OSFP 800GBASE-DR8 Optical Transceiver

LO800-DR8M2C

Description

Fly Global Trading Limited's LO800-DR8M2C modules are designed and optimized for 800G Ethernet and Datacenter applications. They are compliant with IEEE 802.3bs & IEEE 802.3ck and OSFP MSA. The modules offer 8 independent transmit and receive channels, each capable of 100Gb/s operation for an aggregate data rate of 800Gb/s up to 500m single mode fiber. Digital diagnostics functions are available via a 2-wire serial interface.

Applications

- 2 x 400G DR4 applications with FEC
- 8 x 100GbE breakout applications
- InfiniBand NDR

Standard

- Compliant to IEEE 802.3bs 800GAUI-8
- Compliant to IEEE 802.3ck 800GBASE-DR8
- 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 500m over single-mode fiber
- Built-in digital diagnostic functions
- I^2C management interface

Ordering Information

Part Number	Description
LO800-DR8M2C	OSFP, 800GBASE-DR8, 500m on SMF, 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 (Vcc-GND)	V_{cc}	3.135	3.3	3.465	V	
Power Supply Current	I_{cc}			4240	mA	1
Operating Temperature (Case)	T_{op}	0		70	°C	
Power Consumption				14	W	
Transmission Distance				500	m	
Data Rate	DR		53.125		GBd	
Notes:						
1. Max. current at V_{cc}=3.3V.						

Electrical Characteristics

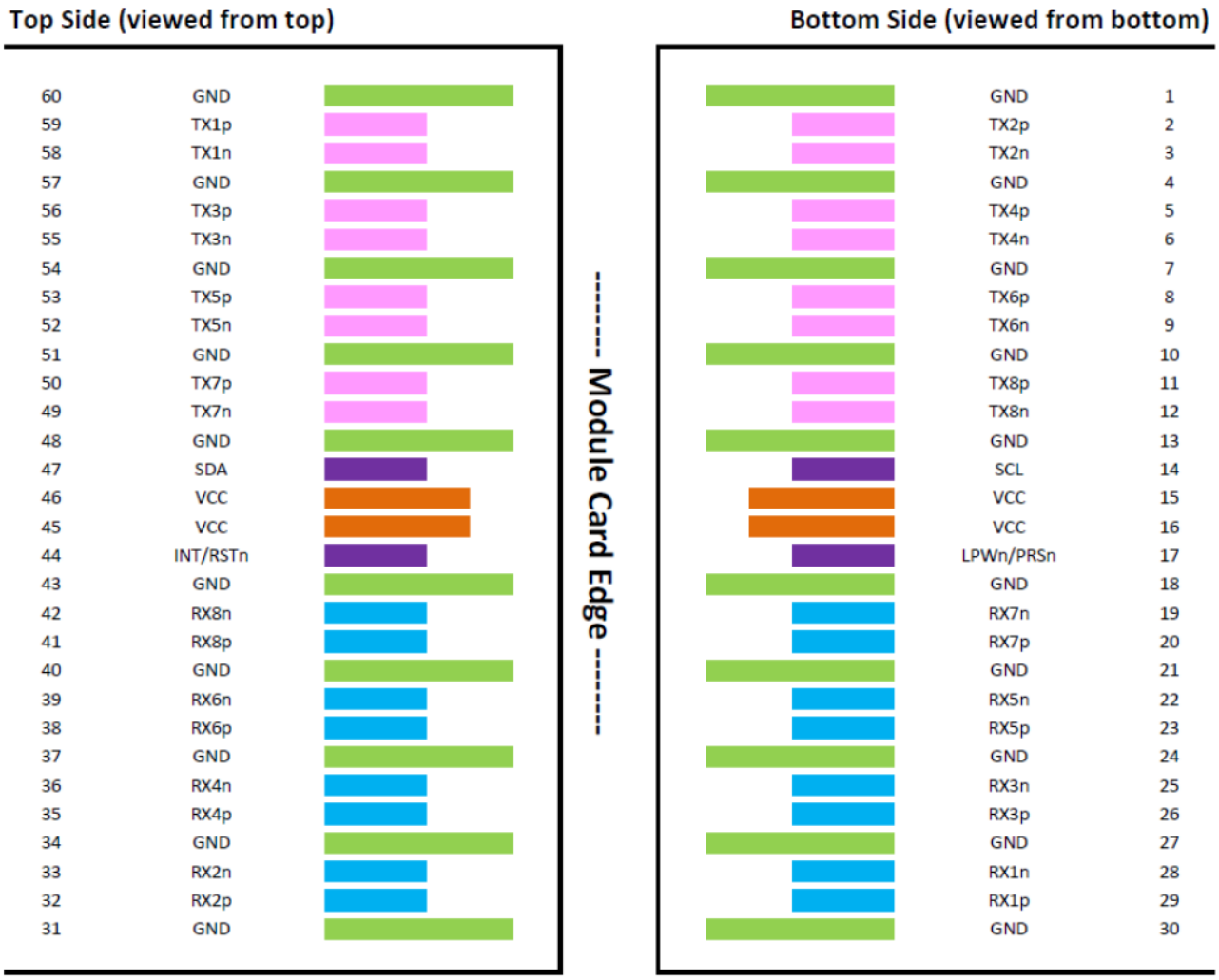
Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Input Differential Impedance	Z_{in}	90	100	110	Ω	
Differential pk-pk input voltage tolerance	V_{in-pp}	900			mV	
Receiver						
Output Differential Impedance	Z_{out}	90	100	110	Ω	
Differential Data Output Swing	V_{out-pp}			900	mV	

Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Wavelength (range)	λ	1304.5	1310	1317.5	nm	
Side-mode suppression ratio	SMSR	30			dB	
Optical Output Power	P_o	-2.9		4.0	dBm	
Optical Modulation Amplitude (OMA)	P_{oma}	-0.8		4.2	dBm	
Laser Off Power	P_{off}			-15	dBm	
Extinction Ratio	ER	3.5			dB	

Transmitter and Dispersion Penalty Eye Closure for PAM4, Each Lane	TDECQ			3.4	dB	
Optical Return Loss Tolerance	T_{RL}			21.4	dB	
Receiver						
Wavelength (range)	λ	1304.5	1310	1317.5	nm	
Average Receive Power, per channel	P_{IN}	-5.9		4.0	dBm	
Receiver sensitivity (OMAouter), each lane	P_{sens}			-4.4	dBm	
Stressed Receiver Sensitivity (OMA), per Lane	SRS			-1.9	dBm	
Damage Threshold	P_{DT}	5.0			dBm	
Receiver Reflectance	R_{RX}			-26	dB	

PIN Definition



Pin	Logic	Symbol	Description	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	LVCMOS- 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	

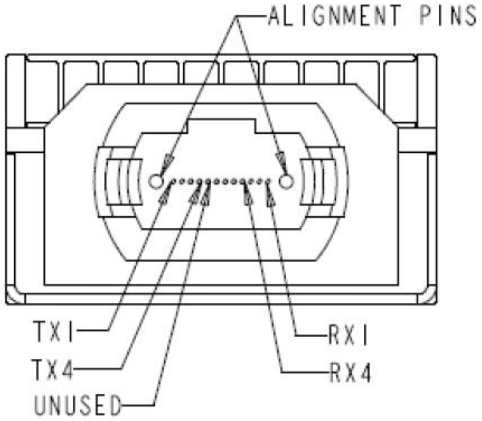
42	RX8n	Receiver Data	CML-O	Output	3	
43	GND	Ground			1	
44	INT/RSTn	Module Interrupt / Module Reset	Multi-Level	Bi-directional	3	See pin description for required circuit
45	VCC	+3.3V Power		Power	2	
46	VCC	+3.3V Power		Power	2	
47	SDA	2-wire Serial interface data	LVCMOS- I/O	Bi-directional	3	Open-Drain 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:

