# 800G OSFP800 RHS to OSFP800 RHS AOC
# PN: V8C-P1PyyyC-AR

## Product Overview

The V8C-P1PyyyC-AR is an 800G OSFP800 RHS to OSFP800 RHS active optical cable, delivering up to 106Gbps per channel via PAM4 modulation. It supports the 800GAUI-8 electrical interface and is compliant with OSFP RHS and CMIS Rev 4.0 or above. This cable operates on a single 3.3V power supply, with a maximum power consumption of 15W per end, and is designed for case operating temperatures ranging from 0°C to 70°C.

**Features**

- Up to 106Gbps data rate per channel by PAM4 modulation
- Support 800GAUI-8 electrical interface
- Compliant with OSFP RHS
- Compliant with CMIS Rev 4.0 or above revision
- Maximum power consumption 15W (each end)
- Single 3.3V power supply
- Case operating temperature 0°C to 70°C
- Compliant to RoHS
- Class 1 laser

## Ordering Information

| Part Number | Description |
|---|---|
| V8C-P1PyyyC-AR | 800G OSFP800 RHS to OSFP800 RHS AOC, yyy in meters |

## Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit | Notes |
|---|---|---|---|---|---|
| Storage Temperature | $T_S$ | -40 | 85 | °C | |
| Supply Voltage | $V_{CC}$ | -0.5 | 3.6 | V | |
| Relative Humidity (non-condensing) | RH | 5 | 95 | % | |
| Control Input Voltage | $V_I$ | -0.3 | VCC+0.5 | V | |

## Recommended Operating Conditions

| Parameter | Symbol | Min | Typical | Max | Unit | Notes |
|---|---|---|---|---|---|---|
| Operating Case Temperature | $T_{OPR}$ | 0 | | 70 | °C | |
| Power Supply Voltage | $V_{CC}$ | 3.135 | 3.3 | 3.465 | V | |
| Instantaneous peak current at hot plug | $I_{CC\_IP}$ | | | 6800 | mA | |
| Sustained peak current at hot plug | $I_{CC\_SP}$ | | | 5670 | mA | |
| Maximum Power Dissipation (each end) | $P_D$ | | | 15 | W | |
| Signaling Rate per Lane | SRL | | 53.125 | | GBd | PAM4 |
| Two Wire Serial Interface Clock Rate | | -100 | | 1000 | kHz | |
| Power Supply Noise Tolerance (10Hz - 10MHz) | | | | 66 | mV | |
| Rx Differential Data Output Load | | | 100 | | Ohm | |

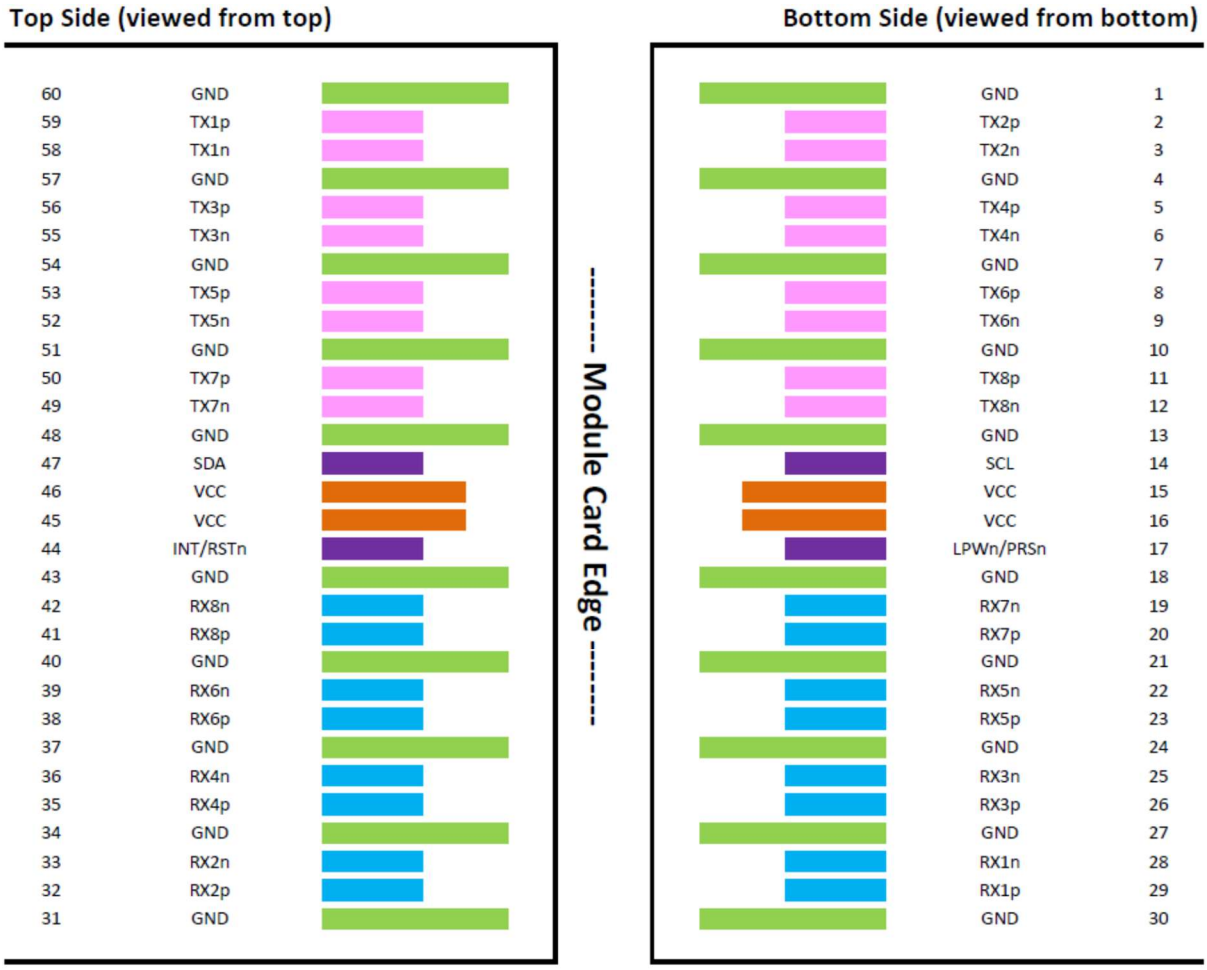
## Electrical Specification High Speed Signal

