Product Specification Sheet

OLXDxx1XL-CD80

RoHS Compliant 10Gbps 80km DWDM XFP Optical Transceiver



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Product Features

●Supports 9.95 to 11.3Gb/s bit rates
●Simplex LC Connector
●Hot-pluggable XFP footprint
●Temperature-stabilized DWDM EMLtransmitter and APD receiver
● 100GHz ITU Grid, C-Band
●Applicable for 80km SMF connection
●Low power consumption, < 3.5W
●Digital Diagnostic Monitor Interface
●Operating case temperature:
Commerical:0 to 70 °C
Industrial:-40 to 85°C

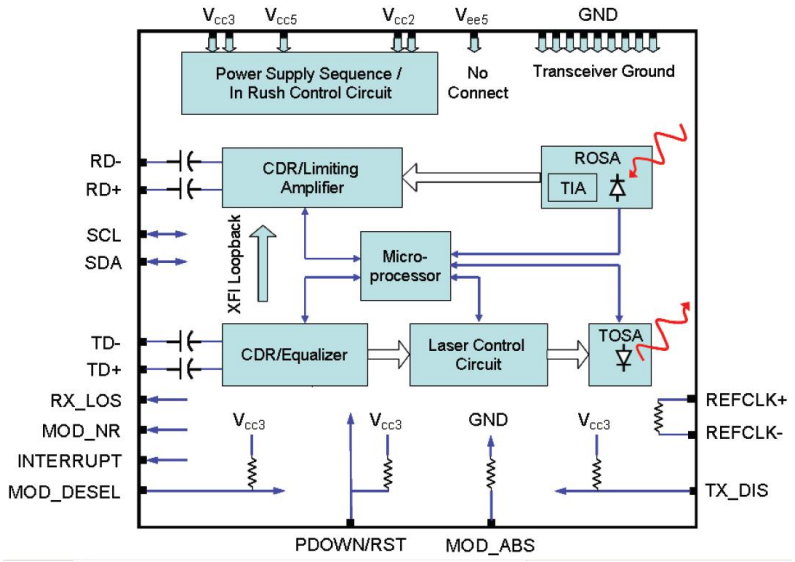
Applications

●DWDM 10G SONET/SDH
●DWDM, IEEE 10GBASE-ZR based Ethernet
● ITU G.709 / OTN FEC applications
●Other optical link

Product Descriptions

OlinkPhotonics OLXDxx1XL-CD80 is DWDM XFP Transceiver exhibits excellent wavelength stability, supporting operation at 100GHz channel, cost effective module. It is designed for 10G DWDM SDH, 10GBASE-ZR and 10G Fiber- Channel applications. The transceiver consists of two sections: The transmitter section incorporates a colded EML laser. And the receiver section consists of a APD photodiode integrated with a TIA. All modules satisfy class I laser safety requirements.The DWDM 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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C-band λc Wavelength Guide Descriptions

Channl#	Product Code	Frequency (THz)	Cent Wavelength (nm)
17	OLXD171XL-CD80	191.7	1563.86
18	OLXD181XL-CD80	191.8	1563.05
19	OLXD191XL-CD80	191.9	1562.23
20	OLXD201XL-CD80	192.0	1561.42
21	OLXD211XL-CD80	192.1	1560.61
22	OLXD221XL-CD80	192.2	1559.79
23	OLXD231XL-CD80	192.3	1558.98
24	OLXD241XL-CD80	192.4	1558.17
25	OLXD251XL-CD80	192.5	1557.36
26	OLXD261XL-CD80	192.6	1556.55
27	OLXD271XL-CD80	192.7	1555.75
28	OLXD281XL-CD80	192.8	1554.94
29	OLXD291XL-CD80	192.9	1554.13
30	OLXD301XL-CD80	193.0	1553.33
31	OLXD311XL-CD80	193.1	1552.52
32	OLXD321XL-CD80	193.2	1551.72
33	OLXD331XL-CD80	193.3	1550.92
34	OLXD341XL-CD80	193.4	1550.12
35	OLXD351XL-CD80	193.5	1549.32
36	OLXD361XL-CD80	193.6	1548.51
37	OLXD371XL-CD80	193.7	1547.72
38	OLXD381XL-CD80	193.8	1546.92
39	OLXD391XL-CD80	193.9	1546.12
40	OLXD401XL-CD80	194.0	1545.32
41	OLXD411XL-CD80	194.1	1544.53
42	OLXD421XL-CD80	194.2	1543.73
43	OLXD431XL-CD80	194.3	1542.94
44	OLXD441XL-CD80	194.4	1542.14
45	OLXD451XL-CD80	194.5	1541.35
46	OLXD461XL-CD80	194.6	1540.56
47	OLXD471XL-CD80	194.7	1539.77
48	OLXD481XL-CD80	194.8	1538.98
49	OLXD491XL-CD80	194.9	1538.19
50	OLXD501XL-CD80	195.0	1537.40
51	OLXD511XL-CD80	195.1	1536.61
52	OLXD521XL-CD80	195.2	1535.82
53	OLXD531XL-CD80	195.3	1535.04
54	OLXD541XL-CD80	195.4	1534.25
55	OLXD551XL-CD80	195.5	1533.47
56	OLXD561XL-CD80	195.6	1532.68
57	OLXD571XL-CD80	195.7	1531.90
58	OLXD581XL-CD80	195.8	1531.12
59	OLXD591XL-CD80	195.9	1530.33
60	OLXD601XL-CD80	196.0	1529.55
61	OLXD611XL-CD80	196.1	1528.77