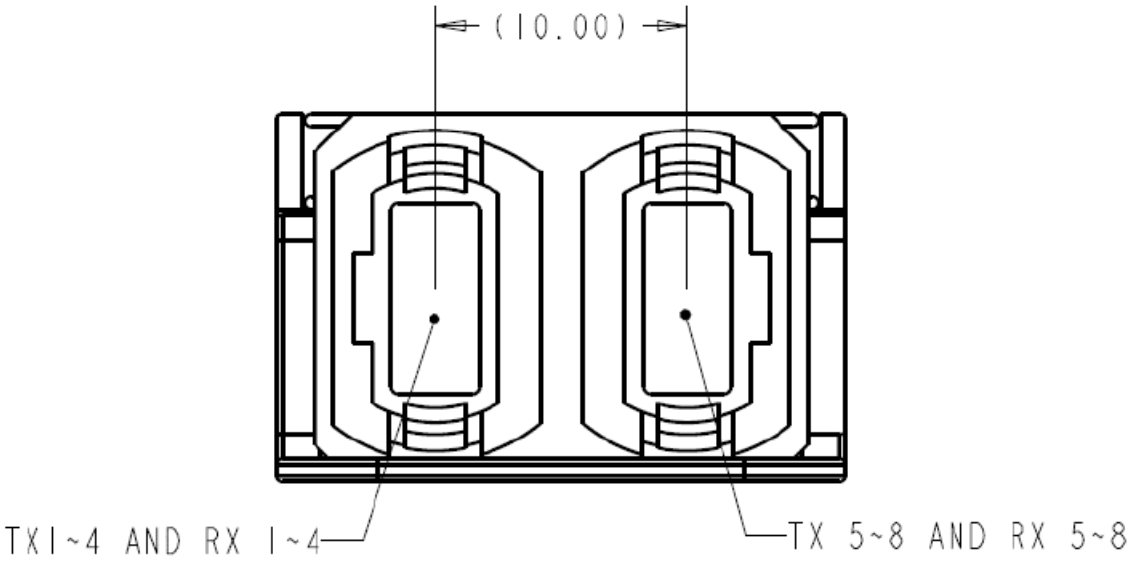
1. **Plug Sequence specifies the mating sequence of the host connector and module. The contact sequence is 1,2,3.**
2. **LPWn/PRSn is a Multi-level signal for low power control from host to module and module presence indication from module to host. It designed according to OSFP Module Specification Section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



Channels Tx1 Tx2 Tx3 Tx4 x x x x Rx4 Rx3 Rx2 Rx1
(x: unused position)



Mechanical Dimensions

LO800-DR8M2C transceiver modules mechanical dimensions. (Unit: mm) Compatible with the OSFP Specification for pluggable form factor Type 2 modules.