| Parameter | Symbol | Min | Typical | Max | Unit | Notes |
|---|---|---|---|---|---|---|
| AC common-mode output Voltage (RMS) | | | | 25 | mV | |
| Differential output Voltage (Long mode) | | | | 845 | mV | |
| Differential output Voltage (Short mode) | | | | 600 | mV | |
| Near-end Eye height, differential | | 70 | | | mV | |
| Far-end Eye height, differential | | 30 | | | mV | |
| Far end pre-cursor ratio | | -4.5 | | 2.5 | % | |
| Differential Termination Mismatch | | | | 10 | % | |
| Transition Time (min, 20% to 80%) | | 9.5 | | | ps | |
| DC common mode Voltage | | -350 | | 2850 | mV | |
| Pre-FEC BER | BER | | | 1E-6 | | |

## Electrical Specifications Low Speed Signal

| Parameter | Symbol | Min | Typical | Max | Unit |
|---|---|---|---|---|---|
| Module output SCL and SDA | VOL | 0 | 0.4 | V | |
| | VOH | VCC-0.5 | VCC+0.3 | V | |
| Module Input SCL and SDA | VIL | -0.3 | VCC*0.3 | V | |
| | VIH | VCC*0.7 | VCC+0.5 | V | |

## Electrical Connector Layout



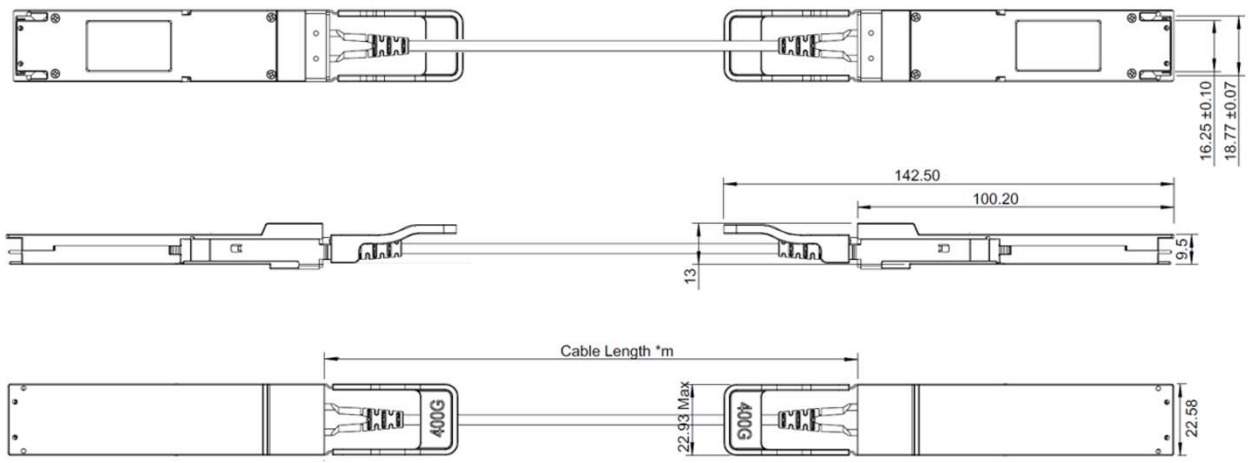

## Electrical Pin Definition

| Pin# | Logic | Symbol | Description | Direction | Plug | Notes |
|---|---|---|---|---|---|---|
| 1 | | GND | Ground | | 1 | |
| 2 | CML-I | TX2p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 3 | CML-I | TX2n | Transmitter Data Inverted | Input from Host | 3 | |
| 4 | | GND | Ground | | 1 | |
| 5 | CML-I | TX4p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 6 | CML-I | TX4n | Transmitter Data Inverted | Input from Host | 3 | |
| 7 | | GND | Ground | | 1 | |
| 8 | CML-I | TX6p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 9 | CML-I | TX6n | Transmitter Data Inverted | Input from Host | 3 | |
| 10 | | GND | Ground | | 1 | |
| 11 | CML-I | TX8p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 12 | CML-I | TX8n | Transmitter Data Inverted | Input from Host | 3 | |
| 13 | | GND | Ground | | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | LVCMOS-I/O | SCL | 2-wire Serial interface clock | Bi-directional | 3 | |
| 15 | | VCC | +3.3V Power | Power from Host | 2 | |
| 16 | | VCC | +3.3V Power | Power from Host | 2 | |
| 17 | Multi-Level | LPWn/PRSn | Low-Power Mode / Module Present | Bi-directional | 3 | |
| 18 | | GND | Ground | | 1 | |
| 19 | CML-O | RX7n | Receiver Data Inverted | Output to Host | 3 | |
| 20 | CML-O | RX7p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 21 | | GND | Ground | | 1 | |
| 22 | CML-O | RX5n | Receiver Data Inverted | Output to Host | 3 | |
