LPXWHM85-M50C

OSFP, 800G SR8, 2*MPO-12 ,850nm MMF 50m

Features

- 800GAUI-8, 8x106.25 Gbps electrical interface
- 8x VCSEL arrays and 8x PIN PD arrays
- Hot-pluggable OSFP form factor
- Maximum link length of 60m on OM3 or 100m on OM4
- Optical connector: Dual MPO- 12 APC
- +3.3V single power supply
- Power Consumption: <14W
- Case operating temperature: 0°C to +70°C
- RoHS 6 Compliant

Applications

- 800G Ethernet
- Data centers and cloud networks

Ordering information

Part NO.	Bit Rate	Laser	Distance *1	Fiber Media	DDMI	Connector	Temp *2
LPXWHM85-M50C	850.Gbps	850nm VCSEL	50m (OM4)	MMF	YES	2×MPO-12 (APC)	0~70 °C

Note:

1. 50M for OM4 fiber, and 30m for OM3 fiber, with FEC
2. Case Temperature.

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Storage Temperature	T_S	-40		85	ºC	
Storage Ambient Humidity	H_A	15		85	%	No condensation
Maximum Supply Voltage	V_{CC}	-0.5		3.6	V	
Receiver damage Threshold，per lane		5			dBm	

II. Recommended Operating Conditions

Data Rate Specifications	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Supply Voltage Noise Tolerance	PSNR			66	mV	10Hz~10MHz
Instantaneous peak current at high power enable	Icc_ip			5600	mA	
Sustained peak current at high power enable	Icc_sp			4666	mA	
Supply steady state Current	Icc			4466	mA	Steady state
Operating Case Temperature	Tc	0		70	℃	
Link distance on OM4 MMF	d			50	meters	

III. Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Ref.
Transmitter(per lane)							
Signaling rate		F_{SG}	53.125 ±100ppm			GBd	PAM4
Center Wavelength		λC	840		860	nm	
RMS Spectral Width		σ			0.6	nm	Note1
Average Launch power ， each lane			-4.6		4	dBm	
Outer Optical Modulation Amplitude (OMAouter), each lane	max(TECQ, TDECQ) ≤ 1.8dB		-2.6		3.5	dBm	
	1.8 < max (TECQ,TDECQ) ≤4.4dB		-4.4+max (TECQ,TDECQ)				
Transmitter and dispersion eye closure for PAM4, each lane		TDECQ			4.4	dB	
Transmitter eye closure for PAM4 (TECQ), each lane		TECQ			4.4		
Transmitter power excursion,					2.3		

each lane							
Average Optical Output Power of Off Transmitter, each lane		Poff			-30	dBm	
Extinction Ratio, each lane		ER	2.5			dB	
Optical return loss tolerance					14	dB	
Encircled flux			≥86% at 19um ≤30% at 45um				Note 2
Receiver(per lane)							
Damage threshold			5			dBm	Note 3
Average receive power, each lane			–6.4		4.0	dBm	Note 4
Receive power (OMAouter), each lane					3.5	dBm	
Receiver reflectance					-15	dB	
Receiver sensitivity(OMA outer), each lane	TECQ ≤ 1.8dB				-4.6	dBm	Note 5
	1.8 < TECQ ≤ 4.4dB				-6.4+ TECQ		
Receiver Loss of Signal Indicator Assert Level		LOSA	-15			dBm	
Receiver Loss of Signal Indicator De-assert Level		LOSD			-7.5	dBm	
Hysteresis		LOSH	0.5		5	dB	
Stressed receiver sensitivity (OMAouter), each lane					-2	dBm	Note 5, 6
Conditions of stressed receiver sensitivity test:（Note 7）							
Stressed eye closure for PAM4(SECQ), lane under test			4.4			dB	
OMAouter of each aggressor lane			3.5			dBm	

Notes:

1. RMS spectral width is the standard deviation of the spectrum
2. If measured into type A1a.2 or type A1a.3, or A1a.4, 50 um fiber, in accordance with IEC 61280-1-4.
3. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level on one lane. The receiver does not have to operate correctly at this input power.
4. Average receive power, each lane (min) is not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
5. For when Pre-FEC BER is 2.4 x 10-4.
6. Measured with conformance test signal at TP3 (see 167.8.14) for the BER specified in 167.1.1.
7. These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

