Product Specification Sheet

OLXCxx1XL-CDH1

RoHS Compliant 10Gb/s XFP CWDM 100km Optical Transceiver



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Product Features

- Supports 9.95 to 11.3Gb/s bit rates
- Duplex LC connector
- Hot-pluggable XFP footprint
- Cooled 1470nm~1550nm EML transmitter, APD photo-detector
- Applicable for 100km SMF connection
- Low power consumption, <3.5W
- Digital Diagnostic Monitor Interface
- XFP MSA Rev 4.5 Compliant
- Operating case temperature:

Commerical:0 to 70 °C

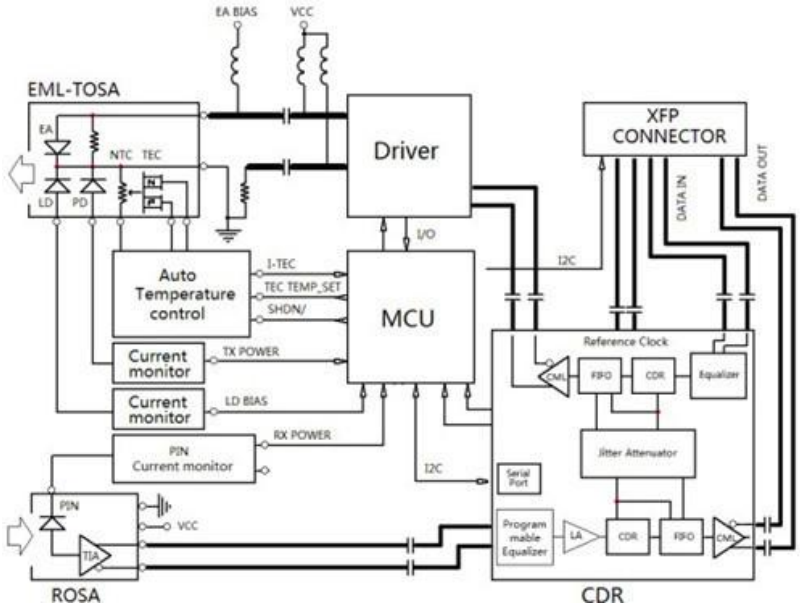
Applications

- 10GBASE-ZR at 10.3125Gbps
- 10G Ethernet
- Other optical links

Product Descriptions

OlinkPhotonics OLXCxx1XL-CDH1 is Transceiver exhibits excellent wavelength stability, cost effective module. It is designed for 10G CWDM SDH, 10GBASE-ZR/ZW and 10G Fiber- Channel applications. The transceiver consists of two sections: The transmitter section incorporates a cooled EML laser. And the receiver section consists of a APD photodiode integrated with a TIA. All modules satisfy class I laser safety requirements. The CWDM XFP transceiver provides an enhanced monitoring interface, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage.

Functional Diagram



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Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature	Ts	-40	85	℃	
Relative Humidity	RH	0	85	%	

Note: Stress in excess of the maximum absolute ratings can cause permanent damage to the transceiver.

General Operating Characteristics

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Data Rate	DR	9.95	10.3125	11.3	Gb/s	
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc_s			750	mA	
Operating Case Temp.	Tc	0		70	℃	

Electrical Characteristics ($T_{OP(C)}$ = 0 to 70 ℃, V_{CC} = 3.13 to 3.47 V)

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter						
Differential data input swing	$V_{IN,PP}$	120		820	mV_{pp}	1
Tx Disable input_High	V_{IH}	2.0		Vcc+0.3	V	
Tx Disable input_Low	V_{IL}	0		0.8	V	
Tx Fault output_High	V_{OH}	2.0		Vcc+0.3	V	2
Tx Fault output_Low	V_{OL}	0		0.8	V	2
Input differential impedance	Rin		100		Ω	
Receiver						
Differential data output swing	$V_{out,pp}$	340		800	mV_{pp}	3
LOS asserted	V_{LOS_F}	Vcc-0.8		Vcc	V	2
LOS de-asserted	V_{LOS_N}	Vee		Vee+0.8	V	2

Notes:

1. TD+/- are internally AC coupled with 100Ω differential termination inside the module.
2. Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7k to 10kΩ resistors on the host board. Pull up voltage between 3..0V and Vcc+0.3V.

Note 3) RD+/- outputs are internally AC coupled, and should be terminated with 100Ω (differential) at the user SERDES.

