

800G OSFP Breakout to 4x200G OSFP Active Copper Cable

OSFP Cable Series

- **Module compliant to OSFP MSA**
- **Transmission data rate up to PAM4 106.25Gbps per channel**
- **Low power consumption**
- **Low latency<10ps**
- **Power supply 3.3V**
- **Operating case temperature 0°C to +70°C**
- **RoHS2.0 compliant**



The OSP8-4OSP2 ACC is a high-performance 800Gbps Active Copper Breakout Cable (ACC) designed for next-generation InfiniBand NDR and high-speed Ethernet data center networks. The cable provides a direct breakout from one 800G OSFP port to four 200G OSFP ports, enabling flexible connectivity between high-density switches and compute nodes in AI and HPC environments.

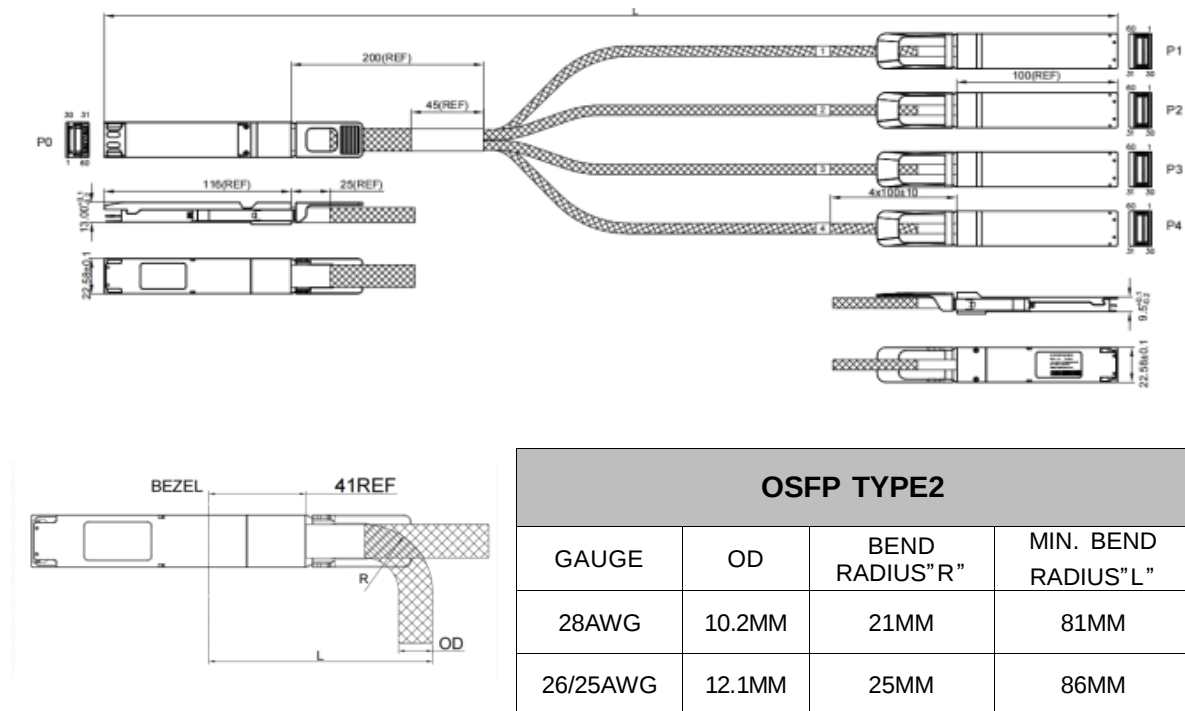
This active copper cable supports PAM4 signaling at up to 106.25Gbps per lane, delivering a total bandwidth of 800Gbps over copper links up to 5 meters. Integrated linear equalization technology ensures signal integrity and stable transmission across high-speed copper interconnects while maintaining low latency and low power consumption, making it suitable for latency-sensitive applications such as GPU clusters and AI training fabrics.

