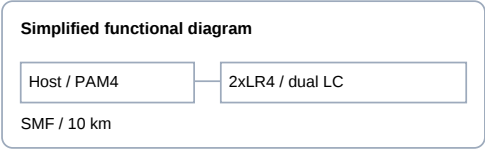


OSFP800-2LR4-Finned Top

OSFP, 800GBASE-2LR4, 1310 nm, 10 km, dual LC duplex

1. Product overview

800GBASE-2LR4 OSFP transceiver for links up to 10 km over single-mode fiber via dual LC connectors. It supports 800G Ethernet and breakout 2x400G LR4. Built-in digital diagnostic monitoring provides access to real-time operating parameters.



2. Key features

- MSA 2x400G-LR4-10 optics; IEEE P802.3ck D3.0 2x400GAUI-4 C2M electrical interface
- OSFP MSA HW Rev 4.1, Type 2 housing, dual LC; CMIS Rev 5.0; 8x106.25 Gb/s PAM4
- Single 3.3 V supply; 18 W maximum; 0°C to +70°C; two-wire diagnostics; Class 1 laser

3. Applications

800G Ethernet; breakout 2x400G LR4; Data Center.

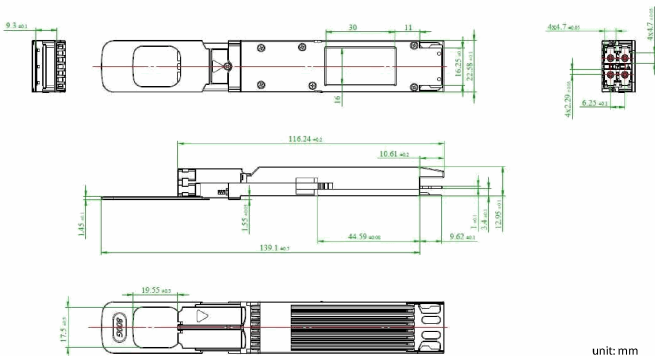
4. Technical data

Parameter	Specification	Parameter	Specification
Form factor / fiber	OSFP / SMF	Storage temperature	-40 to +85°C
Absolute supply voltage	-0.5 to 3.6 V	Humidity, non-condensing	5-95%
Absolute differential data input	1 V max	Absolute control input	-0.3 to Vcc+0.5 V
Absolute control output current	-20 to +20 mA	Host schematic	3.3 V; SCL/SDA pull-ups 2.2 kohm

High-speed electrical characteristics - IEEE 802.3ck C2M; per lane. Module input TP1 / output TP4.

TX: module input	Specification	RX: module output	Specification
Differential p-p input tolerance	750 mV min (TP1a)	AC common-mode output RMS	25 mV max
AC common-mode RMS tolerance	25 mV min (TP1a)	Differential output p-p, short/long	600 / 845 mV max
Differential-to-common return loss	802.3ck 120G-2, dB	Common-to-differential return loss	802.3ck 120G-1, dB
Effective return loss	8.5 dB min	Effective return loss	8.5 dB min
Termination mismatch	10% max	Termination mismatch	10% max
Single-ended tolerance	-0.4 to 3.3 V	Eye height / vertical eye closure	15 mV min / 12 dB max
DC common-mode tolerance	-0.35 to 2.85 V	Transition time	8.5 ps min
Interface	IEEE P802.3ck D3.0	DC common-mode tolerance	-0.35 to 2.85 V

Mechanical drawing from source (mm)



5. Recommended operating conditions

Parameter	Specification	Parameter	Specification
Case temperature	0 to +70°C	Supply min/typ/max	3.135 / 3.3 / 3.465 V
Power dissipation	16 W typ / 18 W max	Low-power mode	2 W max
Signaling speed / lane	53.125 GBd typ	Operating distance	2-10000 m
Control VIH / VIL	Vcc*0.7 to Vcc+0.3 V / -0.3 to Vcc*0.3 V	Serial clock / supply noise	400 kHz max; 66 mV p-p max (1 kHz-1 MHz)
Hot-plug instantaneous peak	ICC_IP: TBD mA	Hot-plug sustained peak	ICC_SP: TBD mA