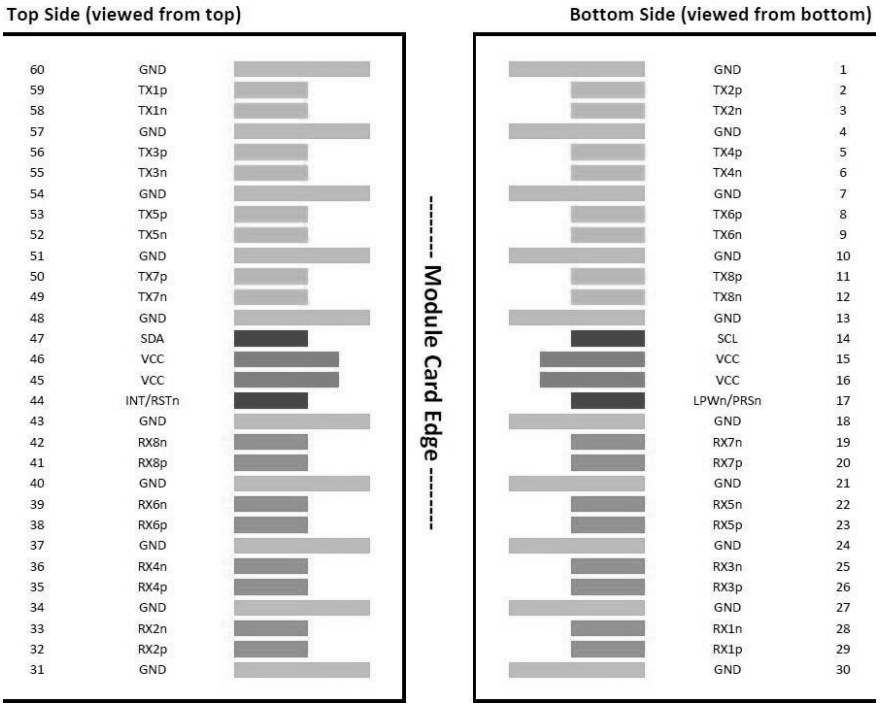
IV. Electrical Interface Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	V_{CC}	3.135		3.465	V	
Power Dissipation	Pd			14	W	
Transmitter(per Lane)						
Signaling rate per lane (range)		-100ppm	53.125	+100ppm	GBd	PAM4
Differential data output swing		300		900	mVpp	
Eye height		15			mV	
Vertical eye closure [VEC]				12	dB	
Common-mode to differential-mode return loss [RLdc]		Equation (120G-1)			dB	Note 2
Effective return loss [ERL]		8.5			dB	
Differential termination mismatch				10	%	
Transition time (20% to 80%)		8.5			ps	
Receiver (per Lane)						
Signaling rate, each lane (range)		-100ppm	53.125	+100ppm	GBd	at TP1
Differential pk-pk input voltage tolerance		750			mV	at TP1a
Differential-mode to common-mode return loss [RLcd]		Equation (120G-1)			dB	at TP1, Note 2
Effective return loss [ERL]		7.3			dB	at TP1
Differential termination mismatch				10	%	at TP1
Vertical eye closure				12	dB	at TP1
Transition Time		10			ps	at TP1

Notes:

1. Electrical module output is squelched for loss of optical input signal.
2. IEEE P802.3ck D3p0 [1]

V. Pin Diagram



Pin Descriptions

Pin	Name	Logic	Description	Plug Sequence	Notes
1	GND		Ground	1	
2	Tx2p	CML-I	Receiver Data Non-Inverted	3	
3	Tx2n	CML-I	Receiver Data Inverted	3	
4	GND		Ground	1	
5	Tx4p	CML-I	Receiver Data Non-Inverted	3	
6	Tx4n	CML-I	Receiver Data Inverted	3	
7	GND		Ground	1	
8	Tx6p	CML-I	Receiver Data Non-Inverted	3	
9	Tx6n	CML-I	Receiver Data Inverted	3	
10	GND		Ground	1	
11	TX8p	CML-I	Receiver Data Non-Inverted	3	
12	TX8n	CML-I	Receiver Data Inverted	3	
13	GND		Ground	1	
14	SCL	LVCMOS-I/O	2-wire Serial interface clock	3	
15	VCC		+3.3V Power	2	
16	VCC		+3.3V Power	2	
17	LPWn/PRSn	Multi-Level	Low-Power Mode Present	3	1
18	GND		Ground	1	
19	RX7n	CML-O	Receiver Data Inverted	3	
20	RX7p	CML-O	Receiver Data Non-Inverted	3	
21	GND		Ground	1	

