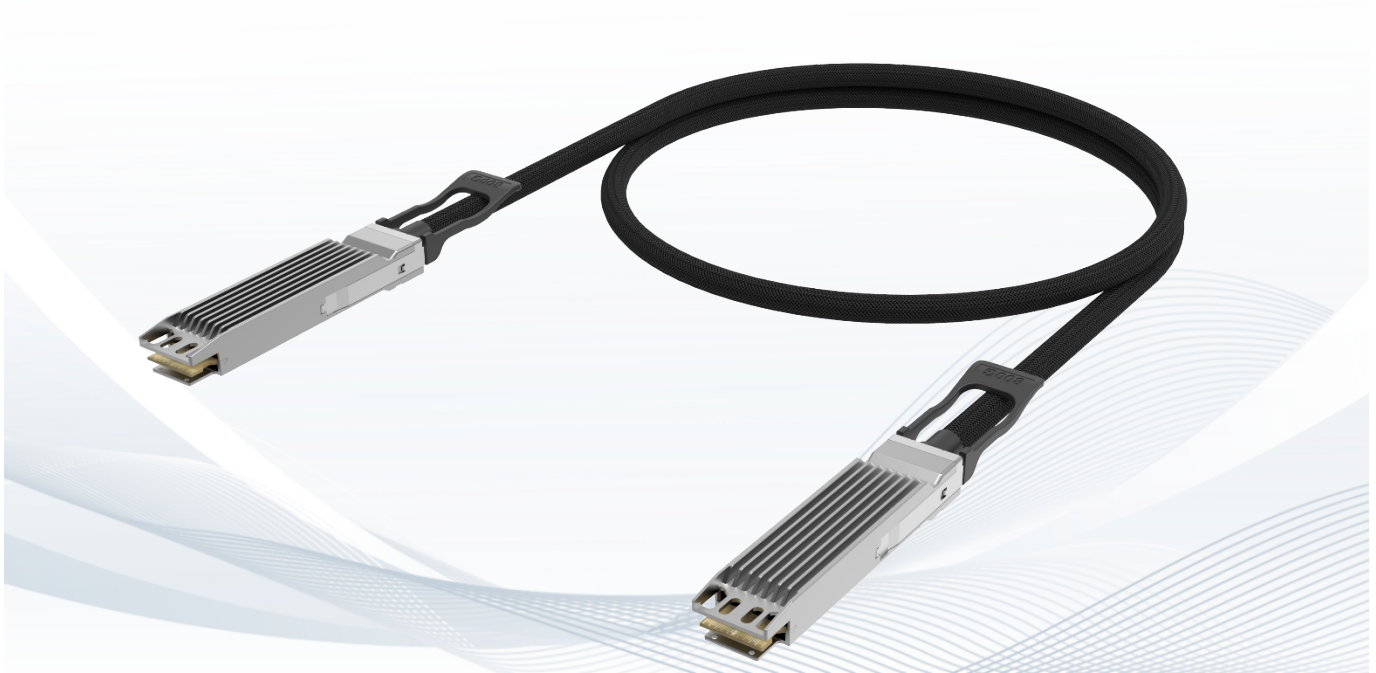




## Application

- Data Center & Networking Equipment
- Servers/Storage Devices
- High Performance Computing (HPC)
- Switches/Routers
- Telecom Central Offices (CO)
- Test And Measurement Equipment

## Standards Compliance

- Compliant with OSFP MSA Rev 4.1
- Compliant with IEEE 802.3ck
- Compliant with IEEE 802.3cd
- I2C for EEPROM communication
- Compliant with CMIS 5.0

## Highlight

- Support 8x106.25G PAM4
- 800G To 800G Data Rate
- 3.3V Power Supply
- Hot Pluggable
- Excellent SI Performance
- RoHS Compliance
- Simplifies The Patching And Offers A Cost-Effective Way For Short Links

1.0 General Description

This datasheet pertains to the **OSFP 800G Active Redriver Copper Cable Assembly**, meticulously designed for application in the telecommunications and data center sectors. It facilitates bi-directional transmission of 800Gb traffic per cable, accommodating 8 lanes of 100G PAM4. The cable adheres to the standardized OSFP form factor and complies rigorously with Multi-Source Agreement (MSA) specifications.