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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	D_R	9.95	10.3125	11.3	Gb/s	
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc_s			550	mA	
Operating Case Temp.	Tc	0		70	℃	
	TI	-40		85	℃	

Electrical Characteristics ($T_{OP(C)}$ = 0 to 70 ℃, $T_{OP(I)}$ = -40 to 85 ℃ , 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
Transmit Disable Voltage	V_D	2.0		Vcc	V	
Transmit Enable Voltage	V_{EN}	Vee		Vee+0.8		
Input differential impedance	Rin		100		Ω	
Receiver						
Differential data output swing	$V_{out,pp}$	300		850	mV_{pp}	2
Output rise time and fall time	Tr, Tf	28			Ps	3
LOS asserted	V_{LOS_F}	V_{CC}-0.8		Vcc	V	4
LOS de-asserted	V_{LOS_N}	Vee		Vee+0.8	V	4

Notes:

1. Connected directly to TX data input pins. AC coupling from pins into laser driver IC.
2. Into 100Ω differential termination.
3. 20 – 80%. Measured with Module Compliance Test Board and OMA test pattern. Use of four 1's and four 0's sequence in the PRBS 9 is an acceptable alternative.
4. LOS is an open collector output. Should be pulled up with 4.7kΩ – 10kΩ on the host board. Normal operation is logic 0; loss of signal is logic 1.

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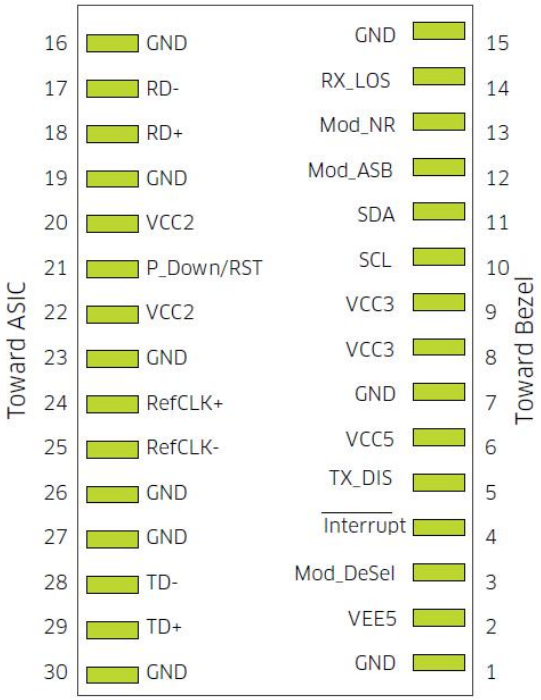
Optical Characteristics ($T_{OP(C)}$ = 0 to 70 ℃, $T_{OP(I)}$ = -40 to 85 ℃ , V_{CC} = 3.13 to 3.47 V)

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter						
Operating Wavelength	λc	1528.77		1563.86	nm	
Center Wavelength (End of Life)	λc_EOL		λc±100pm			
Ave. output power (Enabled)	PAVE	0		5	dBm	1
Side-Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	9			dB	
RMS spectral width	Δλ			1	nm	
Rise/Fall time (20%~80%)	Tr/Tf			45	ps	
Dispersion penalty	TDP			3.9	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Output Optical Eye	IEEE 802.3-2005 Compliant					
Receiver						
Operating Wavelength	λ	1270		1610	nm	
Receiver Sensitivity	PSEN1			-23	dBm	2
Overload	PAVE			-7	dBm	
LOS Assert	Pa	-35			dBm	
LOS De-assert	Pd			-24	dBm	
LOS Hysteresis	Pd-Pa	0.5			dB	

Notes:

1. Average power figures are informative only, per IEEE 802.3ae.
2. Measured with worst ER=9; BER<10^{-12}; 2^{31-1} PRBS.