| 23 | CML-O | RX5p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 24 | | GND | Ground | | 1 | |
| 25 | CML-O | RX3n | Receiver Data Inverted | Output to Host | 3 | |
| 26 | CML-O | RX3p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 27 | | GND | Ground | | 1 | |
| 28 | CML-O | RX1n | Receiver Data Inverted | Output to Host | 3 | |
| 29 | CML-O | RX1p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 30 | | GND | Ground | | 1 | |
| 31 | | GND | Ground | | 1 | |
| 32 | CML-O | RX2p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 33 | CML-O | RX2n | Receiver Data Inverted | Output to Host | 3 | |
| 34 | | GND | Ground | | 1 | |
| 35 | CML-O | RX4p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 36 | CML-O | RX4n | Receiver Data Inverted | Output to Host | 3 | |
| 37 | | GND | Ground | | 1 | |
| 38 | CML-O | RX6p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 39 | CML-O | RX6n | Receiver Data Inverted | Output to Host | 3 | |
| 40 | | GND | Ground | | 1 | |
| 41 | CML-O | RX8p | Receiver Data Non-Inverted | Output to Host | 3 | |
| 42 | CML-O | RX8n | Receiver Data Inverted | Output to Host | 3 | |
| 43 | | GND | Ground | | 1 | |
| 44 | Multi-Level | INT/RSTn | Module Interrupt / Module Reset | Bi-directional | 3 | |
| 45 | | VCC | +3.3V Power | Power from Host | 2 | |
| 46 | | VCC | +3.3V Power | Power from Host | 2 | |
| 47 | LVCMOS-I/O | SDA | 2-wire Serial interface data | Bi-directional | 3 | |
| 48 | | GND | Ground | | 1 | |
| 49 | CML-I | TX7n | Transmitter Data Inverted | Input from Host | 3 | |
| 50 | CML-I | TX7p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 51 | | GND | Ground | | 1 | |
| 52 | CML-I | TX5n | Transmitter Data Inverted | Input from Host | 3 | |
| 53 | CML-I | TX5p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 54 | | GND | Ground | | 1 | |
| 55 | CML-I | TX3n | Transmitter Data Inverted | Input from Host | 3 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 56 | CML-I | TX3p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 57 | | GND | Ground | | 1 | |
| 58 | CML-I | TX1n | Transmitter Data Inverted | Input from Host | 3 | |
| 59 | CML-I | TX1p | Transmitter Data Non-Inverted | Input from Host | 3 | |
| 60 | | GND | Ground | | 1 | |

## Mechanical Dimensions




## Revision History

| Date | Rev | Description |
|---|---|---|
| 2/1/2024 | 1.0 | Release Version |
| 03/17/2025 | 1.1 | New Template |

## For more information

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