

800G Twin-port NDR 2x400Gb/s OSFP to 2x400Gb/s OSFP Active Copper Cable

Features

- Based on 8-channels of 100G-PAM4 modulation
- Linear PAM4 programmable equalizer optimized for 56GBaud copper link up to max length 5M
- Enable Auto-Negotiation and Link Training
- Low latency<10ps
- Supports device programming by MCU with I²C
- 1.5 Watts max per end operate
- Finned Top to Finned Top
- Operating case temperature 0-70°C
- Single 3.3V supply voltage
- Hot pluggable
- IB NDR, OSFP MSA Rev5.0, CMIS Rev5.0, IEEE802.3ck compliant

Applications

- 2x400Gb/s Quantum-2 InfiniBand or 800G Ethernet switch-to-switch

Description

OSFP-800G-ACCH is a 800Gb/s twin-port OSFP (Octal Small Form factor Pluggable)-to-2x400Gb/s twin-port OSFP Active Copper Cable (ACC) for 800G networking. An ACC is a passive DAC with a pre-emphasis equalizer IC included in each end, enabling cable lengths of up to 5 meters while maintaining very low-latency and very low-power at 1.5 Watts a per end. Every cable length is tuned to reduce signal noise and back reflections.

Absolute Maximum Specifications

Table1-Absolute Maximum Specifications

Parameter	Min.	Typical	Max.	Unit	Note
Storage Temperature	-40		+85	°C	
Operating Case Temperature	0		70	°C	
Supply voltage	-0.3	3.3	3.6	V	
Relative Humidity (non- condensing)	5		85	%	
Data Rate		800		Gbps	
Length	0.5		5	M	
AWG	32		26	AWG	
Jacket material	Braided Sleeve				

Electrical Specifications

Table2-Electrical Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit
Power supply voltage	VCC	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*VCC		VCC+0.3	V
Output Logic LOW	V _{OL}			0.25*VCC	V
I ² C Master Mode Output Frequency			400		kHz
800G end Power consumption			1.2	1.5	W

High-Speed Specifications

Table3-High-Speed Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit
Raw cable impedance	Z _{ca}	90	100	110	ohm
Mated connector Impedance	Z _{mated}	85	100	115	ohm
Maximum insertion Loss at 26.56 GHz	SDD21	11		19.75	dB
Differential to common-mode return loss	SCD11/22	$RL_{cd}(f) \geq \begin{cases} 22 - 10(f/26.56) & 0.05 \leq f < 26.56 \\ 15 - 3(f/26.56) & 26.56 \leq f \leq 40 \end{cases}$ <p>For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz</p>			dB
Differential to common-mode conversion loss	SCD21-SDD21	$Conversion_loss(f) - IL(f) \geq \begin{cases} 10 & 0.05 \leq f < 12.89 \\ 14 - 0.3108f & 12.89 \leq f \leq 40 \end{cases}$ <p>For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz</p>			dB
Common-mode to common-mode return loss	SCC11/22	$RL_{cc}(f) \geq 1.8$ <p>For 0.05 ≤ f ≤ 40 GHz, Where f is the frequency in GHz</p>			
Minimum COM	COM	3			dB
Minimum cable assembly ERL	ERL	8.25			dB

OSFP Pin Definition

Table4-OSFP Pin Definition

Pin	Symbol	Description	Pin	Symbol	Description
1	GND	Ground	31	GND	Ground
2	Tx2p	Transmitter Non-Inverted Data Input	32	Rx2p	Receiver Non-Inverted Data Output
3	Tx2n	Transmitter Inverted Data Input	33	Rx2n	Receiver Inverted Data Output
4	GND	Ground	34	GND	Grounds
5	Tx4p	Transmitter Non-Inverted Data Input	35	Rx4p	Receiver Non-Inverted Data Output
6	Tx4n	Transmitter Inverted Data Input	36	Rx4n	Receiver Inverted Data Output
7	GND	Ground	37	GND	Ground
8	Tx6p	Transmitter Non-Inverted Data Input	38	Rx6p	Receiver Non-Inverted Data Output
9	Tx6n	Transmitter Inverted Data Input	39	Rx6n	Receiver Inverted Data Output
10	GND	Ground	40	GND	Ground
11	Tx8p	Transmitter Non-Inverted Data input	41	Rx8p	Receiver Non-Inverted Data Output
12	Tx8n	Transmitter Inverted Data Input	42	Rx8n	Receiver Inverted Data Output
13	GND	Ground	43	GND	Ground
14	SCL	2-wire serial interface clock	44	INT / RSTn	Module Interrupt / Module Reset
15	VCC	+3.3V Power	45	VCC	+3.3V Power
16	VCC	+3.3V Power	46	VCC	+3.3V Power