2.0 Product Specification

2.1 Absolute Maximum Ratings

| Parameter                          | Unit | Min. | Max. | Notes |
|------------------------------------|------|------|------|-------|
| Supply Voltage                     | V    | -0.3 | 3.6  |       |
| Data Input Voltage                 | V    | -0.3 | 3.6  |       |
| Control Input Voltage              | V    | -0.3 | 3.6  |       |
| Operating Temperature              | °C   | 0    | 70   |       |
| Storage Temperature                | °C   | -40  | +85  |       |
| Relative Humidity (Non-Condensing) | %    | 5    | 85   |       |

2.2 Operational Specification

| Parameter                   | Unit | Min             | Typical | Max   | Notes   |
|-----------------------------|------|-----------------|---------|-------|---------|
| Supply Voltage (Vcc)        | V    | 3.135           | 3.3     | 3.465 | Per End |
| Power Consumption           | W    |                 |         | 1.5   | Per End |
| Operating Case Temperature  | °C   | 0               |         | 70    |         |
| Operating Relative Humidity | %    | 0               |         | 85    |         |
| Modulation Format           |      | 112G PAM-4      |         |       |         |
| Bit Rate                    | Gbps | 8x100 to 8x100G |         |       |         |

2.3 Electrical Characteristics

| Parameter                            | Unit | Min   | Typical | Max | Notes |
|--------------------------------------|------|-------|---------|-----|-------|
| Characteristic Impedance             | ohm  | 90    | 100     | 110 |       |
| Time Propagation Delay (Informative) | ns   | ..... | .....   | 4.9 |       |

| Item                                                                                | Parameter                                                  | Require                              | Reference                        |
|-------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------|----------------------------------|
| 1                                                                                   | ILdd<br>Insertion loss at 26.56 GHz                        | 19.75 dB (Max.)                      | IEEE 802.3ck<br>Section 162.11.2 |
| 2                                                                                   | ILdd<br>Insertion loss at 26.56 GHz                        | 11 dB (Min.)                         | IEEE 802.3ck<br>Section 162.11.2 |
| 3                                                                                   | ERL<br>Minimum cable assembly                              | >8.25 dB*                            | IEEE 802.3ck<br>Section 162.11.3 |
| 4                                                                                   | RLcd<br>Differential-mode to<br>common-mode return loss    | 0.01GHz – 40GHz<br>Equation (162–20) | IEEE 802.3ck Section<br>162.11.4 |
| 5                                                                                   | ILcd<br>Differential-mode to<br>common-mode insertion loss | 0.01GHz – 40GHz<br>Equation (162–21) | IEEE 802.3ck Section<br>162.11.5 |
| 6                                                                                   | RLcc<br>Common-mode to common-mode<br>return loss          | 0.01GHz – 40GHz<br>Equation (162–22) | IEEE 802.3ck<br>Section 162.11.6 |
| 7                                                                                   | COM                                                        | 3dB (Min.)                           | IEEE 802.3ck<br>Section 162.11.7 |
| *Cable assemblies with a com greater than 4 dB are not required to meet minimum ERL |                                                            |                                      |                                  |