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	INTb	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, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode.	
21	LVTTL-I	P_DOWN/RST	Reset; The falling edge initiates a complete reset of the module including the2-wire serial interface, equivalent to a power cycle.	
22		VCC2	+1.8V Power Supply (Not required)	
23		GND	Module Ground	1
24	PECL-I	REFCLKP	Not used, internally terminated to 50ohm (100ohm diff).	3
25	PECL-I	REFCLKN	Not used, internally terminated to 50ohm (100ohm diff).	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TDN	Transmitter Inverted Data Input	
29	CML-I	TDP	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.

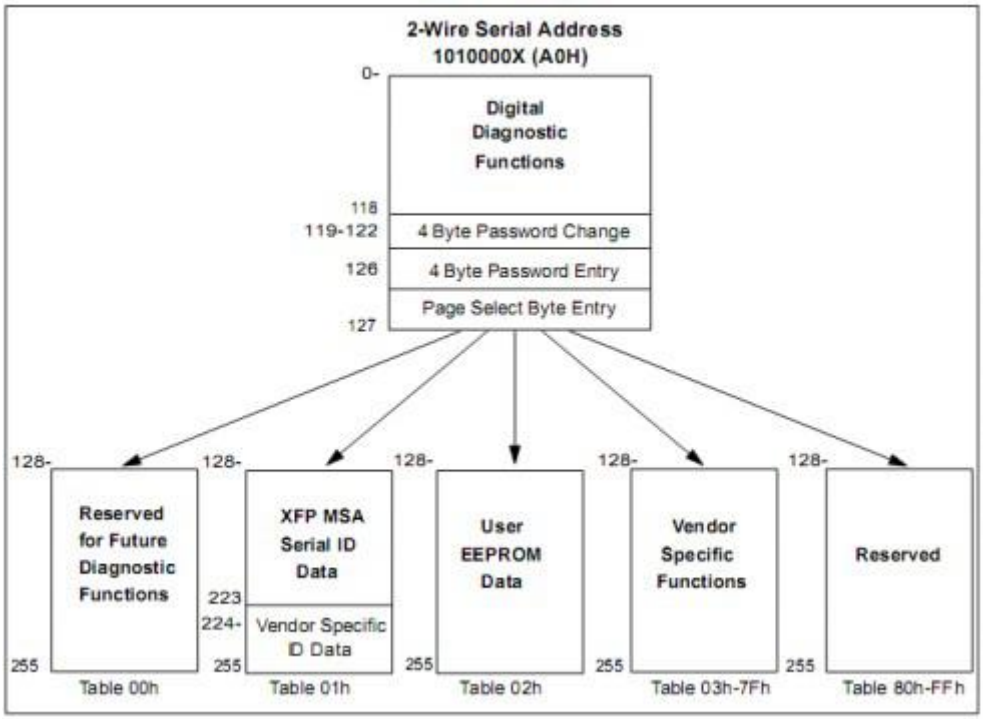
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Management Interface

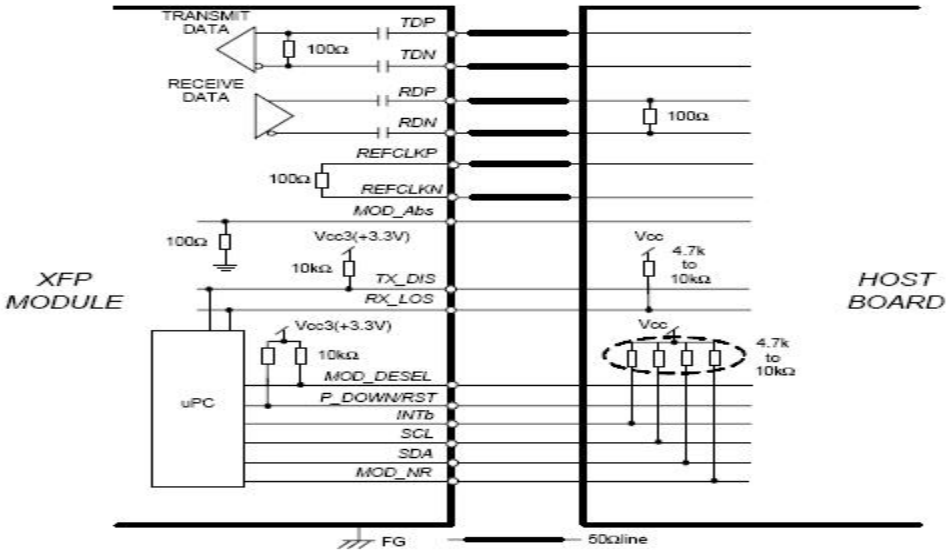
The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA).