17	LPWn / PRSn	Low-Power Mode / Module Present	47	SDA	2-wire Serial interface data
18	GND	Ground	48	GND	Ground
19	Rx7n	Receiver Inverted Data Output	49	Tx7n	Transmitter Inverted Data Input
20	Rx7p	Receiver Non-Inverted Data Output	50	Tx7p	Transmitter Non-Inverted Data Input
21	GND	Ground	51	GND	Ground
22	Rx5n	Receiver Inverted Data Output	52	Tx5n	Transmitter Inverted Data Input
23	Rx5p	Receiver Non-Inverted Data Output	53	Tx5p	Transmitter Non-Inverted Data Input
24	GND	Ground	54	GND	Ground
25	Rx3n	Receiver Inverted Data Output	55	Tx3n	Transmitter Inverted Data Input
26	Rx3p	Receiver Non-Inverted Data Output	56	Tx3p	Transmitter Non-Inverted Data Input
27	GND	Ground	57	GND	Ground
28	Rx1n	Receiver Inverted Data Output	58	Tx1n	Transmitter Inverted Data Input
29	Rx1p	Receiver Non-Inverted Data Output	59	Tx1p	Transmitter Non-Inverted Data Input
30	GND	Ground	60	GND	Ground

OSFP Module Pad Layout

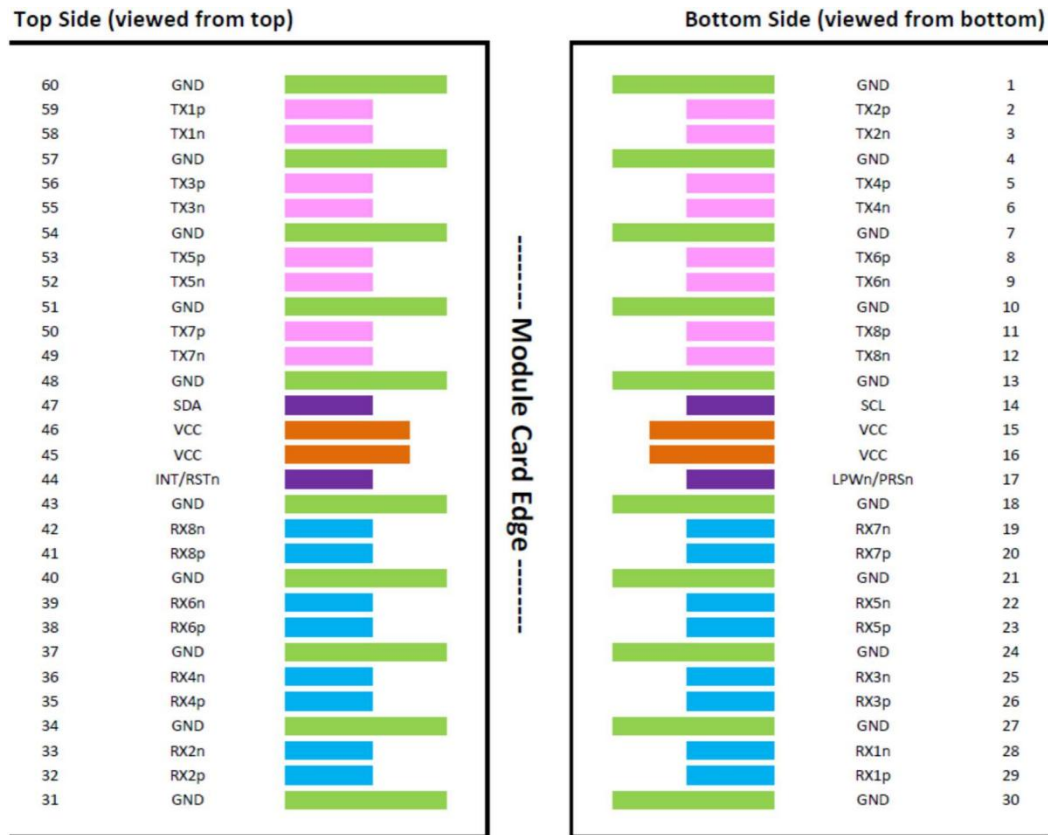