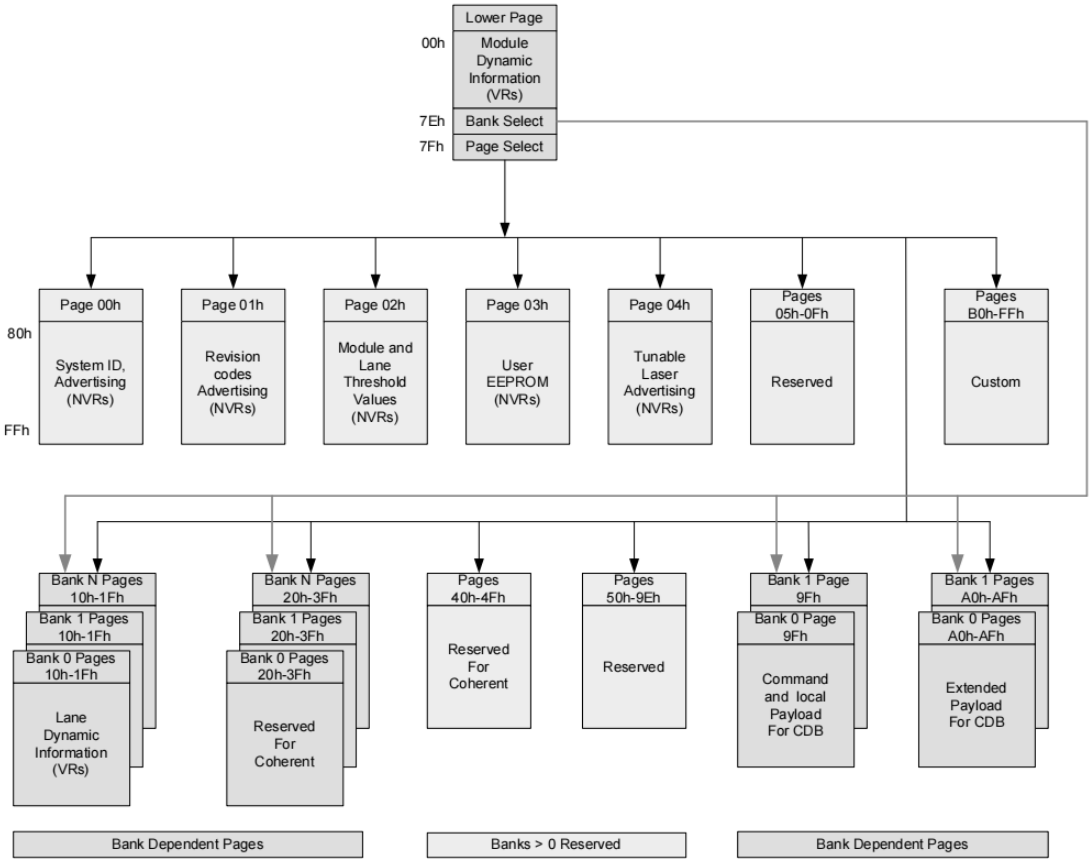
22	RX5n	CML-O	Receiver Data Inverted	3	
23	RX5p	CML-O	Receiver Data Non-Inverted	3	
24	GND		Ground	1	
25	RX3n	CML-O	Receiver Data Inverted	3	
26	RX3p	CML-O	Receiver Data Non-Inverted	3	
27	GND		Ground	1	
28	RX1n	CML-O	Receiver Data Inverted	3	
29	RX1p	CML-O	Receiver Data Non-Inverted	3	
30	GND		Ground	1	
31	GND		Ground	1	
32	RX2p	CML-O	Receiver Data Non-Inverted	3	
33	RX2n	CML-O	Receiver Data Inverted	3	
34	GND		Ground	1	
35	RX4p	CML-O	Receiver Data Non-Inverted	3	
36	RX4n	CML-O	Receiver Data Inverted	3	
37	GND		Ground	1	
38	RX6p	CML-O	Receiver Data Non-Inverted	3	
39	RX6n	CML-O	Receiver Data Inverted	3	
40	GND		Ground	1	
41	RX8p	CML-O	Receiver Data Non-Inverted	3	
42	RX8n	CML-O	Receiver Data Inverted	3	
43	GND		Ground	1	
44	INT/RSTn	Multi-Level	Module Interrupt / Reset	3	1
45	VCC		+3.3V Power	2	
46	VCC		+3.3V Power	2	
47	SDA	LVCMOS-I/O	2-wire Serial interface data	3	
48	GND		Ground	1	
49	TX7n	CML-I	Transmitter Data Inverted	3	
50	TX7p	CML-I	Transmitter Data Non-Inverted	3	
51	GND		Ground	1	
52	TX5n	CML-I	Transmitter Data Inverted	3	
53	TX5p	CML-I	Transmitter Data Non-Inverted	3	
54	GND		Ground	1	
55	TX3n	CML-I	Transmitter Data Inverted	3	
56	TX3p	CML-I	Transmitter Data Non-Inverted	3	
57	GND		Ground	1	
58	TX1n	CML-I	Transmitter Data Inverted	3	
59	TX1p	CML-I	Transmitter Data Non-Inverted	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

