XFCxxB14100D – XFP Dual Fibre CWDM

CWDM / 14dB / 10 Gigabit Ethernet

For your product safety, please read the following information carefully before any manipulation of the transceiver:

ESD
This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.

LASER SAFETY
This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

1. Overview

XFCxxB14100D is a high performance transceiver module for 10× Gigabit Ethernet data links over a single mode fibre pair. The power budget[1] is 14dB end of life (EOL). The transmitter is a CWDM DFB laser, the receiver is a PIN photodiode.

This transceiver module is compliant with the Small Form-factor Pluggable (XFP) Multisource Agreement (MSA) and hot pluggable. Always contact Skylane Optics commercial agents for compatibility with different equipment platforms.

2. Features

- XFP Multi-Source Agreement compliant (INF-8077)
- Hot pluggable XFP footprint
- Serial ID functionality supported according to INF-8077
- Dual LC connector
- CWDM DFB transmitter (channels 27 to 45)
- PIN receiver
- Power budget >14dB
- Operating temperature range 0°C to 70°C
- Power dissipation < 3.5W
- Digital diagnostics monitoring (DDM)

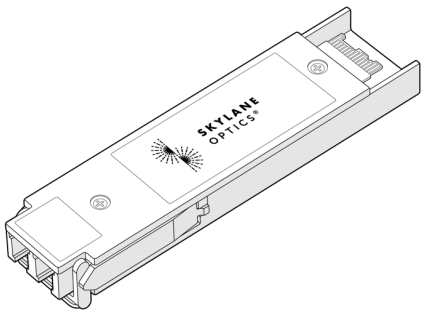


Figure 1. XFP Dual Fiber
(non-binding illustration)

3. Applications

- 10GBASE-ER/-EW
- 10×Fiber Channel

4. Optical Interface

P/N	Wavelength [nm]	Output Optical Power[2] [dBm]	Receiver Sensitivity[3] [dBm]	Optical Receiver Overload[4] [dBm]	Dispersion Penalty [dB]	Power Budget[2] [dB]
XFCxxB14100D	ITU CWDM	-1.8 to 0	≤ -15.8	-1	2	≥ 14

1. Distance is estimated assuming typical optical losses after decent quality fibre deployment; Only optical budget value is guaranteed.
2. EOL, over operating temperature range
3. Measured at 10.3125Gbps, PRBS 2^{31}-1, BER≤10^{-12}
4. The optical input to the receiver should not exceed this value. Transmitters must never be directly connected to receivers (optical loop back) before ensuring that proper optical attenuation is used.

5. Technical Parameters

5.1. Recommended Operating Conditions					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70		
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3.15	3.3	3.45	V	
Power Supply Current			750	mA	
Power Dissipation			2.5	W	

5.2. Transmitter Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Average Output Power	-1.8		0	dBm	5
Centre Wavelength Range	1270		1450	nm	
Wavelength	λ_T - 6.5	λ_T	λ_T +7.5	nm	6
Spectral Width (-20dB)			1	nm	
Extinction Ratio	3.5			dB	
Dispersion Penalty			2	dB	

5. Output power coupled into a 9/125 µm single-mode fibre
6. λ_T according to the ITU-T CWDM grid, see section 9 for details

5.3. Receiver Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Receiver Sensitivity			-15.8	dBm	7
Receiver Overload	-1			dBm	7
Wavelength of Operation	1260		1600	nm	

