

OSFP 800GBASE-SR8 Optical Transceiver

LO800-SR8M2C

Description

Fly Global Trading Limited's LO800-SR8M2C modules are designed and optimized for 800G Ethernet and Data center applications. They are compliant with IEEE 802.3db & IEEE 802.3ck and OSFP MSA. The modules offer 8 independent transmit and receive channels, each is capable of 100Gb/s operation for an aggregate data rate of 800Gb/s over 50m of OM4 multi-mode fiber. Digital diagnostics functions are available via a 2-wire serial interface.

Applications

- 2 x 400G SR4 applications with FEC
- 8 x 100GbE breakout applications
- InfiniBand NDR

Standard

- Compliant to IEEE 802.3db 800GAUI-8
- Compliant to IEEE 802.3ck 800GBASE-SR8
- Compliant to CMIS5.0
- Compliant to RoHS

Features

- Hot-pluggable OSFP module
- Double MPO12/APC receptacle
- 8 channels full-duplex transceiver module
- Single 3.3V power supply
- Maximum power consumption < 14W
- Commercial operating temperature range: 0°C ~ 70°C
- Link distance up to 50m over OM4 fiber
- 8 x 100Gb/s 850nm VCSEL-based transmitter
- Built-in digital diagnostic functions
- I²C management interface

Ordering Information

Part Number	Description
LO800-SR8M2C	OSFP, 800GBASE-SR8, 50m on OM4 MMF, Double MPO-12, 0°C ~ 70°C

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Note
Maximum Voltage Supply	V_{cc}	-0.3		3.6	V	
Storage Temperature	T_{st}	-20		85	°C	
Relative Humidity	RH	5		85	%	

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Note
Power Supply Voltage (V_{cc} -GND)	V_{cc}	3.135	3.3	3.465	V	
Power Supply Current	I_{cc}			4242	mA	1
Operating Temperature (Case)	T_{op}	0		70	°C	
Power Consumption				14	W	
Transmission Distance	L1			50	m	OM4
Transmission Distance	L2			30	m	OM3
Data Rate	DR		53.125		GBd	
Notes:						
1. Max. current at V_{cc} =3.3V.						

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Input Differential Impedance	Z_{in}	90	100	110	Ω	
Input Amplitude	V_{in-pp}			900	mV	
Receiver						
Output Differential Impedance	Z_{out}	90	100	110	Ω	
Differential Data Output Swing	V_{out-pp}			900	mV	

Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Wavelength (range)	λ	840	850	868	nm	
RMS Spectral Width	SW_{RMS}			0.6	nm	
Optical Output Power	P_o	-4.6		4.0	dBm	
Optical Modulation Amplitude (OMA)	P_{oma}	-2.6		3.5	dBm	
Laser Off Power	P_{off}			-30	dBm	
Extinction Ratio	ER	2.5			dB	

LO800-SR8M2C

Transmitter and Dispersion Penalty Eye Closure for PAM4, Each Lane	TDECQ			4.4	dB	
Optical Return Loss Tolerance	T _{RL}			14	dB	
Receiver						
Wavelength (range)	λ	842	850	948	nm	
Average Receive Power, per channel	P _{IN}	-6.4		4.0	dBm	
Receiver sensitivity (OMA _{outer}), each lane (max) for TECQ≤1.8 dB for 1.8<TECQ≤4.4 dB	P _{sens}			-4.6 - 6.4+TECQ	dBm	
Stressed Receiver Sensitivity (OMA), per Lane	SRS			-2	dBm	
Damage Threshold	P _{DT}	5.0			dBm	
Receiver Reflectance	R _{RX}			-12	dB	

