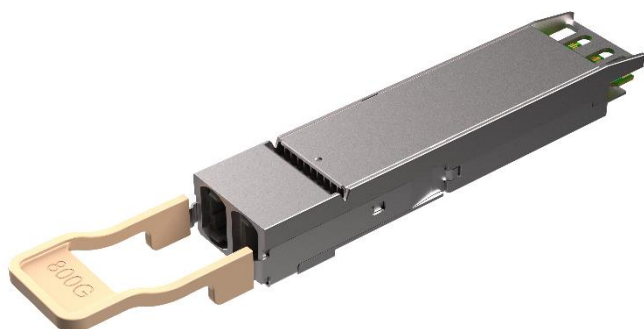


## 800G-SR8 OSFP Transceiver



### FEATURES:

- Hot-pluggable OSFP 800G SR8 multimode transceiver
- Compliant with OSFP MSA Type2 flat top with dual MPO-12 connector
- Compliant with CMIS Rev 5.0 and above revision
- Maximum power consumption 17W
- Dual MPO-12 APC receptacles
- Up to 30m reach on MMF OM3 and 50m on OM4
- Case operating temperature 0°C to 70°C
- Two wire serial Interface with digital diagnostic monitoring

### I. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Storage Temperature	T <sub>S</sub>	-40	85	°C	
Supply Voltage	V <sub>CC</sub>	-0.5	3.6	V	
Relative Humidity (non-condensing)	RH	5	95	%	
Control Input Voltage	V <sub>I</sub>	-0.3	V <sub>CC</sub> +0.5	V	

### II. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T <sub>OPR</sub>	0	-	70	°C	
Power Supply Voltage	V <sub>CC</sub>	3.135	3.3	3.465	V	
Instantaneous peak current at hot plug	I <sub>CC_IP</sub>	-	-	6800	mA	
Sustained peak current at hot plug	I <sub>CC_SP</sub>	-	-	5670	mA	
Maximum Power Dissipation	P <sub>D</sub>	-	-	17	W	
Maximum Power Dissipation, Low Power Mode	P <sub>DLP</sub>	-	-	1.5	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	
Operating Distance (OM3)	-	2	-	30	m	
Operating Distance (OM4)	-	2	-	50	m	

### III. Transmitter Optical Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Wavelength	$\lambda_C$	844	850	863	nm	
RMS spectral width	$\Delta\lambda_{rms}$			0.6	nm	
Average Launch Power, each lane	AOP <sub>L</sub>	-1.0	-	3.0	dBm	1
Outer Optical Modulation Amplitude (OMA <sub>outer</sub> ), each lane	T <sub>OMA</sub>	-2.1		3.5	dBm	2
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each lane	TDECQ	-	-	4.4	dB	
Average Launch Power of OFF Transmitter, each lane	T <sub>OFF</sub>	-	-	-30	dBm	
Extinction Ratio, each lane	ER	2.5	3.5	-	dB	
RIN <sub>14</sub> OMA	RIN	-	-	-148	dB/Hz	
Optical Return Loss Tolerance	ORL		-	14	dB	
Transmitter Reflectance	T <sub>R</sub>	-	-	-26	dB	3

#### Notes

1. Average launch power, each lane (min) is informative and not the principal indicator of signal strength.
2. Even if max (TECQ, TDECQ) < 1.8dB, OMA<sub>outer</sub> (min) must exceed this value.
3. Transmitter reflectance is defined looking into the transmitter.

### IV. Receiver Optical Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Wavelength	$\lambda_C$	842	850	863	nm	
Damage Threshold, average optical power, each lane	AOP <sub>D</sub>	5	-	-	dBm	
Average Receive Power, each lane	AOP <sub>R</sub>	-6.3	-	4.0	dBm	
Receive Power (OMA <sub>outer</sub> ), each lane	OMA <sub>R</sub>	-	-	3.5	dBm	
Receiver Reflectance	RR	-	-	-20	dB	
Receiver Sensitivity (OMA <sub>outer</sub> ), each lane	S <sub>OMA</sub>	-	-	-4.6	dBm	1
Stressed Receiver Sensitivity (OMA <sub>outer</sub> ), each lane	SRS	-	-	-2.0	dBm	2
Conditions of stressed receiver sensitivity test						
Stressed eye closure for PAM4	SECQ		4.4		dB	
OMA <sub>outer</sub> of each aggressor lane	OMA <sub>outer</sub>		3.5		dBm	

#### Notes:

1. Receiver sensitivity (OMA<sub>outer</sub>), each lane (max) is informative and is defined for a transmitter with TDECQ≤1.8 dB
2. Measured with conformance test signal at TP3 for the BER = 2.4x10<sup>-4</sup>

## V. Electrical Specification High Speed Signal

Receiver (Module Output, TP4)

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	

Transmitter (Module Input, TP1)