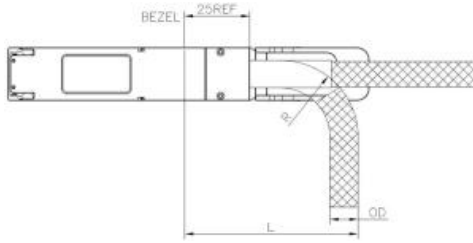
The OSP8-4OSP2 ACC is compliant with OSFP MSA specifications and supports InfiniBand NDR architectures, enabling seamless integration with modern high-performance switches and servers. It supports auto-negotiation and link training, ensuring reliable link establishment and optimal performance in high-density data center deployments.

Key Features

- Module compliant to OSFP MSA
- InfiniBand NDR compatible
- Transmission data rate up to PAM4 106.25Gbps per channel
- Low power consumption
- Linear PAM4 programmable equalizer optimized for 56GBaud copper link up to max length 5M on 25AWG
- Enable Auto-Negotiation and Link Training
- Low latency<10ps
- Supports device programming by MCU with I2C
- Power supply 3.3V
- Operating case temperature 0°C to +70°C
- RoHS2.0 compliant

Outline Diagram



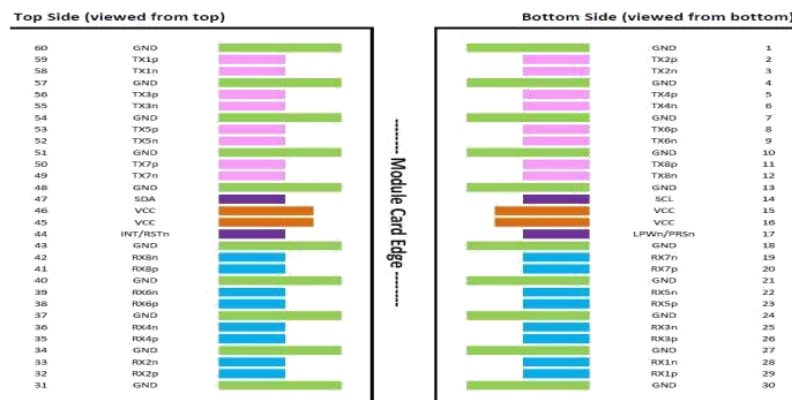


OSFP RHS			
GAUGE	OD	BEND RADIUS "R"	MIN. BEND RADIUS "L"
28AWG	5.1MM	10MM	55MM
26/25AWG	6.3MM	13MM	60MM

Module Memory Map

Compatible with CMIS rev 5.0 or further CMIS revisions and customer spec.

Pin Assignment



Pin	Symbol	Description	Logic	Direction	Plug Sequence	Notes
1	GND	Ground			1	
2	Tx2n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
3	Tx2p	Transmitter Data Inverted	CML-I	Input from Host	3	
4	GND	Ground			1	
5	Tx4n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
6	Tx4p	Transmitter Data Inverted	CML-I	Input from Host	3	
7	GND	Ground			1	
8	Tx6n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
9	Tx6p	Transmitter Data Inverted	CML-I	Input from Host	3	
10	GND	Ground			1	
11	Tx8n	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
12	Tx8p	Transmitter Data Inverted	CML-I	Input from Host	3	
13	GND	Ground			1	
14	SCL	2-wire Serial Interface Data	LVC MOS-I/O	Bi-directional	3	Open-Drain with pull-up resistor on Host
15	Vcc	+3.3V Power		Power from Host	2	
16	Vcc	+3.3V Power		Power from Host	2	
17	LPWn/PRSn	Low-Power Mode/Module Present	Multi-Level	Bi-directional	3	See pin description for required circuit