The Module provides diagnostic information about the present operating conditions. The transceiver generates this diagnostic data by digitization of internal analog signals Alarm/warning threshold data is written during device manufacture. Received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring all are implemented.

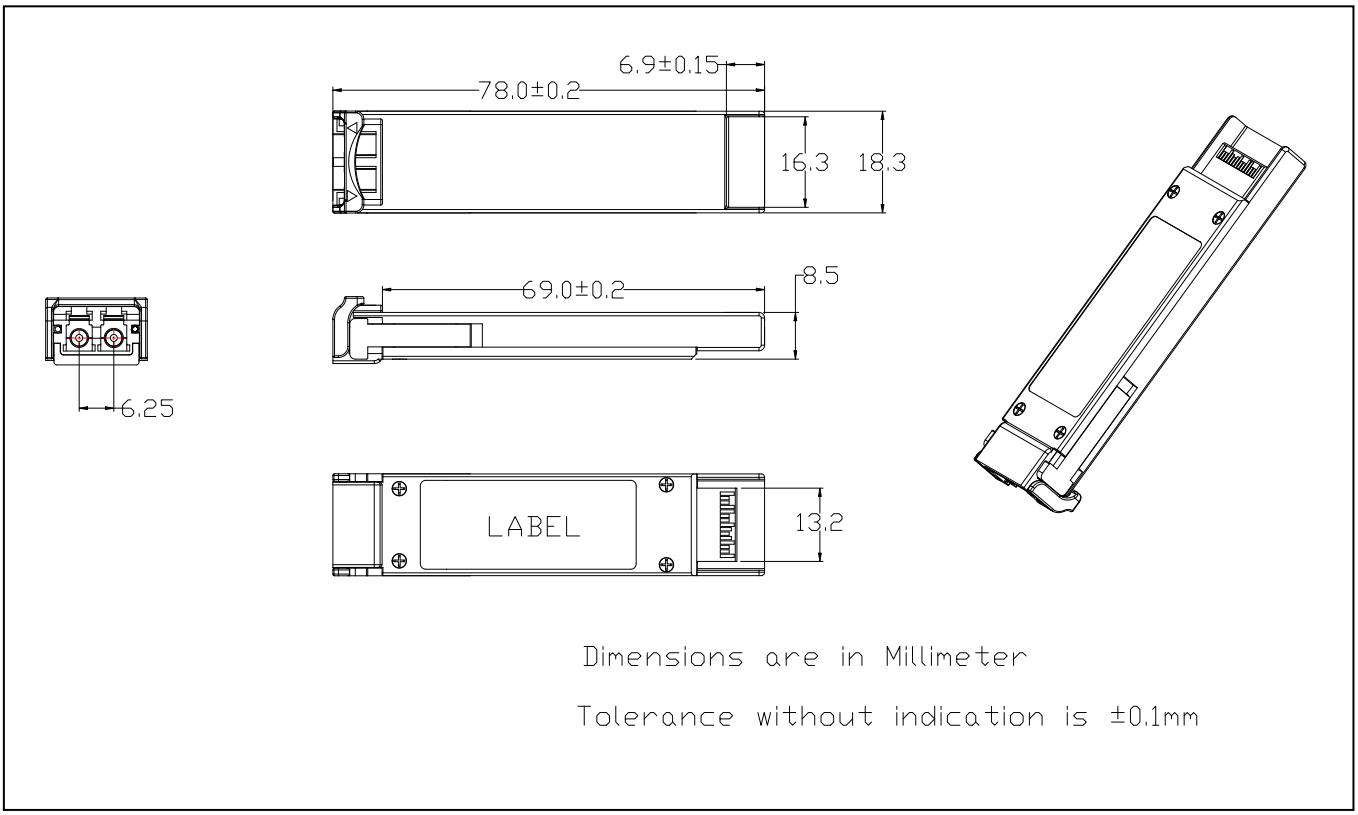
The digital diagnostic memory map specific data field defines as following.



TYPICAL INTERFACE CIRCUIT



Package Dimensions



Ordering Information

Part Number	Description
OLXDXX1XL-CD80	XFP DWDM 9.95 to 11.3Gb/s, C-Brand ,80km, 0~70℃, with Digital Diagnostic Monitor
OLXDxx1XL-ID80	XFP DWDM 9.95 to 11.3Gb/s, C-Brand,80km, -40~85℃, with Digital Diagnostic Monitor
Notes: Wavelength of XFP DWDM refer to C-band λc Wavelength Guide	

For More Information

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