

Product Features

- OSFP MSA and CMIS compliant
- 8x106.25Gbps (53.125GBd PAM4) electrical interface
- 8x106.25Gbps (53.125GBd PAM4) optics architecture
- Power consumption <16W
- Maximum link length of 10km G.652 SMF with KP-FEC
- Dual duplex LC receptacles
- Built-in digital diagnostic functions
- Operating case temperature 0°C to 70°C
- 3.3V power supply voltage
- RoHS compliant

Application

- 800GBASE-2xLR4
- Data center network

Description

The 800GBASE-2LR4 OSFP Optical Transceiver Module is designed for 10km optical communication applications, and it is compliant to OSFP MSA, IEEE 802.3 protocol. It has been designed to meet the harshest external operating conditions including temperature, humidity and EMI interference. The module offers very high functionality and feature integration, accessible via a two-wire serial interface.

Absolute Maximum Ratings

Parameter	Unit	Min	Max
Storage Temperature Range	°C	-40	85
Supply Voltage	V	-0.5	3.6
Relative Humidity (non-condensing)	%	5	95
Data Input Voltage Differential	V		1
Control Input Voltage	V	-0.3	VCC+0.5

Recommended Operating Conditions

Parameter	Min	Typ.	Max	Unit
Operating Case Temperature	0		70	°C
Power Supply Voltage	3.135	3.3	3.465	V
Maximum Power Dissipation			16	W
Signaling Speed per Lane		53.125		GBd
Control Input Voltage High	VCC*0.7		VCC+0.3	V
Control Input Voltage Low	-0.3		VCC*0.3	V
Two Wire Serial Interface Clock Rate			400	kHz
Power Supply Noise 1 kHz - 1 MHz (p-p)			66	mVpp
Operating Distance	2		10000	m

Electrical Specifications

Parameter	Unit	Min	Typical	Max
Differential input impedance	ohm	90	100	110
Differential Output impedance	ohm	90	100	110
Differential input voltage amplitude	mVp-p	400		900
Differential output voltage amplitude	mVp-p			850
Bit Error Rate	-			2.4E-4
Input Logic Level High	V	2.0		Vcc
Input Logic Level Low	V	0		0.8
Output Logic Level High	V	Vcc-0.5		Vcc
Output Logic Level Low	V	0		0.4

Note:

1. BER=2.4E-4; PRBS31Q@53. 125GBd. Pre-FEC
2. Differential input voltage amplitude is measured between TxnP and TxnN.
3. Differential output voltage amplitude is measured between RxnP and RxnN.

Optical Characteristics

Parameter	Unit	Min	Typical	Max
Transmitter				
Center Wavelength	nm	1264.5		1277.5

Center Wavelength	nm	1284.5		1297.5
Center Wavelength	nm	1304.5		1317.5
Center Wavelength	nm	1324.5		1337.5
Center Wavelength	nm	1264.5		1277.5
Center Wavelength	nm	1284.5		1297.5
Center Wavelength	nm	1304.5		1317.5
Center Wavelength	nm	1324.5		1337.5
SMSR	nm	30		
Average Launch Power (each lane)	dBm	-2.7		5.1
Average Launch Power (total)	dBm			11.1
Outer Extinction Ratio	dB	3.5		
Outer Optical Modulation Amplitude (each lane)	dBm	0.3		4.4
Transmitter and dispersion eye closure (each lane)	dB			3.4
Average launch power of off transmitter (each lane)	dBm			-16
Optical Return Loss Tolerance	dB			15.6
Receiver				
Center Wavelength	nm	1264.5		1277.5
Center Wavelength	nm	1284.5		1297.5
Center Wavelength	nm	1304.5		1317.5
Center Wavelength	nm	1324.5		1337.5
Center Wavelength	nm	1264.5		1277.5
Center Wavelength	nm	1284.5		1297.5
Center Wavelength	nm	1304.5		1317.5
Center Wavelength	nm	1324.5		1337.5
Damage threshold	dBm	6.1		
Average Receive Power (each lane)	dBm	-9		5.1
Receiver Power (OMA _{outer}) (each lane)	dBm			4.4
Receiver reflectance	dB			-26
Difference in receive power between any two lanes (OMA _{outer})	dB			4.3
Stressed Receiver Sensitivity(OMA _{outer}) (each lane)	dBm			-4.8
Receiver sensitivity (OMA _{outer}), each lane , note1	dBm			-6.8

Note:

1. Measured with conformance test signal at TP3 for BER = 2.4E-4 Pre-FEC.

Pin Definition and Description

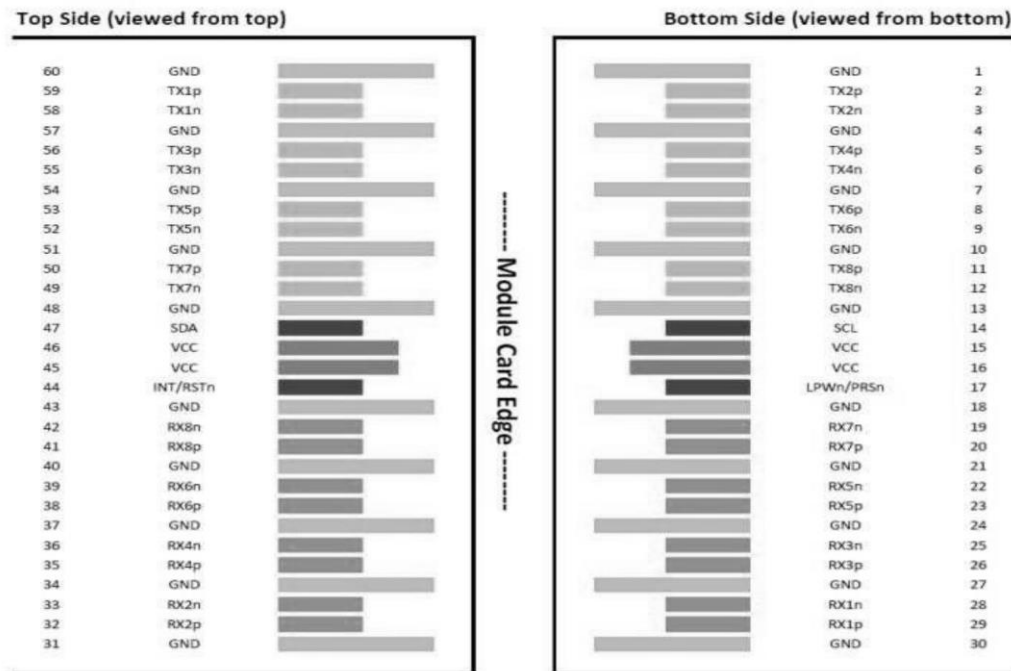


Table 1. Pin definition and descriptions

Pin	Symbol	Logic	Description	Note
1	GND		Ground	
2	TX2p	CML-I	Transmitted Data Non-Inverted	
3	TX2n	CML-I	Transmitted Data Inverted	
4	GND		Ground	
5	TX4p	CML-I	Transmitted Data Non-Inverted	
6	TX4n	CML-I	Transmitted Data Inverted	
7	GND		Ground	
8	TX6p	CML-I	Transmitted Data Non-Inverted	
9	TX6n	CML-I	Transmitted Data Inverted	
10	GND		Ground	
11	TX8p	CML-I	Transmitted Data Non-Inverted	
12	TX8n	CML-I	Transmitted Data Inverted	
13	GND		Ground	
14	SCL	LVC MOS-I/O	2-wire Serial Interface Clock	1
15	VCC		+3.3V Power	
16	VCC		+3.3V Power	
17	LPWn/PRSn	Multi-Level	Low-Power Mode / Module Present	2
18	GND		Ground	
19	RX7n	CML-O	Receiver Data Inverted	

20	RX7p	CML-O	Receiver Data Non-Inverted	
21	GND		Ground	
22	RX5n	CML-O	Receiver Data Inverted	
23	RX5p	CML-O	Receiver Data Non-Inverted	
24	GND		Ground	
25	RX3n	CML-O	Receiver Data Inverted	
26	RX3p	CML-O	Receiver Data Non-Inverted	
27	GND		Ground	
28	RX 1n	CML-O	Receiver Data Inverted	
29	RX 1p	CML-O	Receiver Data Non-Inverted	
30	GND		Ground	
31	GND		Ground	
32	RX2p	CML-O	Receiver Data Non-Inverted	
33	RX2n	CML-O	Receiver Data Inverted	
34	GND		Ground	
35	RX4p	CML-O	Receiver Data Non-Inverted	
36	RX4n	CML-O	Receiver Data Inverted	
37	GND		Ground	
38	RX6p	CML-O	Receiver Data Non-Inverted	
39	RX6n	CML-O	Receiver Data Inverted	
40	GND		Ground	
41	RX8p	CML-O	Receiver Data Non-Inverted	
42	RX8n	CML-O	Receiver Data Inverted	
43	GND		Ground	
44	INT/RSTn	Multi-Level	Module Interrupt / Module Reset	2
45	VCC		+3.3V Power	
46	VCC		+3.3V Power	
47	SDA	LVC MOS-I/O	2-wire Serial Interface Clock	1
48	GND		Ground	
49	TX7n	CML-I	Transmitted Data Inverted	
50	TX7p	CML-I	Transmitted Data Non-Inverted	
51		GND	Ground	
52	TX5n	CML-I	Transmitted Data Inverted	
53	TX5p	CML-I	Transmitted Data Non-Inverted	
54		GND	Ground	
55	TX3n	CML-I	Transmitted Data Inverted	
56	TX3p	CML-I	Transmitted Data Non-Inverted	
57		GND	Ground	
58	TX 1n	CML-I	Transmitted Data Inverted	

59	TX 1p	CML-I	Transmitted Data Non-Inverted	
60		GND	Ground	

Notes:

1. Open-Drain with pull up resistor on Host.
2. See pin description for required circuit.

Digital Diagnostic Specification

Parameter	Units	Min	Typical	Max	Notes
Transceiver Case Temperature	°C	-3		+3	Over operating
Supply voltage monitor absolute	V	-3%		+3%	Full operating
Channel RX power monitor absolute	dB	-3		+3	Per channel
Channel Bias current monitor	mA	- 10%		+10%	Per channel
Channel TX power monitor absolute	dB	-3		+3	Per channel

Mechanical Dimensions