VI. Memory Map

Compatible with MIS rev4.0 and upper

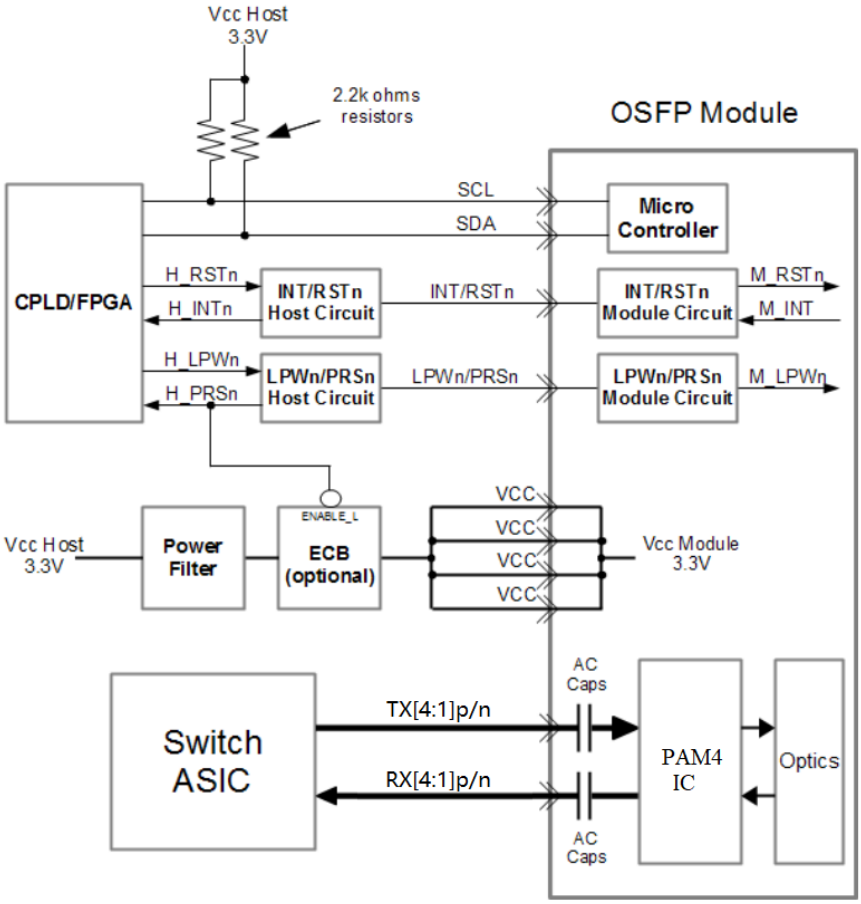


VII. Digital Diagnostic Monitor Accuracy

.Parameter	Symbol	Unit	Min	Max	Notes
Temperature monitor absolute error	DMI_Temp	degC	-3	3	Over operating temperature range
Supply voltage monitor absolute error	DMI _VCC	V	-0.1	0.1	Over full operating range
Channel Bias current monitor	DMI_Ibias_Ch	mA	-10%	10%	
Channel TX power monitor absolute error	DMI_TX_Ch	dB	-3	3	1
Channel RX power monitor absolute error	DMI_RX_Ch	dB	-3	3	1