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6. Optical characteristics

Transmitter, each lane unless stated	Specification	Receiver, each lane / stress test	Specification
L0, L4 wavelength, min/typ/max	1264.5 / 1271 / 1277.5 nm	L0, L4 wavelength, min/typ/max	1264.5 / 1271 / 1277.5 nm
L1, L5 wavelength, min/typ/max	1284.5 / 1291 / 1297.5 nm	L1, L5 wavelength, min/typ/max	1284.5 / 1291 / 1297.5 nm
L2, L6 wavelength, min/typ/max	1304.5 / 1311 / 1317.5 nm	L2, L6 wavelength, min/typ/max	1304.5 / 1311 / 1317.5 nm
L3, L7 wavelength, min/typ/max	1324.5 / 1331 / 1337.5 nm	L3, L7 wavelength, min/typ/max	1324.5 / 1331 / 1337.5 nm
SMSR	30 dB min	Damage threshold	6.1 dBm min
Total average launch power	11.1 dBm max	Average receive power	-9 to +5.1 dBm
Average launch power [1]	-2.7 to +5.1 dBm	Receive OMAouter	4.4 dBm max
OMAouter, TDECQ <1.4 dB	0.3 min / 4.4 max dBm	Lane-to-lane receive OMAouter difference	4.3 dB max
OMAouter, $1.4 \leq \text{TDECQ} \leq 3.4$ dB	-1.1+TDECQ min / 4.4 max dBm	Receiver reflectance	-26 dB max
Lane-to-lane launch OMAouter difference	4 dB max	Sensitivity, TECQ <1.4 dB	-6.8 dBm max
TDECQ / TECQ	3.9 / 3.9 dB max	Sensitivity, $1.4 \leq \text{TECQ} \leq 3.4$ dB	-8.2+TECQ dBm max
TDECQ - TECQ	2.5 dB max	Stressed RX sensitivity [3]	-4.3 dBm max
Transmitter over/under-shoot	25% max	Stress test SECQ, lane under test	3.9 dB typ
Transmitter power excursion	5.2 dBm max	Stress test aggressor OMAouter	-0.4 dBm typ
Average launch power, TX off	-16 dBm max		
Extinction ratio	3.5 dB min		
TX transition time	17 ps max		
RIN15.6OMA	-136 dB/Hz max		
Optical return loss tolerance	15.6 dB max		
Transmitter reflectance [2]	-26 dB max		

[1] Minimum average launch power is informative, not the principal indicator of signal strength. [2] Reflectance is defined looking into the transmitter. [3] Conformance test signal at TP3, BER = 2.4×10^{-4} .

7. Digital diagnostics and management

Parameter	Specification
Management / calibration	CMIS Rev 5.0; two-wire serial interface; all listed diagnostics internally calibrated.
DDM range; accuracy; source unit	Temperature 0-70; ± 3 ; °C. Voltage 0-Vcc; 0.1; V. TX bias/lane 0-100; 10%; mA. TX power/lane -2.7 to +5.1; ± 3 ; dB. RX power/lane -9 to +5.1; ± 3 ; dB.
Low-speed SCL/SDA	Output VOL: 0-0.4 V. Input VIL: -0.3 to Vcc*0.3 V; VIH: Vcc*0.7 to Vcc+0.5 V.
Low-speed controls (source names)	InitMode, ResetL, ModSelL: VIL -0.3 to 0.8 V; VIH 2 to Vcc+0.3 V. IntL: VOL 0-0.4 V; VOH Vcc-0.5 to Vcc+0.3 V.
OSFP control pins	SCL 14 (clock); SDA 47 (data), LVCMOS-I/O. LPWn/PRSn 17: low power/present. INT/RSTn 44: interrupt/reset; multilevel. Host SCL/SDA pull-ups: 2.2 kohm to 3.3 V.
60-contact pin map	TX p/n lanes 1-8: 59/58, 2/3, 56/55, 5/6, 53/52, 8/9, 50/49, 11/12 (CML-I). RX p/n lanes 1-8: 29/28, 32/33, 26/25, 35/36, 23/22, 38/39, 20/19, 41/42 (CML-O). Vcc: 15,16,45,46 (+3.3 V). GND: 1,4,7,10,13,18,21,24,27,30,31,34,37,40,43,48,51,54,57,60.

8. Safety and regulatory

Class 1 laser safety. Source states MSA 2x400G-LR4-10, IEEE P802.3ck D3.0, OSFP MSA HW Rev 4.1 and CMIS Rev 5.0 compliance.

9. Ordering information

Ordering number	Product description
OSFP-800G-F-2LR4	800GBASE-2LR4 OSFP PAM4 Finned Top 1310nm 10km Dual LC SMF Optical Transceiver