

800G OSFP Finned Top Passive Direct Attach Copper Twinax Cable

OSFP-800G-PCxxx



Application

- 800G InfiniBand

Standards

- OSFP MSA
- CMIS Rev 4.0
- IEEE 802.3ck

Features

- Max. Power Consumption 0.1W Per End
- Minimum Bend Radius 54mm/69mm
- Support 800G for Higher Port Density
- Simplifies Patching
- Hot Pluggable
- Commercial Temperature Range: 0 to +70°C (32 to 158°F)

Product Specifications

I. Objectives

The objective is to provide 800G OSFP cable assemblies.

All materials and compounds used, meet the material restrictions of RoHS, (European Directive 2002/95/EC on the Restrictions of Hazardous Substances) as proposed by the RoHS Technical Adaptation Committee.

II. Scope

This specification is applicable to 800G OSFP external connector system which provides a high speed cable to board interconnect.

Octal Small Form-factor Double Density Pluggable solution achieving 800G transmission (hereafter referred to as OSFP) is designed for high-density applications. The hot-pluggable transceiver integrates 8 transmitting and 8 receiving channels.

800G OSFP cable assemblies are high performance, high bandwidth and cost effective interconnect solutions which support 800G standards with different data rate applications.

No.	Part Number	Type	Length	AWG	Tolerance
1	OSFP-800G-PC005	DAC	0.5 meter	30AWG	+0.05/-0 meter
2	OSFP-800G-PC01	DAC	1 meter	30AWG	+0.05/-0 meter
3	OSFP-800G-PC015	DAC	1.5 meter	26AWG	+0.05/-0 meter
4	OSFP-800G-PC02	DAC	2 meter	26AWG	+0.05/-0 meter
5	OSFP-800G-PC03	DAC	3 meter	26AWG	+0.05/-0 meter

Table1: Part Number List

III. Reference Documents

The following documents are forming a part of this specification to the extent specified.

- OSFP MSA : OSFP Hardware Specification
- CMIS Rev 4.0: Common Management Interface Specification
- EIA 364-1000: Environmental Performance of Electrical Connectors
- IEEE 802.3ck Physical Layer Specifications and Management Parameters for 100 Gb/s, 200 Gb/s, and 400 Gb/s Electrical Interfaces Based on 100 Gb/s Signaling

IV. Ratings

- OSFP Module Insertion/Removal cycles: 50 cycles

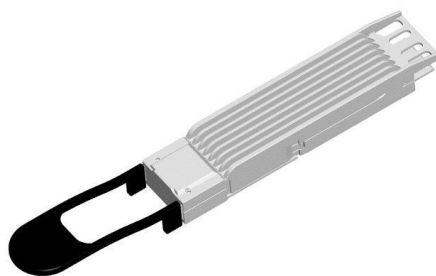
Parameters	Symbol	Min.	Max.	Unit
Operating Voltage	Vcc	3.135	3.465	V
Operating Temperature		0	+70	°C
Storage Temperature	Ts	-40	+85	°C
Humidity Operating	RH		85	%

V. Product Requirement

Design and construction

- **Connector**

The connector meets the various dimensional and physical requirements outlined in the OSFP MSA specification.



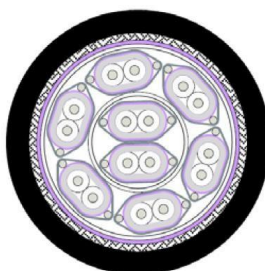
Picture 1

- **Cable**

Cable type is a 100 ohm twinax cable which consists of 8 parallel pairs.

Printing on the cable is defined in the respective cable specification.

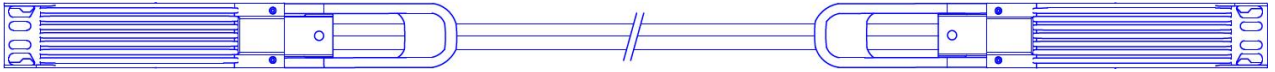
Each pair consists of two signal conductors and two drains wire wrapped in a shield.



Picture 2

● **Cable Assembly**

Cable Bulk shield is directly to be connected to the connector backshell to minimize EMI. Each cable assembly is labelled with a unique identification label.



Picture 3

● **Pin Connection**

Picture4 is OSFP pin definitions as OSFP MSA defined

Top Side (viewed from top)

60	GND	[Green bar]
59	TX1p	[Pink bar]
58	TX1n	[Pink bar]
57	GND	[Green bar]
56	TX3p	[Pink bar]
55	TX3n	[Pink bar]
54	GND	[Green bar]
53	TX5p	[Pink bar]
52	TX5n	[Pink bar]
51	GND	[Green bar]
50	TX7p	[Pink bar]
49	TX7n	[Pink bar]
48	GND	[Green bar]
47	SDA	[Purple bar]
46	VCC	[Orange bar]
45	VCC	[Orange bar]
44	INT/RSTn	[Purple bar]
43	GND	[Green bar]
42	RX8n	[Blue bar]
41	RX8p	[Blue bar]
40	GND	[Green bar]
39	RX6n	[Blue bar]
38	RX6p	[Blue bar]
37	GND	[Green bar]
36	RX4n	[Blue bar]
35	RX4p	[Blue bar]
34	GND	[Green bar]
33	RX2n	[Blue bar]
32	RX2p	[Blue bar]
31	GND	[Green bar]

Bottom Side (viewed from bottom)