7. Measured at 10.3125Gbps, PRBS 2^{31}-1, BER≤10^{-12}

6. Electrical Connector

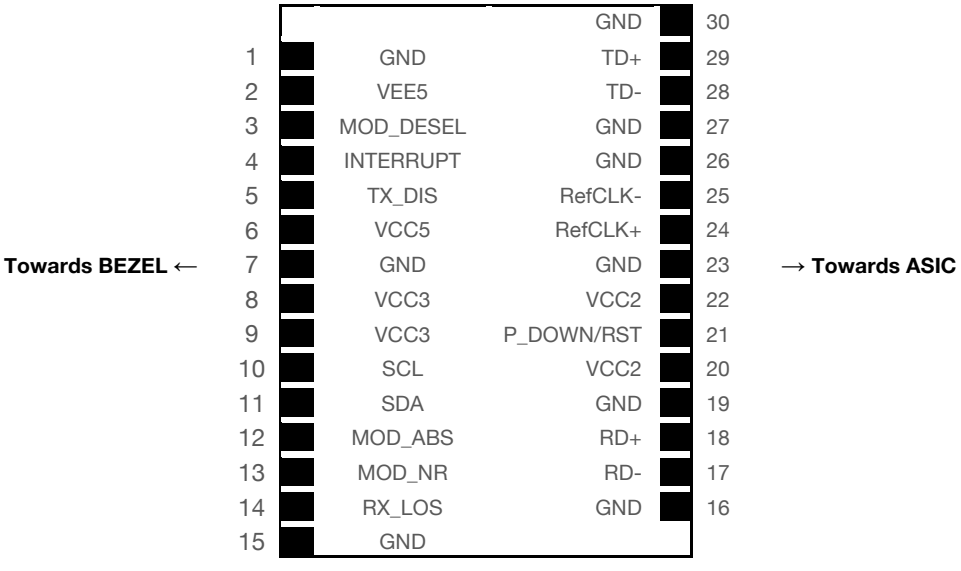


Figure 2. Transceiver Electrical Pad Layout

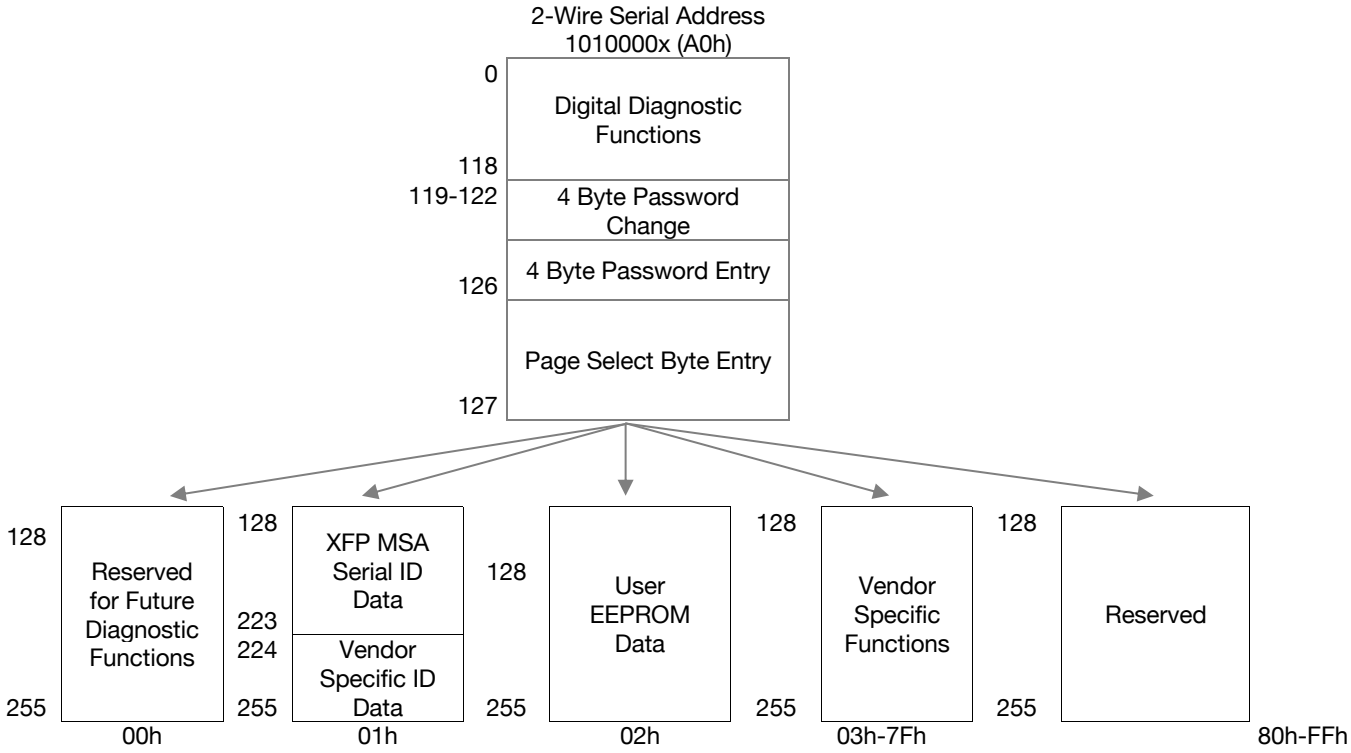
7. Module Electrical Pin Definition

XFP MSA (INF-8077i)

Pin Number	Name	Description
1	GND	Module Ground
2	VEE5	Not Used
3	Mod_DeSeL	Module De-select
4	Interrupt	Indicator of important condition
5	TX_DIS	Transmitter Disable
6	VCC5	Not Used
7	GND	Module Ground
8	VCC3	+3.3V Power Supply
9	VCC3	+3.3V Power Supply
10	SCL	2-Wire Serial Interface Clock
11	SDA	2-Wire Serial Interface Data
12	Mod_Abs	Indicates Module is not present
13	Mod_NR	Module Not Ready
14	RX_LOS	Receiver Loss of Signal Indicator
15	GND	Module Ground
16	GND	Module Ground
17	RD-	Receiver Inverted Data Output
18	RD+	Receiver Non-Inverted Data Output
19	GND	Module Ground
20	VCC2	Not Used
21	P_Down/RST	Power Down / Reset
22	VCC2	Not Used
23	GND	Module Ground
24	RefCLK+	Not Used
25	RefCLK-	Not Used
26	GND	Module Ground
27	GND	Module Ground
28	TD-	Transmitter Inverted Data Input
29	TD+	Transmitter Non-Inverted Data Input
30	GND	Module Ground

8. EEPROM

XFP MSA (INF-8077)



9. Transmission Reach

The actual transmission reach is depending on the CWDM channel used, due to the wavelength dependent dispersion in the fibre path. The table below shows the *estimated* transmission reach for CWDM channels 27 to 61.
NB: Distances are purely indicative and only valid for G.652 fibre. Only the optical power budget is guaranteed. Additional optical insertion loss from CWDM filters, splices, optical connectors etc. is not included.