Pin	Symbol	Description	Logic	Direction	Plug Sequence	Notes
18	GND	Ground			1	
19	Rx7n	Receiver Data Inverted	CML-O	Output to Host	3	
20	Rx7p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
21	GND	Ground			1	
22	RX5n	Receiver Data Inverted	CML-O	Output to Host	3	
23	RX5p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
24	GND	Ground			1	
25	RX3n	Receiver Data Inverted	CML-O	Output to Host	3	
26	RX3p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
27	GND	Ground			1	
28	RX1n	Receiver Data Inverted	CML-O	Output to Host	3	
29	RX1p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
30	GND	Ground			1	
31	GND	Ground			1	
32	RX2p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
33	RX2n	Receiver Data Inverted	CML-O	Output to Host	3	
34	GND	Ground			1	
35	RX4p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
36	RX4n	Receiver Data Inverted	CML-O	Output to Host	3	
37	GND	Ground			1	
38	RX6p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
39	RX6n	Receiver Data Inverted	CML-O	Output to Host	3	
40	GND	Ground			1	
41	RX8p	Receiver Data Non-Inverted	CML-O	Output to Host	3	
42	RX8n	Receiver Data Inverted	CML-O	Output to Host	3	
43	GND	Ground			1	
44	INT/RS Tn	Module Interrupt/Module Reset	Multi-Level	Bi-directional	3	See pin description for required circuit
45	Vcc	+3.3V Power		Power from Host	2	
46	Vcc	+3.3V Power		Power from Host	2	
47	SDA	2-wire Serial Interface Data	LVC MOS-I/O	Bi-directional	3	Open-Drain with pull-up resistor on Host
48	GND	Ground			1	
49	Tx7n	Transmitter Data Inverted	CML-I	Input from Host	3	
50	Tx7p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
51	GND	Ground			1	
52	TX5n	Transmitter Data Inverted	CML-I	Input from Host	3	
53	TX5p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
54	GND	Ground			1	
55	TX3n	Transmitter Data Inverted	CML-I	Input from Host	3	
56	TX3p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
57	GND	Ground			1	
58	TX1n	Transmitter Data Inverted	CML-I	Input from Host	3	
59	TX1p	Transmitter Data Non-Inverted	CML-I	Input from Host	3	
60	GND	Ground			1	

Specifications

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V _{cc}	-0.3	3.3	3.6	V
Storage Temperature	T _s	-40		85	°C
Operating Case Temperature	T _c	0		70	°C
Humidity	Rh	5		85	%
Data Rate			800		Gbps

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Length	L	0.5		5	M
AWG		32		25	AWG
Jacket Material			Hair Tail Technology Net, Gray		

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	V _{cc}	3.1	3.3	3.5	V
Input Amplitude		800		1200	mVpp
Input LOW Voltage	V _{IL}	-0.3		0.35*V _{cc}	V
Input HIGH Voltage	V _{IH}	0.65* V _{cc}		V _{cc} +0.3	V
Output Logic LOW	V _{OL}			0.25*V _{cc}	V
I2C Master Mode Output Frequency			400		kHz
800G end Power Consumption			1.2	1.5	W
400G end Power Consumption			0.3	0.4	W

High-Speed Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Raw Cable Impedance	Z _{ca}	90	100	110	ohm
Mated Connector Impedance	Z _{mated}	85		115	ohm
Maximum Insertion Loss at 26.56 GHz	SDD21	11		19.75	dB
Differential to Common-Mode Return Loss	SCD11/22	$RL_{cd}(f) \geq \begin{cases} 22 - 10(f/26.56) & 0.05 \leq f < 26.56 \\ 15 - 3(f/26.56) & 26.56 \leq f \leq 40 \end{cases}$ For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz			dB
Differential to Common-Mode Conversion Loss	SCD21-SDD21	For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz			dB
Common-Mode to Common-Mode Return Loss	SCC11/22	$Conversion_loss(f) - IL(f) \geq \begin{cases} 10 & 0.05 \leq f < 12.89 \\ 14 - 0.3108f & 12.89 \leq f \leq 40 \end{cases}$ For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz			dB
Minimum COM	COM	3			dB
Minimum Cable Assembly ERL	ERL	8.25			dB
BER				2.4x10 ⁻⁴	

Ordering Information

Product Name	Product Description
OSP8-4OSP2-ACC04	800G OSFP to 4x200G OSFP Active Copper Breakout Cable, HAIRTAIL+, IB twin port NDR, 4m
OSP8-4OSP2-ACC05	800G OSFP to 4x200G OSFP Active Copper Breakout Cable, HAIRTAIL+, IB twin port NDR, 5m

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