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Optical Characteristics ($T_{OP(C)}$ = 0 to 70 ℃, V_{CC} = 3.13 to 3.47 V)

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter						
Operating Wavelength	λ	λ-7.5nm	λ	λ+7.5nm	nm	1
Ave. output power (Enabled)	P_{AVE}	1		6	dBm	2
Side-Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	9			dB	
RMS spectral width	Δλ			0.45	nm	
Rise/Fall time (20%~80%)	Tr/Tf			45	ps	
Dispersion penalty	T_{DP}			3	dB	
Relative Intensity Noise	R_{IN}			-130	dB/Hz	
Output Optical Eye	Compliant with IEEE 0802.3ae					
Receiver						
Operating Wavelength	λ	1260		1620	nm	
Receiver Sensitivity	P_{SEN}			-25	dBm	3
Overload	P_{AVE}	-7			dBm	
LOS Assert	Pa	-35			dBm	
LOS De-assert	Pd			-26	dBm	
LOS Hysteresis	Pd-Pa	0.5			dB	

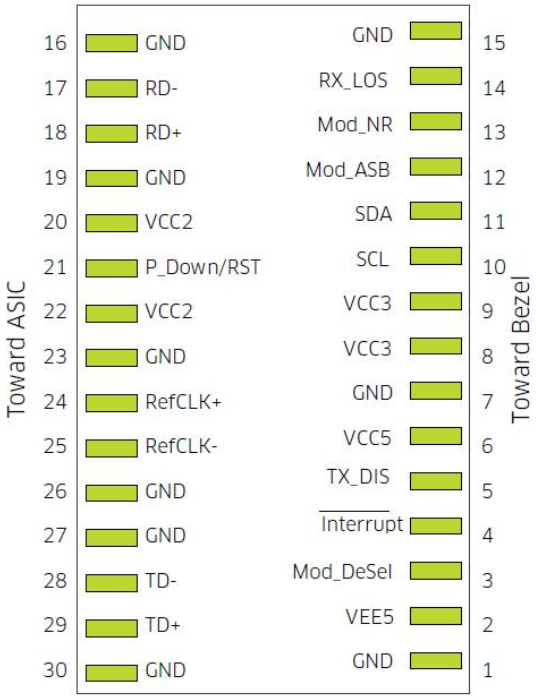
Notes:

1.The wavelength λ =1470nm~1550nm, Total 5 wavelengths,20nm spacing

2. Measured at 10.3125b/s with PRBS 2^{31-1} NRZ test pattern.

3.Under the ER worst =8.2, measured at 10.3125 Gb/s with PRBS 2^{31-1} NRZ test pattern for BER < $1x10^{-12}$

Pin Definitions And Functions



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PIN #	Name	Function	Name/Description	Notes
1		GND	Module Ground	1
2		VEE5	Optional -5.2V Power Supply (Not requireed)	
3	LVTTL-I	MOD_DESEL	Module De-select; When held low allows the module to respond to 2-wire serial interface	
4	LVTTL-O	Interrupt	Interrupt; Indicates presence of an important condition which can be read via the 2-wire serial interface	2
5	LVTTL-I	TX_DIS	Transmitter Disable; Turns off transmitter laser output	
6		VCC5	+5V Power Supply (Not required)	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTL-I/O	SCL	2-Wire Serial Interface Clock	2
11	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	2
12	LVTTL-O	MOD_Abs	Indicates Module is not present. Grounded in the Module	2
13	LVTTL-O	MOD_NR	Module Not Ready; Indicating Module Operational Fault	2
14	LVTTL-O	RX_LOS	Receiver Loss Of Signal Indicator	2
15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RDN	Receiver Inverted Data Output	
18	CML-O	RDP	Receiver Non-Inverted Data Output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply (Not required).	
21	LVTTL-I	P_DOWN/RST	Power down; when high, the module limits power consumption to 1.5 W or below. Serial interfaceis functional in the low power mode. Reset: the falling edge initiates a complete reset of the module including the serial interface, equivalent to a power cycle.	
22		VCC2	+1.8V Power Supply (Not required)	
23		GND	Module Ground	1
24	PECL-I	REFCLK+	Not used, internally terminated to 50ohm (100ohm diff).	3
25	PECL-I	REFCLK-	Not used, internally terminated to 50ohm (100ohm diff).	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter Inverted Data Input	
29	CML-I	TD+	Transmitter Non-Inverted Data Input	
30		GND	Module Ground	1

Notes:

1. Module circuit ground is isolated from module chassis ground within the module.

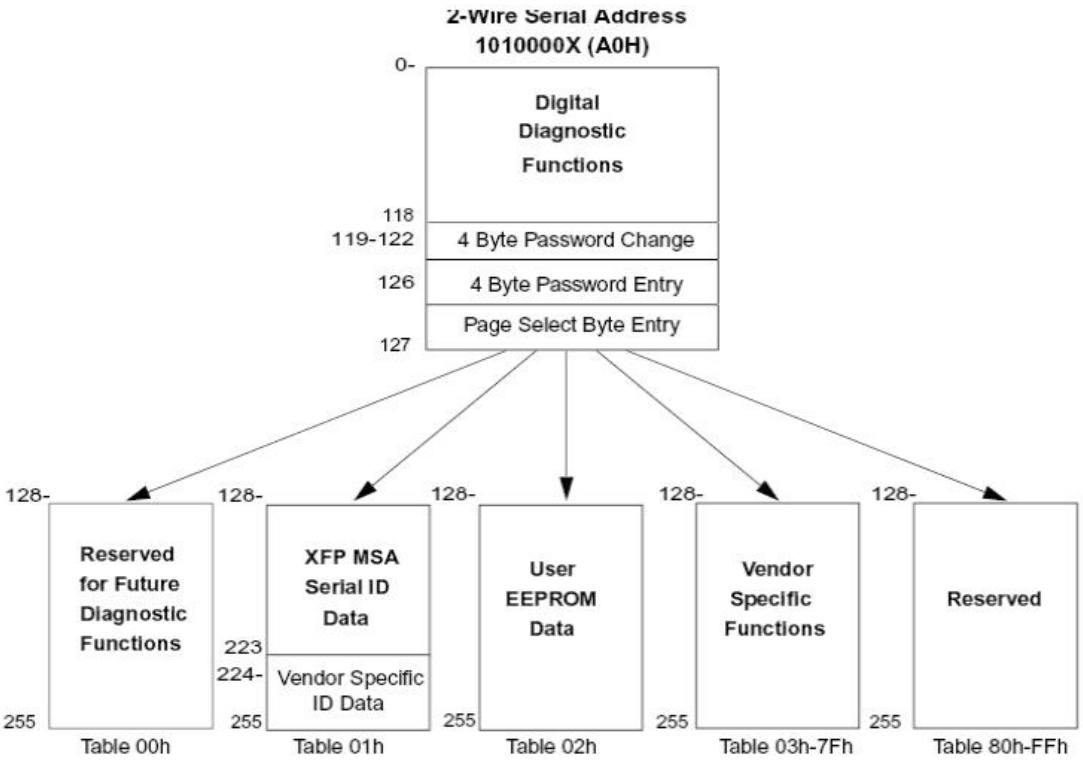
2. Open collector; should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15Vand 3.6V.

3. Reference Clock input is not required.

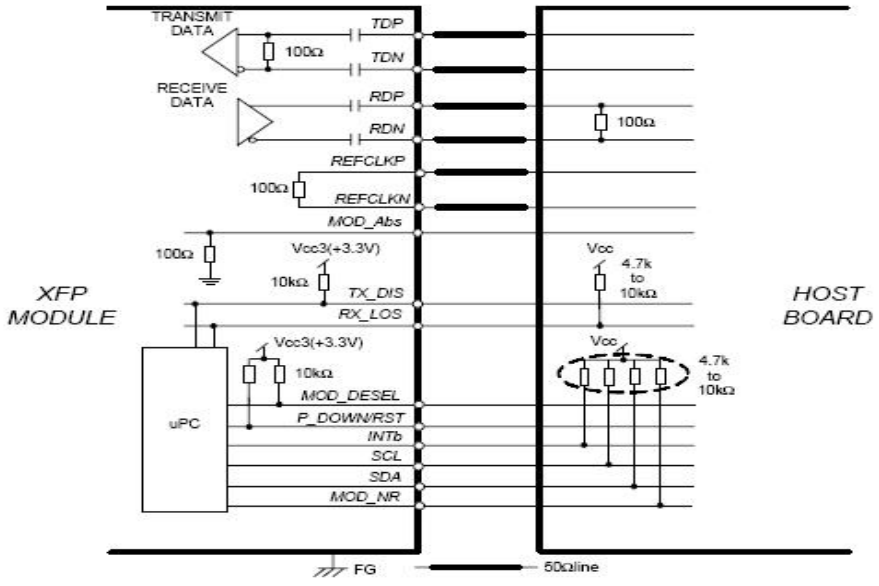
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Management Interface