[Green bar]	GND	1
[Pink bar]	TX2p	2
[Pink bar]	TX2n	3
[Green bar]	GND	4
[Pink bar]	TX4p	5
[Pink bar]	TX4n	6
[Green bar]	GND	7
[Pink bar]	TX6p	8
[Pink bar]	TX6n	9
[Green bar]	GND	10
[Pink bar]	TX8p	11
[Pink bar]	TX8n	12
[Green bar]	GND	13
[Purple bar]	SDA	14
[Orange bar]	VCC	15
[Orange bar]	VCC	16
[Purple bar]	LPWn/PRSn	17
[Green bar]	GND	18
[Blue bar]	RX7n	19
[Blue bar]	RX7p	20
[Green bar]	GND	21
[Blue bar]	RX5n	22
[Blue bar]	RX5p	23
[Green bar]	GND	24
[Blue bar]	RX3n	25
[Blue bar]	RX3p	26
[Green bar]	GND	27
[Blue bar]	RX1n	28
[Blue bar]	RX1p	29
[Green bar]	GND	30

----- Module Card Edge -----

Picture 4

Pair No .	P1 (OSFP)		P2 (OSFP)	
	Pin	Signal	Pin	Signal
1	28	RX1n	58	TX1n
	29	RX1p	59	TX1p
2	59	TX1p	29	RX1p
	58	TX1n	28	RX1n
3	33	RX2n	3	TX2n
	32	RX2p	2	TX2p
4	2	TX2p	32	RX2p
	3	TX2n	33	RX2n
5	25	RX3n	55	TX3n
	26	RX3p	56	TX3p
6	56	TX3p	26	RX3p
	55	TX3n	25	RX3n
7	36	RX4n	6	TX4n
	35	RX4p	5	TX4p
8	5	TX4p	35	RX4p
	6	TX4n	36	RX4n

Table 2: Wire Connection

Pair No .	P1 (OSFP)		P2 (OSFP)	
	Pin	Signal	Pin	Signal
9	22	RX5n	52	TX5n
	23	RX5p	53	TX5p
10	53	TX5p	23	RX5p
	52	TX5n	22	RX5n
11	39	RX6n	9	TX6n
	38	RX6p	8	TX6p
12	8	TX6p	38	RX6p
	9	TX6n	39	RX6n
13	19	RX7n	49	TX7n
	20	RX7p	50	TX7p
14	50	TX7p	20	RX7p
	49	TX7n	19	RX7n
15	42	RX8n	12	TX8n
	41	RX8p	11	TX8p
16	11	TX8p	41	RX8p
	12	TX8n	42	RX8n

Table 2: Wire Connection

Materials

- Connector
 - The Backshell material is Nickel Plated Zinc
 - The PCB has gold plated pads
 - All materials are RoHS complaint
 - The PCBs are certified by UL
- Cable
 - The conductors are solid copper with silver plating
 - The dielectric consist of (Skin - Foam - Skin PE)
 - The cable jacket is PET.
 - All materials are RoHS complaint
 - The cables are UL listed CL2 75°C

VI. Performance Requirements

● Electrical Performance Requirements

No.	Test Items	Test Conditions	Specification
6.1.1	Current		0.5A per contact
6.1.2	Voltage		30 vDC per contact
6.1.3	LLCR	EIA 364-23, 20mVdc, 100mA	less than 2 ohms.
6.1.4	Insulation Resistance	100 Vdc	10 Mohms minimum between adjacent contacts
6.1.5	Dielectric Withstanding Voltage	300 VDC minimum for 1 minutes	No defect or breakdown between adjacent contacts
6.1.6	Temperature Rise	Measure the temperature rise at the rated current after 96 hours(45 minutes ON/15 minutes OFF per hour).	Temperature rise: +30°C MAX.
6.1.7	Continuity	Verify the continuous electrical path	No open, short, or high resistance.

- SI Requirements

No.	Test Items	Specification	Notes
		Test Condition	
6.2.1	SDD21&SDD12	≤19.75 dB Min. @26.56 GHz; ≥ 11.0 dB Max. @26.56GHz;	From 0.01 GHz to 26.56GHz
6.2.2	ERL	Minimum cable assembly ERL(*) : ≥ 8.25dB	/
6.2.3	SCD12-SDD12 SCD21-SDD21	≥ 10 0.05GHz≤f<12.89GHz ≥ 14-0.3108f 12.89GHz≤f≤40GHz	(up to 40GHz)

- Mechanical Performance Requirements

No.	Test Items	Test Condition	Specification
6.3.1	Mating Forces	A rate of 10mm per minute	OSFP<40N
6.3.2	Un-mating Forces	A rate of 10mm per minute	OSFP<30N
6.3.3	Latch strength	Pull to separate module from cage, test with connector, cage & module (latch engaged)	Minimum of an 125N force
6.3.4	Bulk cable retention in module	Pull to separate bulk cable from module,Test with cable assembly only	Minimum of an 90N force
6.3.5	Wire Flex	Flex cable 180° for 10 cycles at X/Y axis, 20 times/minutes, with an 1kg suspended weight. Type C EIA 364-41, test condition I.	No microsecond discontinuities are allowed.
6.3.6	Durability	Perform 50 unplug/plug cycles	No evidence of physical damage
6.3.7	Cable Minimum Bend Radius	The cable is bent on time over the correct mandrel with 5 perpendicular, the Minimum bendRadius is 10x OD.	No physical damage, Verify continuity and SI

VII. Packing

The DAC products are packed each in a plastic bag. All connectors are covered with protective plastic caps.

Depending on length and gauge size, different quantities can fit in the carton boxes. Bags and boxes are labeled.