CWDM Channel	Nominal Wavelength [nm]	Estimated Reach [km]
27	1270	35
29	1290	40
31	1310	40
33	1330	40
35	1350	40
37	1370	30
39	1390	25
41	1410	20
43	1430	15
45	1450	15

10. Ordering Information

Part Number	Description
XFC27B14100D	XFP CWDM dual fibre, Tx **1270nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC29B14100D	XFP CWDM dual fibre, Tx **1290nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC31B14100D	XFP CWDM dual fibre, Tx **1310nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC33B14100D	XFP CWDM dual fibre, Tx **1330nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC35B14100D	XFP CWDM dual fibre, Tx **1350nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC37B14100D	XFP CWDM dual fibre, Tx **1370nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC39B14100D	XFP CWDM dual fibre, Tx **1390nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC41B14100D	XFP CWDM dual fibre, Tx **1410nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC43B14100D	XFP CWDM dual fibre, Tx **1430nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
XFC45B14100D	XFP CWDM dual fibre, Tx **1450nm** (CWDM DFB), Rx (PIN), power budget 14dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C, DDM

11. Document Revision Information

Revision	Description
A	Initial release

Skylane Optics supplies a broad range of optical transceivers. Our engineers work closely with our customers to find the best solutions for every application. We are committed to provide high quality products and services to our customers.

For questions on this product please contact:
support@skylaneoptics.com