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Differential pk-pk input Voltage tolerance		750	-	-	mV	
Differential termination mismatch		-	-	10	%	
Single-ended voltage tolerance range		-0.4	-	3.3	V	
DC common mode Voltage		-350	-	2850	mV	

## VI. Electrical Specification Low Speed Signal

Parameter	Symbol	Min.	Max.	Unit	Notes
Module output SCL and SDA	V <sub>OL</sub>	0	0.4	V	
	V <sub>OH</sub>	V <sub>CC</sub> -0.5	V <sub>CC</sub> +0.3	V	
Module Input SCL and SDA	V <sub>IL</sub>	-0.3	V <sub>CC</sub> *0.3	V	
	V <sub>IH</sub>	V <sub>CC</sub> *0.7	V <sub>CC</sub> +0.5	V	

## VII. Pin Definitions

Top Side (viewed from top)

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

Bottom Side (viewed from bottom)

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

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

Figure 1 – OSFP module Pinout

Pin#	Logic	Symbol	Description	Direction	Plug Sequence	Notes
1		GND	Ground		1	
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	LVC MOS-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	LVC MOS-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	

## VIII. Mechanical Dimensions

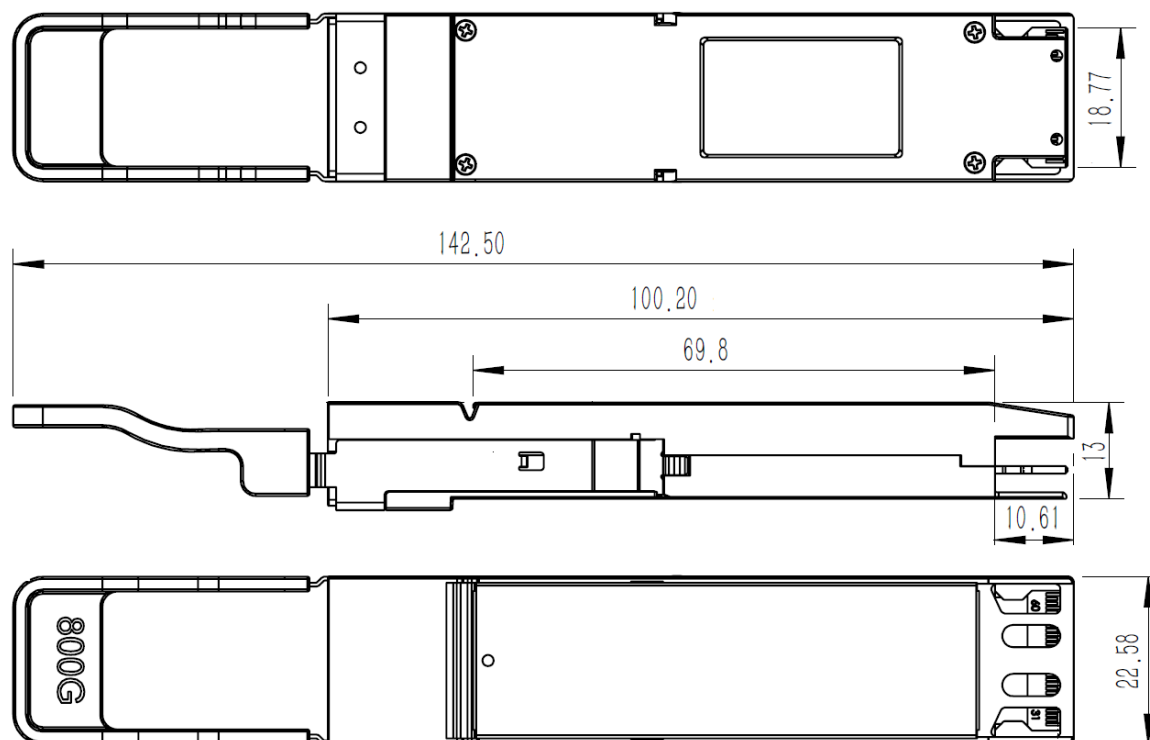


Figure 2 – Mechanical Dimensions.

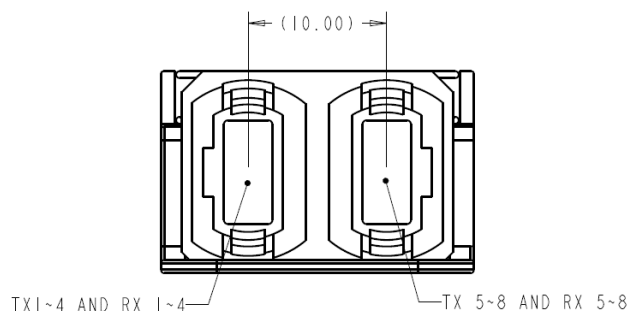


Figure 3 – Active fiber ports in MPO12 connector on module side

## IX. Ordering Information

Part Number	Description
O-100N-O-SR8	Twin port, 800Gb/s, 2x 400Gb/s, OSFP, 2xMPO, 850nm MMF, SR8, up to 30m, Type2 flat top