2.5 Pin Assignments

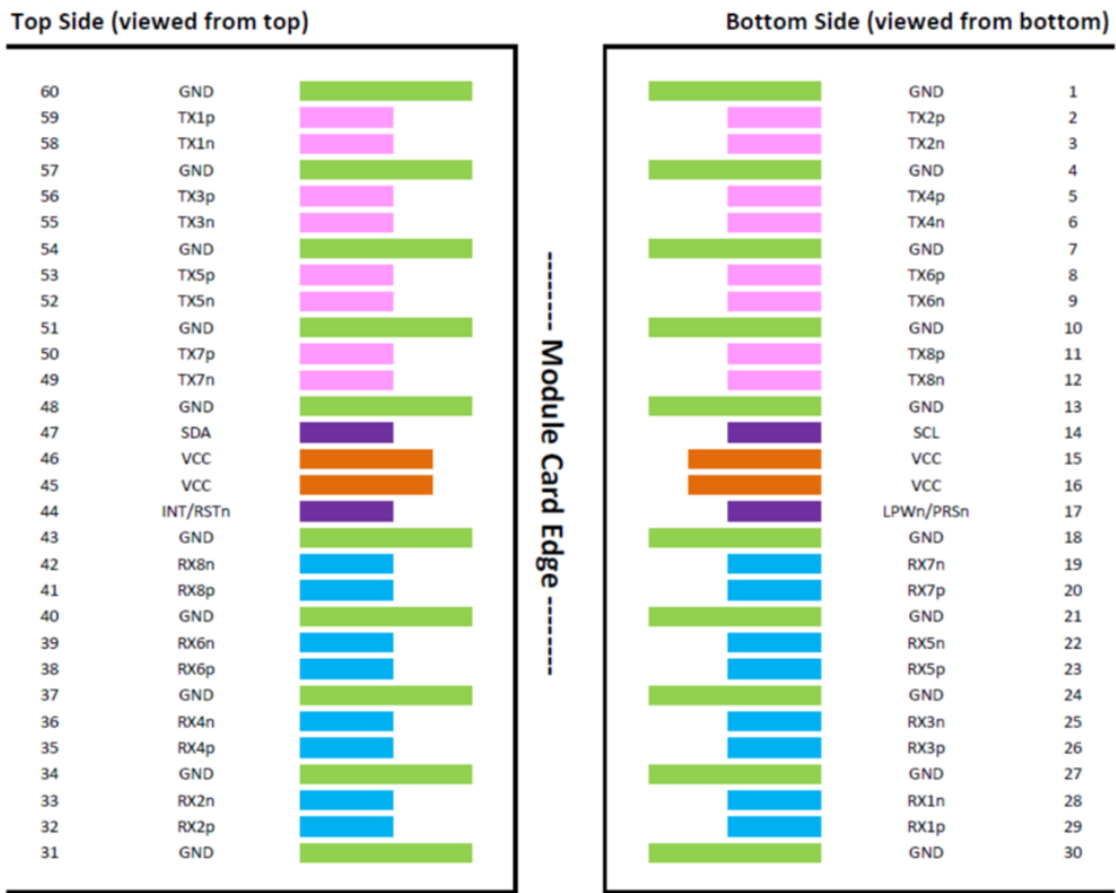


Figure 1 OSFP 800G Module Contact Assignment

2.6 Pin Description

Table 1 OSFP 800G Module Pin Description

| Pin | Logic       | Symbol | Description                   | Plug Sequence | Notes |
|-----|-------------|--------|-------------------------------|---------------|-------|
| 1   |             | GND    | Ground                        | 1             |       |
| 2   | CML-I       | TX2p   | Transmitter Data Non-Inverted | 3             |       |
| 3   | CML-I       | TX2n   | Transmitter Data Inverted     | 3             |       |
| 4   |             | GND    | Ground                        | 1             |       |
| 5   | CML-I       | TX4p   | Transmitter Data Non-Inverted | 3             |       |
| 6   | CML-I       | TX4n   | Transmitter Data Inverted     | 3             |       |
| 7   |             | GND    | Ground                        | 1             |       |
| 8   | CML-I       | TX6p   | Transmitter Data Non-Inverted | 3             |       |
| 9   | CML-I       | TX6n   | Transmitter Data Inverted     | 3             |       |
| 10  |             | GND    | Ground                        | 1             |       |
| 11  | CML-I       | TX8p   | Transmitter Data Non-Inverted | 3             |       |
| 12  | CML-I       | TX8n   | Transmitter Data Inverted     | 3             |       |
| 13  |             | GND    | Ground                        | 1             |       |
| 14  | LVC MOS-I/O | SCL    | 2-wire Serial interface clock | 3             | 1     |