Figure 1 OSFP Module Pad Layout

Ordering Information

Table5-Ordering Information

OPN	Description
OSFP-800G-ACAH	0.5m Twin-port 800Gb/s OSFP Finned Top to 800Gb/s OSFP Finned Top Active Copper Cable
OSFP-800G-AC1H	1m Twin-port 800Gb/s OSFP Finned Top to 800Gb/s OSFP Finned Top Active Copper Cable
OSFP-800G-AC2H	2m Twin-port 800Gb/s OSFP Finned Top to 800Gb/s OSFP Finned Top Active Copper Cable
OSFP-800G-AC3H	3m Twin-port 800Gb/s OSFP Finned Top to 800Gb/s OSFP Finned Top Active Copper Cable
OSFP-800G-AC4H	4m Twin-port 800Gb/s OSFP Finned Top to 800Gb/s OSFP Finned Top Active Copper Cable
OSFP-800G-AC5H	5m Twin-port 800Gb/s OSFP Finned Top to 800Gb/s OSFP Finned Top Active Copper Cable

Mechanical Dimensions

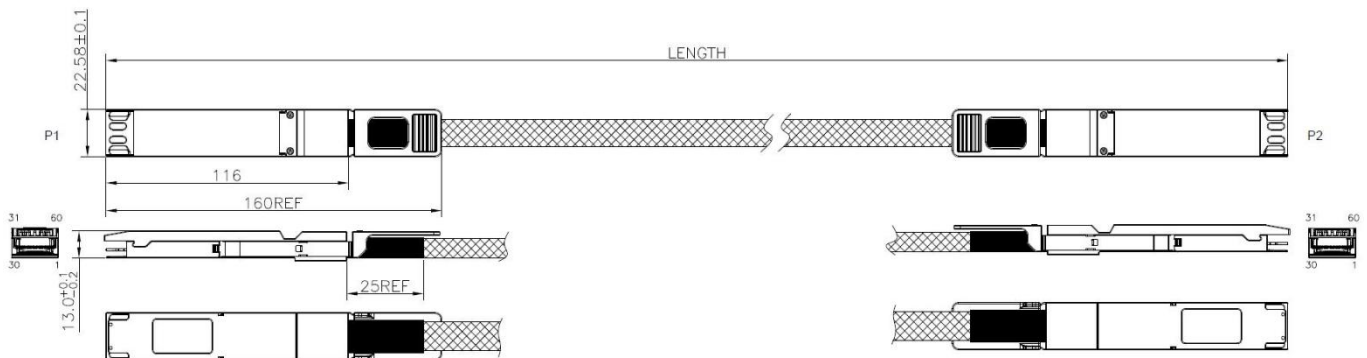


Figure 2 Mechanical Dimensions

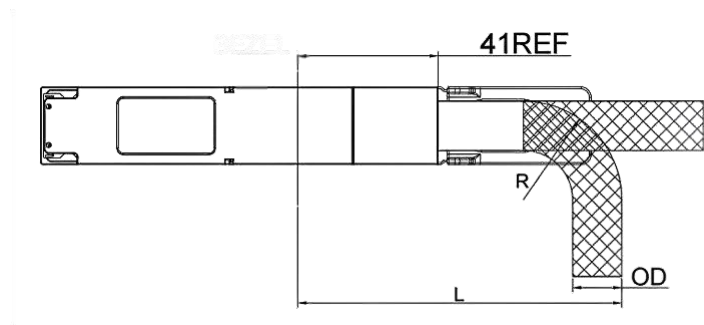


Figure 3 OSFP Bend Radius

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