LVCMOS-I/O | 3 | Bi-Directional | 1 |
| 48 | GND | Module Ground. | | 1 | | |
| 49 | Tx7- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 50 | Tx7+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 51 | GND | Module Ground. | | 1 | | |
| 52 | Tx5- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 53 | Tx5+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 54 | GND | Module Ground. | | 1 | | |
| 55 | Tx3- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 56 | Tx3+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 57 | GND | Module Ground. | | 1 | | |
| 58 | Tx1- | Transmitter Data Inverted. | CML-I | 3 | Input from Host | |
| 59 | Tx1+ | Transmitter Data Non-Inverted. | CML-I | 3 | Input from Host | |
| 60 | GND | Module Ground. | | 1 | | |

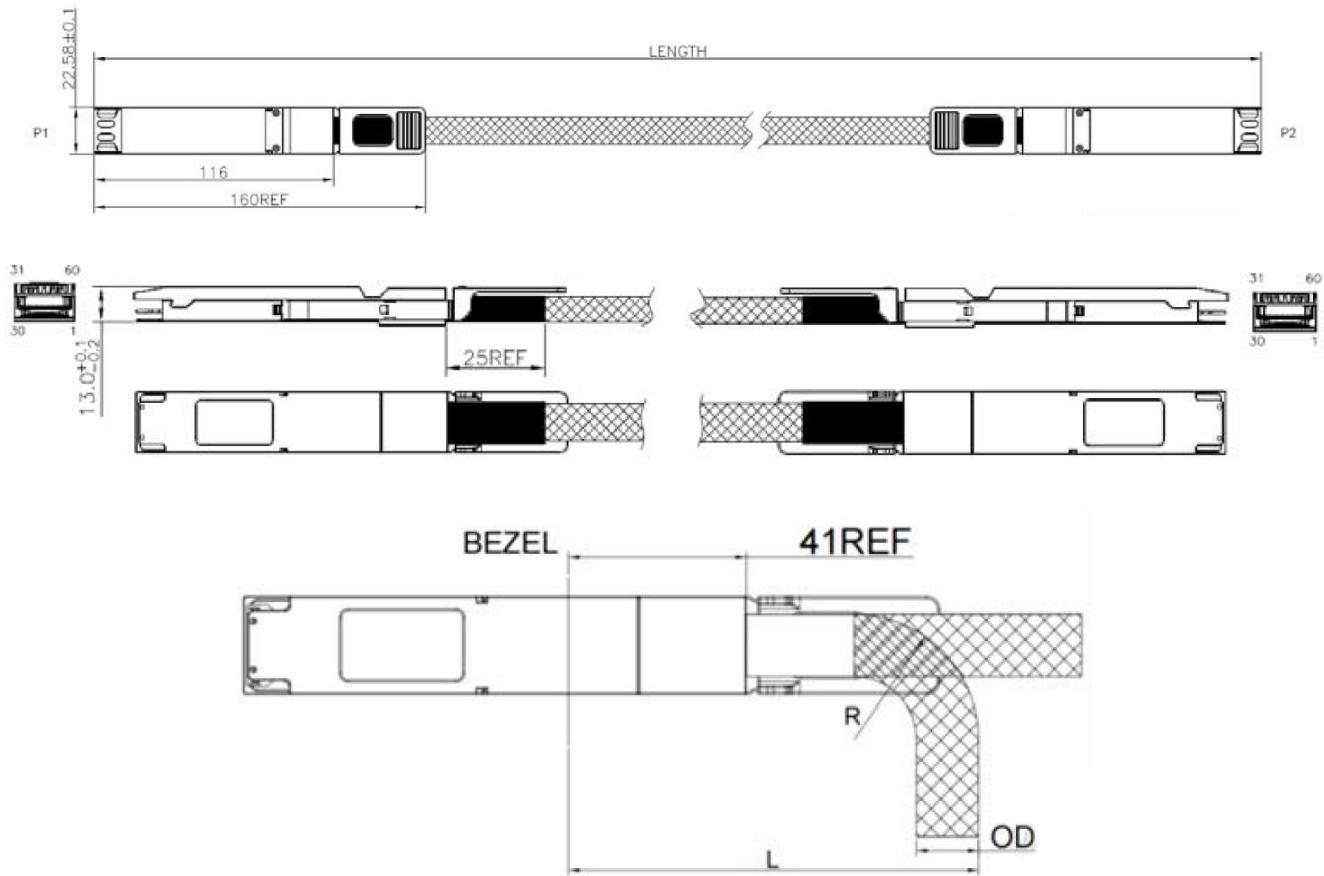
Notes:

1. Open-drain with pull-up resistor on the host.
2. See "Pin Assignments" below for the required circuit.

Pin Assignments

| Top Side (viewed from top) | | Bottom Side (viewed from bottom) | |
|------------------------------|----------|----------------------------------|--|
| 60 | GND | | |
| 59 | TX1p | | |
| 58 | TX1n | | |
| 57 | GND | | |
| 56 | TX3p | | |
| 55 | TX3n | | |
| 54 | GND | | |
| 53 | TX5p | | |
| 52 | TX5n | | |
| 51 | GND | | |
| 50 | TX7p | | |
| 49 | TX7n | | |
| 48 | GND | | |
| 47 | SDA | | |
| 46 | VCC | | |
| 45 | VCC | | |
| 44 | INT/RSTn | | |
| 43 | GND | | |
| 42 | RX8n | | |
| 41 | RX8p | | |
| 40 | GND | | |
| 39 | RX6n | | |
| 38 | RX6p | | |
| 37 | GND | | |
| 36 | RX4n | | |
| 35 | RX4p | | |
| 34 | GND | | |
| 33 | RX2n | | |
| 32 | RX2p | | |
| 31 | GND | | |
| ----- Module Card Edge ----- | | ----- Module Card Edge ----- | |
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Mechanical Specifications



Bending Radius

| Wire Gauge | OD (Ref.) | Bend Radius "R" | Min. Bend Radius "L" |
|------------|-----------|-----------------|----------------------|
| 30AWG | 10.2mm | 21mm | 81mm |

About ProLabs

Our extensive experience comes as standard. For over 20 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with more than 100 optical switching and transport platforms.

A Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 1.6T while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

The Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure compatible products, and immediate answers to your questions. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



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