|    |             |           |                                 |   |   |
|----|-------------|-----------|---------------------------------|---|---|
| 15 |             | VCC       | +3.3V Power                     | 2 |   |
| 16 |             | VCC       | +3.3V Power                     | 2 |   |
| 17 | Multi-Level | LPWn/PRSn | Low-Power Mode / Module Present | 3 | 2 |
| 18 |             | GND       | Ground                          | 1 |   |
| 19 | CML-O       | RX7n      | Receiver Data Inverted          | 3 |   |
| 20 | CML-O       | RX7p      | Receiver Data Non-Inverted      | 3 |   |
| 21 |             | GND       | Ground                          | 1 |   |
| 22 | CML-O       | RX5n      | Receiver Data Inverted          | 3 |   |
| 23 | CML-O       | RX5p      | Receiver Data Non-Inverted      | 3 |   |
| 24 |             | GND       | Ground                          | 1 |   |
| 25 | CML-O       | RX3n      | Receiver Data Inverted          | 3 |   |
| 26 | CML-O       | RX3p      | Receiver Data Non-Inverted      | 3 |   |
| 27 |             | GND       | Ground                          | 1 |   |
| 28 | CML-O       | RX1n      | Receiver Data Inverted          | 3 |   |
| 29 | CML-O       | RX1p      | Receiver Data Non-Inverted      | 3 |   |
| 30 |             | GND       | Ground                          | 1 |   |
| 31 |             | GND       | Ground                          | 1 |   |
| 32 | CML-O       | RX2p      | Receiver Data Non-Inverted      | 3 |   |
| 33 | CML-O       | RX2n      | Receiver Data Inverted          | 3 |   |
| 34 |             | GND       | Ground                          | 1 |   |
| 35 | CML-O       | RX4p      | Receiver Data Non-Inverted      | 3 |   |
| 36 | CML-O       | RX4n      | Receiver Data Inverted          | 3 |   |
| 37 |             | GND       | Ground                          | 1 |   |
| 38 | CML-O       | RX6p      | Receiver Data Non-Inverted      | 3 |   |
| 39 | CML-O       | RX6n      | Receiver Data Inverted          | 3 |   |
| 40 |             | GND       | Ground                          | 1 |   |
| 41 | CML-O       | RX8p      | Receiver Data Non-Inverted      | 3 |   |
| 42 | CML-O       | RX8n      | Receiver Data Inverted          | 3 |   |
| 43 |             | GND       | Ground                          | 1 |   |
| 44 | Multi-Level | INT/RSTn  | Module Interrupt / Module Reset | 3 | 2 |
| 45 |             | VCC       | +3.3V Power                     | 2 |   |
| 46 |             | VCC       | +3.3V Power                     | 2 |   |
| 47 | LVCNOS-I/O  | SDA       | 2-wire Serial interface data    | 3 | 1 |
| 48 |             | GND       | Ground                          | 1 |   |
| 49 | CML-I       | TX7n      | Transmitter Data Inverted       | 3 |   |
| 50 | CML-I       | TX7p      | Transmitter Data Non-Inverted   | 3 |   |
| 51 |             | GND       | Ground                          | 1 |   |
| 52 | CML-I       | TX5n      | Transmitter Data Inverted       | 3 |   |
| 53 | CML-I       | TX5p      | Transmitter Data Non-Inverted   | 3 |   |
| 54 |             | GND       | Ground                          | 1 |   |
| 55 | CML-I       | TX3n      | Transmitter Data Inverted       | 3 |   |
| 56 | CML-I       | TX3p      | Transmitter Data Non-Inverted   | 3 |   |
| 57 |             | GND       | Ground                          | 1 |   |
| 58 | CML-I       | TX1n      | Transmitter Data Inverted       | 3 |   |

|                                                       |       |      |                               |   |  |
|-------------------------------------------------------|-------|------|-------------------------------|---|--|
| 59                                                    | CML-I | TX1p | Transmitter Data Non-Inverted | 3 |  |
| 60                                                    |       | GND  | Ground                        | 1 |  |
| Note 1:<br>Open-Drain with pull- up resistor on Host. |       |      |                               |   |  |
| Note 2:<br>See pin description for required circuit   |       |      |                               |   |  |