PIN Definition

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	

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

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

LO800-SR8M2C

Pin	Symbol	Description	Logic	Direction	Plug Sequence	Notes
1	GND	Ground			1	
2	TX2p	Transmitter Data	CML-I	Input	3	
3	TX2n	Transmitter Data	CML-I	Input	3	
4	GND	Ground			1	
5	TX4p	Transmitter Data	CML-I	Input	3	
6	TX4n	Transmitter Data	CML-I	Input	3	
7	GND	Ground			1	
8	TX6p	Transmitter Data	CML-I	Input	3	
9	TX6n	Transmitter Data	CML-I	Input	3	
10	GND	Ground			1	
11	TX8p	Transmitter Data	CML-I	Input	3	
12	TX8n	Transmitter Data	CML-I	Input	3	
13	GND	Ground			1	
14	SCL	2-wire Serial interface clock	LVC MOS- I/O	Bi-directional	3	Open-Drain with pull up resistor on Host
15	VCC	+3.3V Power		Power	2	
16	VCC	+3.3V Power		Power	2	
17	LPWn/PRSn	Low-Power Mode / Module	Multi-Level	Bi-directional	3	See pin description for required circuit
18	GND	Ground			1	
19	RX7n	Receiver Data	CML-O	Output	3	
20	RX7p	Receiver Data	CML-O	Output	3	
21	GND	Ground			1	
22	RX5n	Receiver Data	CML-O	Output	3	
23	RX5p	Receiver Data	CML-O	Output	3	
24	GND	Ground			1	
25	RX3n	Receiver Data	CML-O	Output	3	
26	RX3p	Receiver Data	CML-O	Output	3	
27	GND	Ground			1	
28	RX1n	Receiver Data	CML-O	Output	3	
29	RX1p	Receiver Data	CML-O	Output	3	
30	GND	Ground			1	
31	GND	Ground			1	
32	RX2p	Receiver Data	CML-O	Output	3	
33	RX2n	Receiver Data	CML-O	Output	3	
34	GND	Ground			1	
35	RX4p	Receiver Data	CML-O	Output	3	
36	RX4n	Receiver Data	CML-O	Output	3	
37	GND	Ground			1	
38	RX6p	Receiver Data	CML-O	Output	3	
39	RX6n	Receiver Data	CML-O	Output	3	
40	GND	Ground			1	
41	RX8p	Receiver Data	CML-O	Output	3	

LO800-SR8M2C

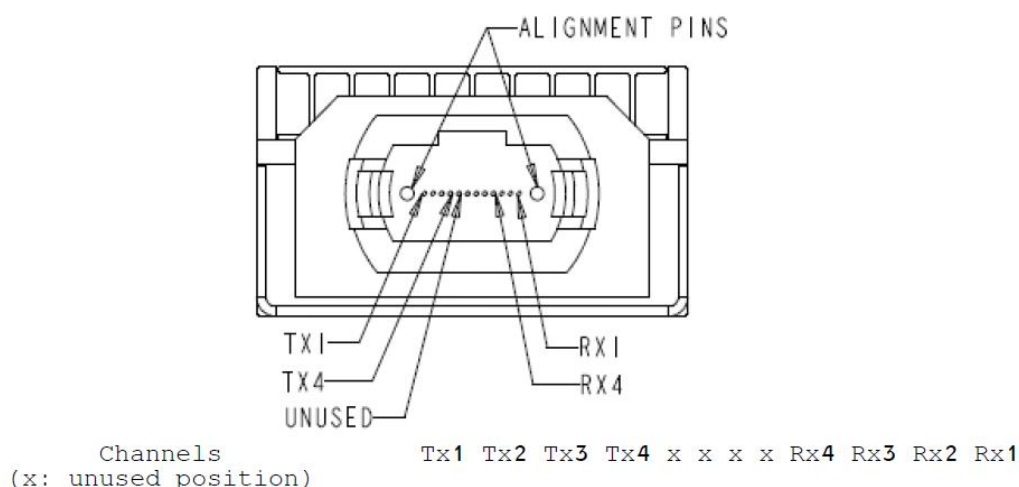
42	RX8n	Receiver Data	CML-O	Output	3	
43	GND	Ground			1	
44	INT/RSTn	Module Interrupt / Module Reset	Multi-Level	Bi-directional	3	See pin description for required circuit
45	VCC	+3.3V Power		Power	2	
46	VCC	+3.3V Power		Power	2	
47	SDA	2-wire Serial interface data	LVC MOS- I/O	Bi-directional	3	Open-Drain with pull up resistor on Host
48	GND	Ground			1	
49	TX7n	Transmitter Data	CML-I	Input	3	
50	TX7p	Transmitter Data	CML-I	Input	3	
51	GND	Ground			1	
52	TX5n	Transmitter Data	CML-I	Input	3	
53	TX5p	Transmitter Data	CML-I	Input	3	
54	GND	Ground			1	
55	TX3n	Transmitter Data	CML-I	Input	3	
56	TX3p	Transmitter Data	CML-I	Input	3	
57	GND	Ground			1	
58	TX1n	Transmitter Data	CML-I	Input	3	
59	TX1p	Transmitter Data	CML-I	Input	3	
60	GND	Ground			1	