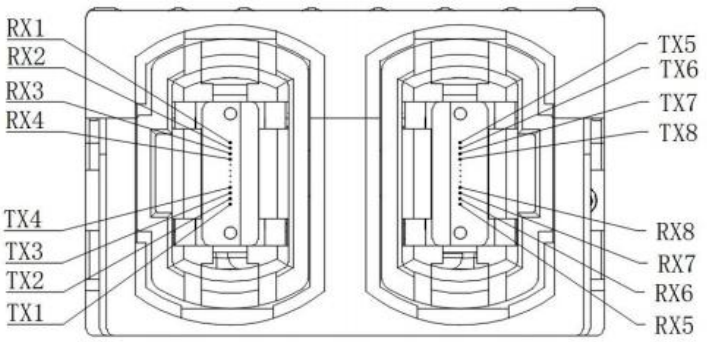
Note1: Due to measurement accuracy of different multi-mode fibers, there could be an additional +/-1 dB fluctuation, or a +/- 3 dB total accuracy

VIII. Recommended Interface

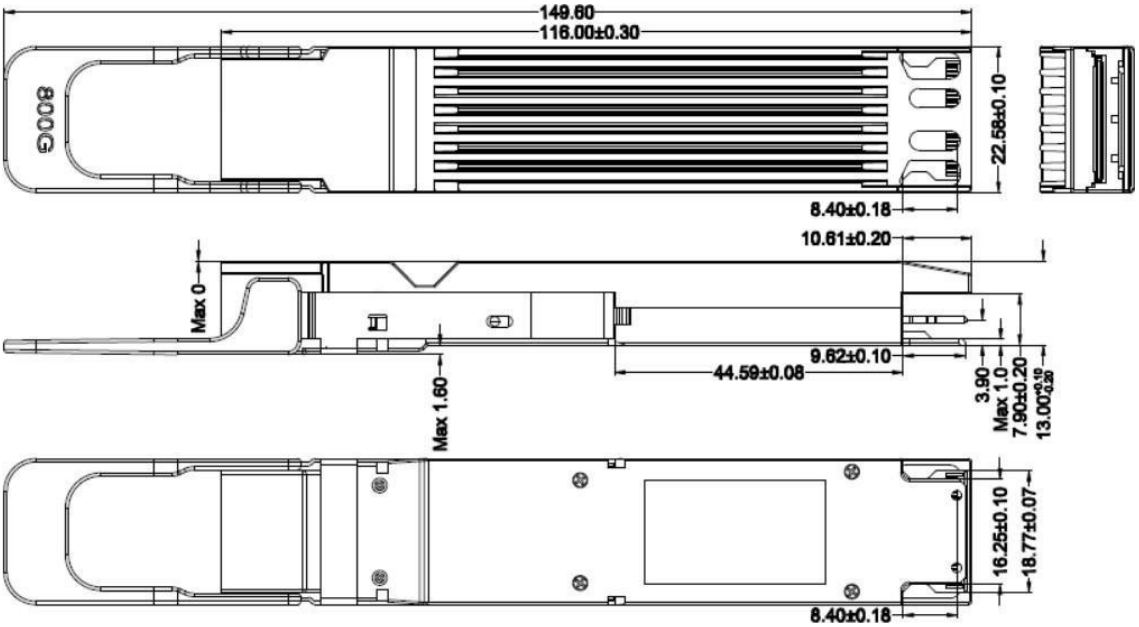


IX. Optical interface arrangement

The optical port is a male MPO connector receptacle,TYPE 1



X. Mechanical Specifications (Unit: mm)



Pull tab color: Beige