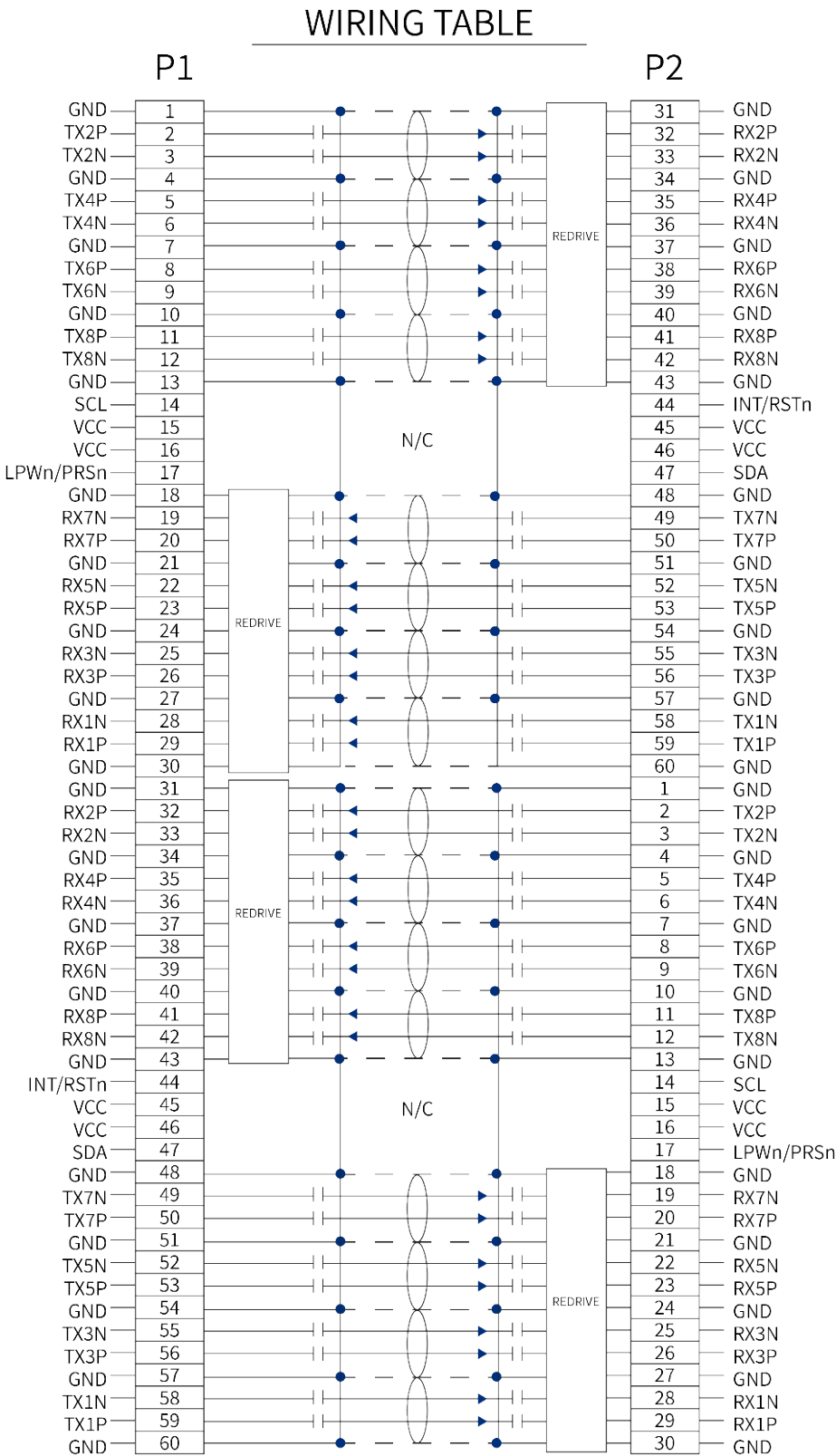