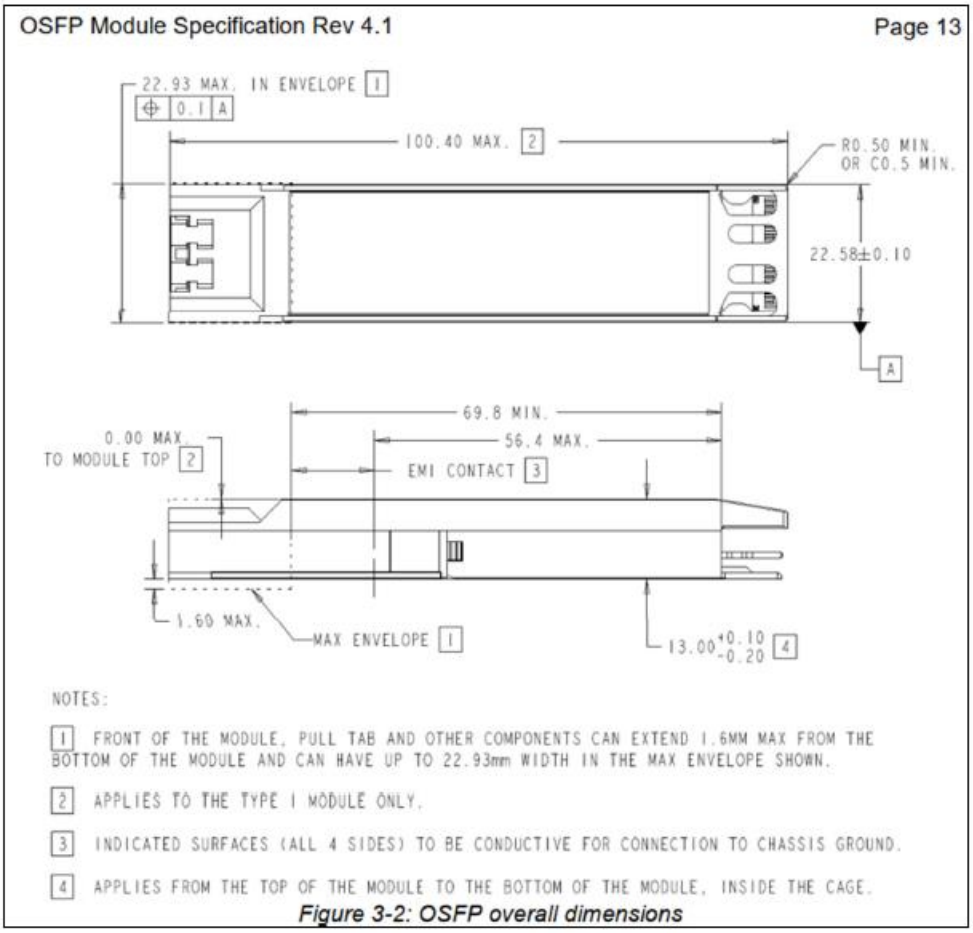


Figure 3-2: OSFP overall dimensions

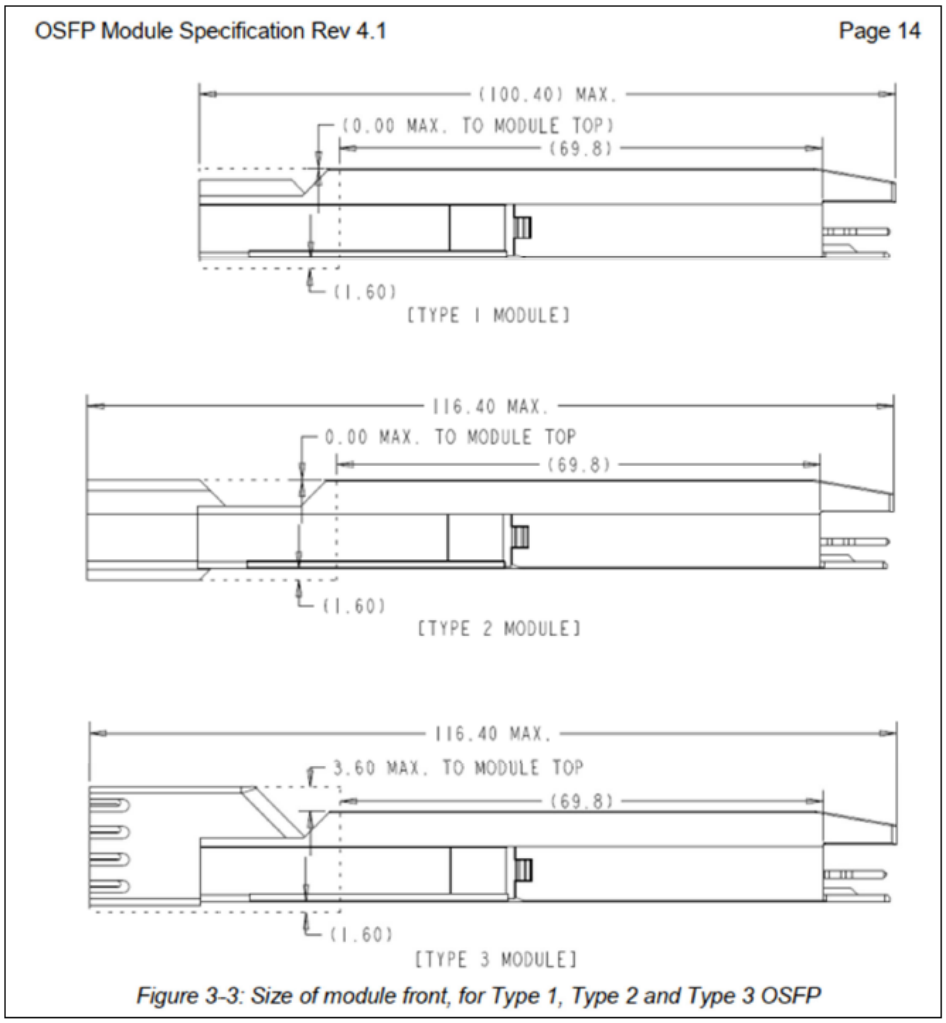


Figure 3-3: Size of module front, for Type 1, Type 2 and Type 3 OSFP

⚠CAUTION:

Use of controls or adjustment or performance of procedures other than those specified herein may result in hazardous radiation exposure.