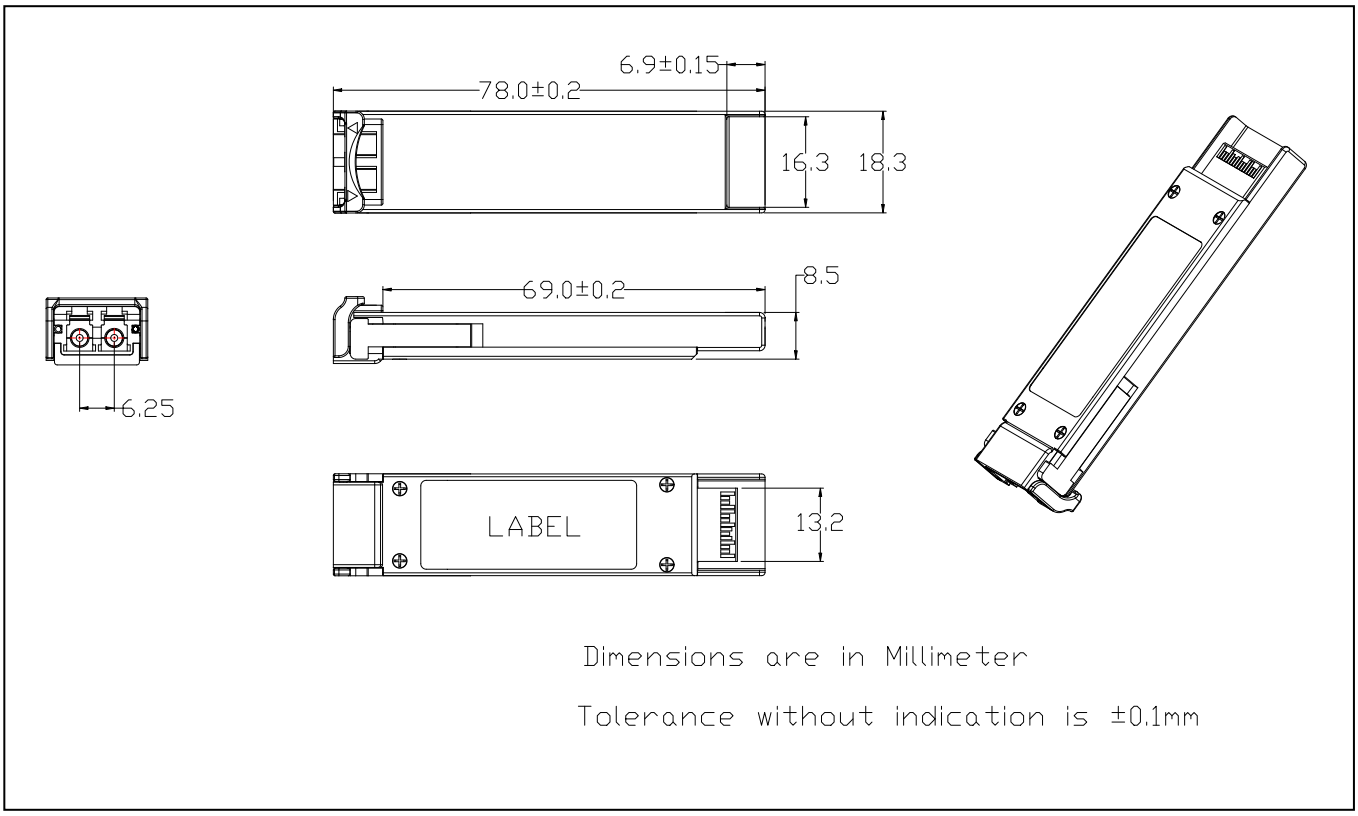
The OLXCxx1XL-C(I)DH1,incorporates an XFP-compliant, two-wire management interface which is used for serial ID, digital diagnostics, and certain control functions. It is modeled on the SFF-8472 specification modified to accommodate a single two-wire interface address. In addition to the basic I^2C read/write functionality, the modules support packet error checking that, when enabled, allows the host system to confirm the validity of any read data. Details of the protocol and interface are explicitly described in the MSA. Please refer to the MSA for design reference.The digital diagnostic memory map specific data field defines as following:



Typical Interface Ciruit



Package Dimensions



Ordering Information

Part Number	Description
OLXCxx1XL-CDH1	XFP,9.95 to 11.3Gb/s, CWDM,1470nm~1550nm,100km, 0~70℃, with Digital Diagnostic Monitor
xx means:	47=1470nm,49=1490nm…55=1550nm (20nm Spacing)

For More Information

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