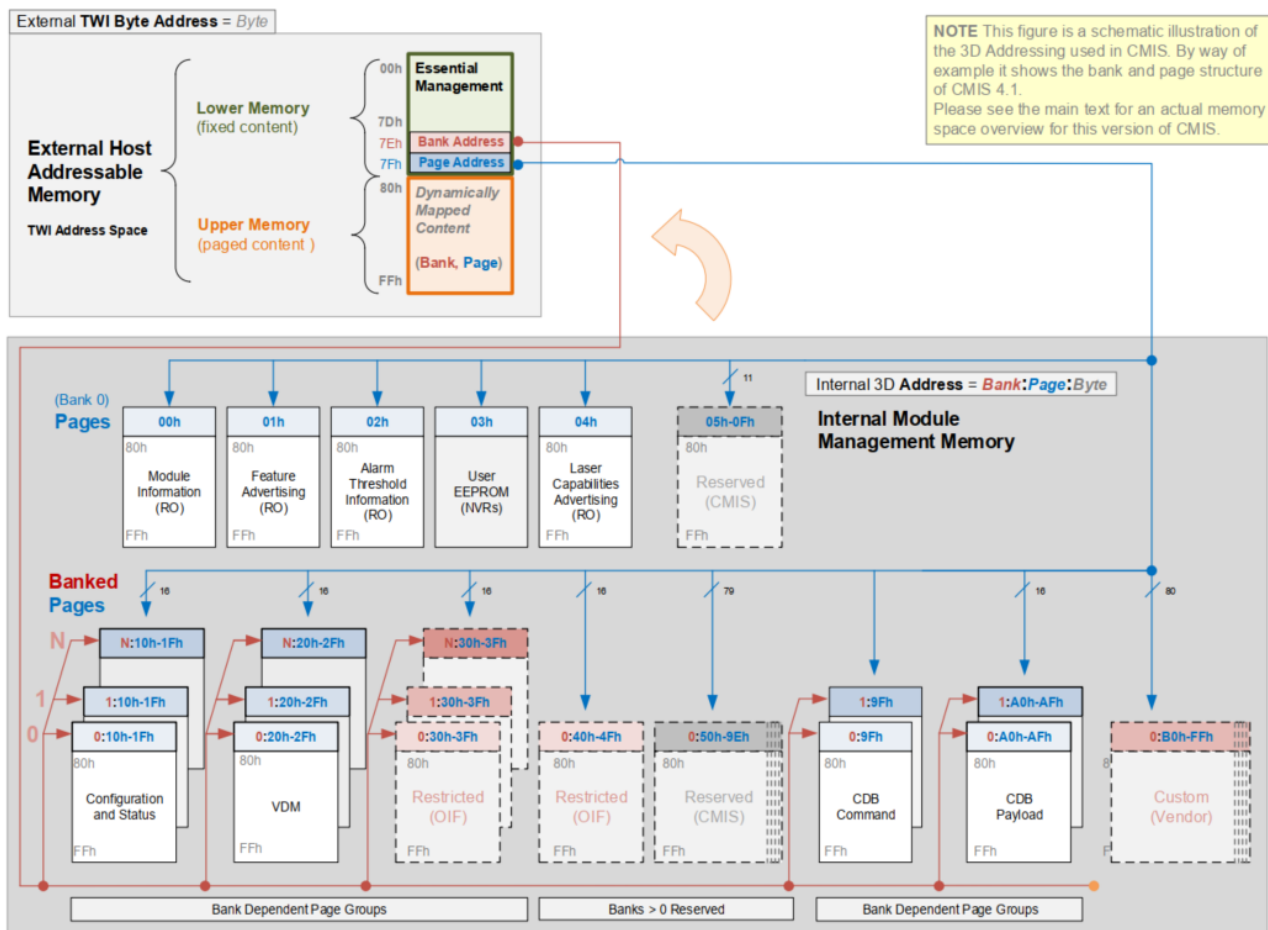