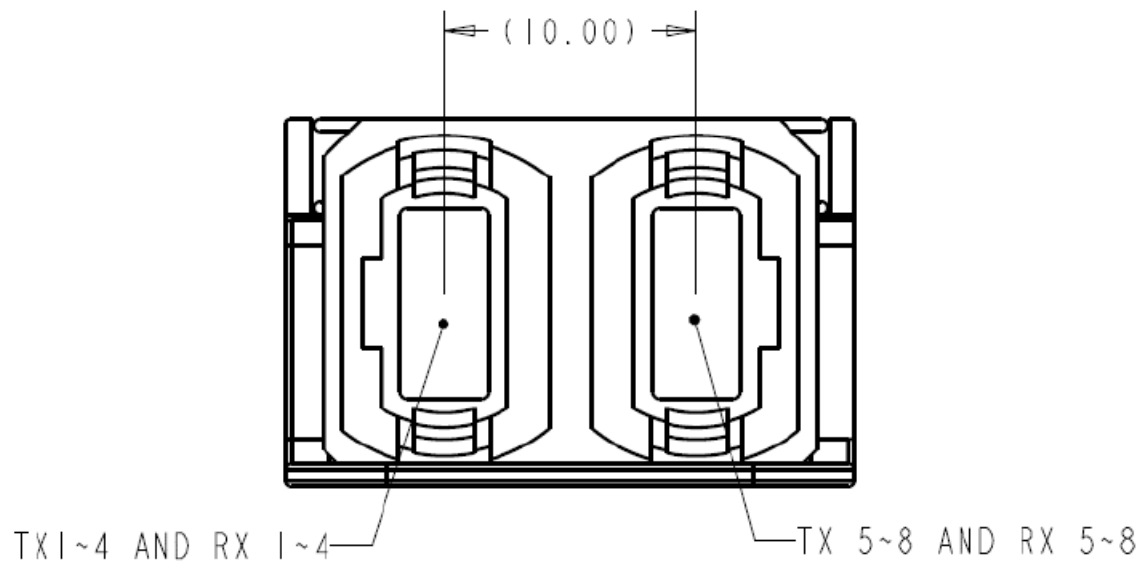
Notes:

1. Plug Sequence specifies the mating sequence of the host connector and module. The contact sequence is 1,2,3.
2. LPWn/PRSn is a Multi-level signal for low power control from host to module and module presence indication from module to host. It designed according to OSFP Module Specification Section 13.5.3
3. INT/RSTn is a Multi-level signal for interrupt request from module to host and reset control from host to module. It designed according to OSFP Module Specification Section 13.5.2

Optical Interface Lanes and Assignment

Channel orientation of the optical connector when dual MPO-12 connectors are used show as bellow:





Mechanical Dimensions

LO800-SR8M2C transceiver modules mechanical dimensions. (Unit: mm) Compatible with the OSFP Specification for pluggable form factor Type 2 modules.