Figure 2 OSFP 800G Active Redriver Cable Assembly Wiring

2.8 Memory Map information (CMIS Version)



**Figure 3 CMIS Module Memory Map (Conceptual View)**

#### ■ Lower Memory Overview

| Address | Size | Subject Area              | Description                                                                                                                                                                                     |
|---------|------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-3     | 4    | ID and Status Area        | Module ID from SFF-8024 list, version number, Type and status<br>Flat mem indication, CLEI present indicator, Maximum TWI speed, Current state of Module, Current state of the Interrupt signal |
| 4-7     | 4    | Lane Flag Summary         | Flag summary of all lane flags on pages 10h-1Fh                                                                                                                                                 |
| 8-13    | 6    | Module-Level Flags        | All flags that are not lane or data path specific                                                                                                                                               |
| 14-25   | 12   | Module-Level Monitors     | Monitors that are not lane or data path specific                                                                                                                                                |
| 26-3    | 5    | Module Global Controls    | Controls applicable to the module as a whole                                                                                                                                                    |
| 31-36   | 6    | Module-Level Flag Masks   | Masking bits for the Module-Level flags                                                                                                                                                         |
| 37-38   | 2    | CDB Status Area           | Status of most recent CDB command                                                                                                                                                               |
| 39-40   | 2    | Module Firmware Version   | Module Firmware Version                                                                                                                                                                         |
| 41-63   | 23   | Reserved Area             | Reserved for future standardization                                                                                                                                                             |
| 64-82   | 19   | Custom Area               | Vendor or module type specific use                                                                                                                                                              |
| 83-84   | 2    | Inactive Firmware Version | Version Number of Inactive Firmware. Values of                                                                                                                                                  |

|         |    |                           |                                                                                     |
|---------|----|---------------------------|-------------------------------------------------------------------------------------|
|         |    |                           | 00h indicates module supports only a single image.                                  |
| 85-117  | 33 | Application Advertising   | Combinations of host and media interfaces that are supported by module data path(s) |
| 118-125 | 8  | Password Entry and Change |                                                                                     |
| 126     | 1  | Bank Select Byte          | Bank address of currently visible Page                                              |
| 127     | 1  | Page Select Byte          | Page address of currently visible Page                                              |

#### ■ [Page 00h Overview](#)

| Address | Size (bytes) | Name                            | Description                                               |
|---------|--------------|---------------------------------|-----------------------------------------------------------|
| 128     | 1            | Identifier                      | Identifier Type of module                                 |
| 129-144 | 16           | Vendor name                     | Vendor name (ASCII)                                       |
| 145-147 | 3            | Vendor OUI                      | Vendor IEEE company ID                                    |
| 148-163 | 16           | Vendor PN                       | Part number provided by vendor (ASCII)                    |
| 164-165 | 2            | Vendor rev                      | Revision level for part number provided by vendor (ASCII) |
| 166-181 | 16           | Vendor SN                       | Vendor Serial Number (ASCII)                              |
| 182-189 | 8            | Date Code                       |                                                           |
| 190-199 | 10           | CLEI code                       | Common Language Equipment Identification code             |
| 200-201 | 2            | Module power characteristics    |                                                           |
| 202     | 1            | Cable assembly length           |                                                           |
| 203     | 1            | Media Connector Type            |                                                           |
| 204-209 | 6            | Copper Cable Attenuation        |                                                           |
| 210-211 | 2            | Cable Assembly Lane Information |                                                           |
| 212     | 1            | Media Interface Technology      |                                                           |
| 213-220 | 8            | Reserved                        |                                                           |
| 221     | 1            | Custom                          |                                                           |
| 222     | 1            | Checksum                        | Includes bytes 128-221                                    |
| 223-255 | 33           | Custom Info NV                  |                                                           |

Note: For the above, refer to **Common Management Interface Specification Rev5.0**.

#### 2.9 Mechanical Specifications

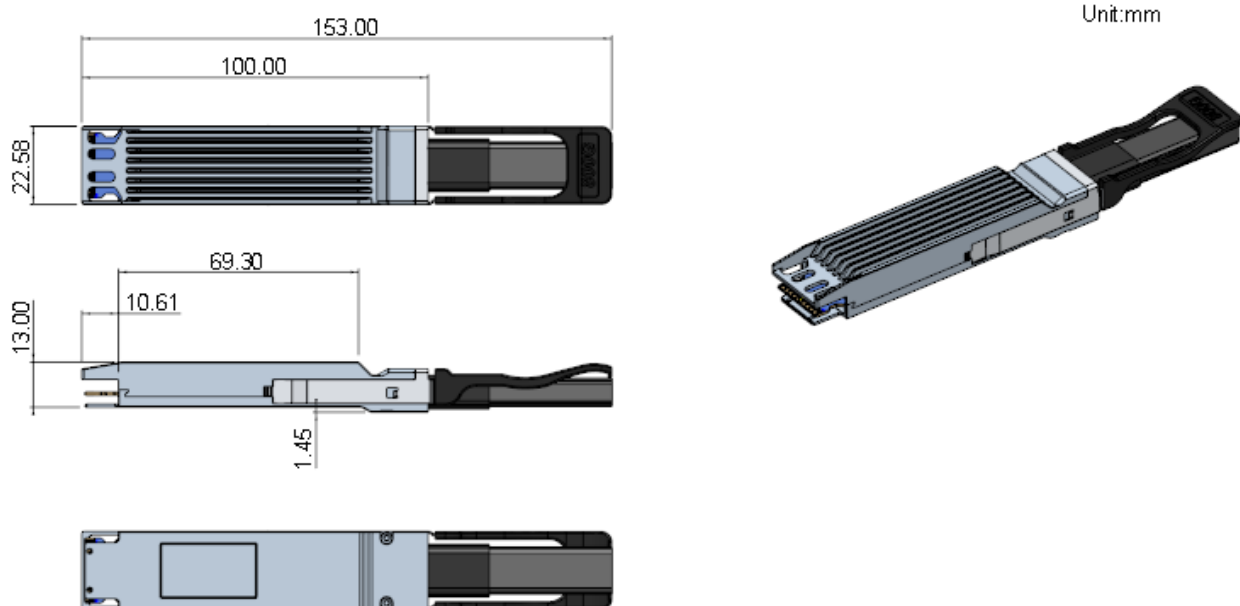
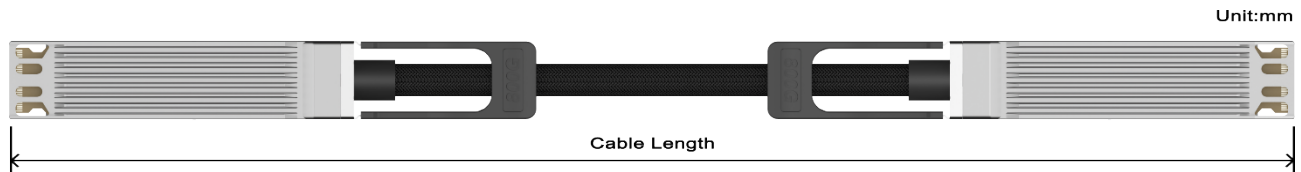


Figure 4 OSFP800 Form Factor

### 3.0 Product Information



| Product ID         | Product Description                                | Tolerance | AWG |
|--------------------|----------------------------------------------------|-----------|-----|
| OSFP-800G-ACC-3025 | OSFP 800G Active Redriver Copper Cable, 30AWG-2.5M | ±50       | 30  |
| OSFP-800G-ACC-3030 | OSFP 800G Active Redriver Copper Cable, 30AWG-3.0M | ±50       | 30  |
| OSFP-800G-ACC-3035 | OSFP 800G Active Redriver Copper Cable, 30AWG-3.5M | ±60       | 30  |
| OSFP-800G-ACC-2830 | OSFP 800G Active Redriver Copper Cable, 28AWG-3.0M | ±50       | 28  |
| OSFP-800G-ACC-2835 | OSFP 800G Active Redriver Copper Cable, 28AWG-3.5M | ±60       | 28  |
| OSFP-800G-ACC-2840 | OSFP 800G Active Redriver Copper Cable, 28AWG-4.0M | ±60       | 28  |
| OSFP-800G-ACC-2630 | OSFP 800G Active Redriver Copper Cable, 26AWG-3.0M | ±50       | 26  |
| OSFP-800G-ACC-2635 | OSFP 800G Active Redriver Copper Cable, 26AWG-3.5M | ±60       | 26  |
| OSFP-800G-ACC-2640 | OSFP 800G Active Redriver Copper Cable, 26AWG-4.0M | ±60       | 26  |
| OSFP-800G-ACC-2645 | OSFP 800G Active Redriver Copper Cable, 26AWG-4.5M | ±70       | 26  |
| OSFP-800G-ACC-2650 | OSFP 800G Active Redriver Copper Cable, 26AWG-5.0M | ±70       | 26  |

#### Important Notice

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4.0Revision Record

| Rev. | Comments        | Author     | Date       |
|------|-----------------|------------|------------|
| A01  | Initial Release | James Chen | 10/01/2023 |
|      |                 |            |            |
|      |                 |            |            |
|      |                 |            |            |
|      |                 |            |            |