

XFCxx07010xD – XFP CWDM Dual Fibre Transceiver

ITU CWDM / 70km / 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

XFCxx07010xD is a high performance XFP transceiver module for 10 Gigabit Ethernet data links over a single mode fibre pair. The maximum reach¹ is 70km, with 23dB end of life (EOL) power budget. The transmitter is a CWDM EML, the receiver is an APD 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-8077i)
- Hot pluggable XFP footprint
- Serial ID functionality supported according to (INF-8077i)
- Class 1 laser safety standard IEC 60825 compliant
- Dual LC connector
- Cooled CWDM EML transmitter
- APD receiver
- 70km point-to-point transmission on single mode fibre
- Operating temperature range 0°C to 70°C or -40°C to 85°C
- Low power dissipation (< 3.5W)
- Digital diagnostics monitoring (DDM)

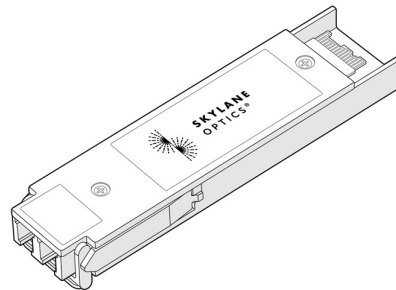


Figure 1. XFP Dual Fiber (non-binding illustration)

3. Applications

- 10GBASE-ZR/-ZW
- 10×Fiber Channel

4. Optical Interface

P/N	Wavelength [nm]	Optical Output Power ² [dBm]	Optical Receiver Sensitivity ³ [dBm]	Optical Receiver Overload ⁴ [dBm]	Transmitter Dispersion Penalty [dB]	Power Budget ² [dB]
XFCxx07010xD	ITU CWDM	0 to 4	≤ -23	3.5	-10	≥ 23

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 2³¹-1, 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 temperature	0		70	°C	XFCxx0700D
	-40		85		XFCxx0702D
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage, VCC5	4.75	5.0	5.25	V	
Power Supply Current, ICC5			750	mA	
Power Supply Voltage, VCC3	3.135	3.3	3.45	V	
Power Supply Current, ICC3			750	mA	
Total Power Consumption			3.5	W	

5.2. Transmitter Optical Specifications					
Parameter	Min	Typ	Max	Unit	Notes
Average Output Power	0		4	dBm	5
Centre Wavelength Range	1464		1617.5	nm	
Centre Wavelength	$\lambda_T - 7$	λ_T	$\lambda_T + 6.5$	nm	6
Spectral Width (-20dB)			1	nm	
Extinction Ratio	8.2			dB	
Dispersion Penalty			3.5	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			-23	dBm	7
Receiver Overload	-10			dBm	7
Receiver Operating Range	1460		1620	nm	

7. Measured at 10.3125Gbps, PRBS 2³¹-1, BER $\leq 10^{-12}$

6. Electrical Connector

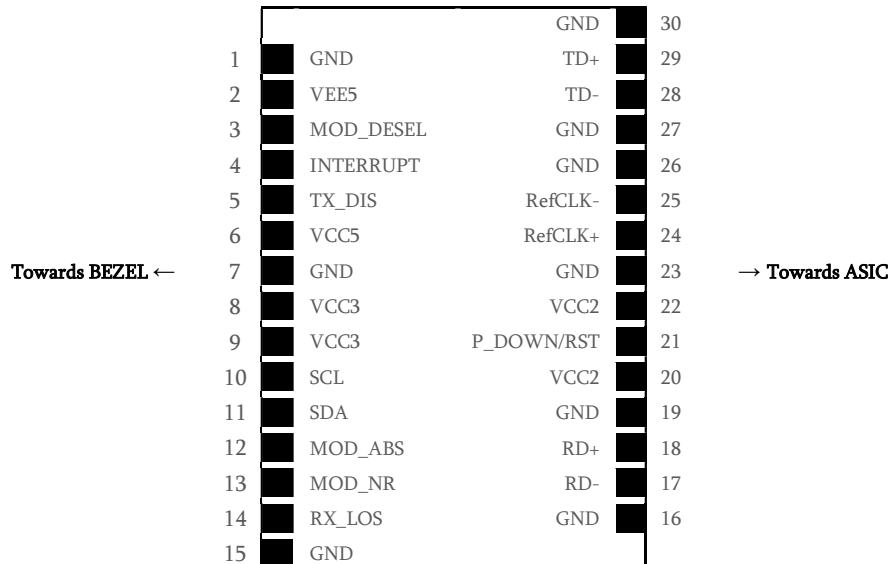


Figure 2. Transceiver Electrical Pad Layout



7. Module Electrical Pin Definition

Pin Number	Name	Description
1	GND	Module Ground
2	VEE5	Not Used
3	Mod_DeSeL	Module de-select
4	Interrupt	Interrupt
5	TX_DIS	Transmitter Disable
6	VCC5	+5V Power Supply
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 Line
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

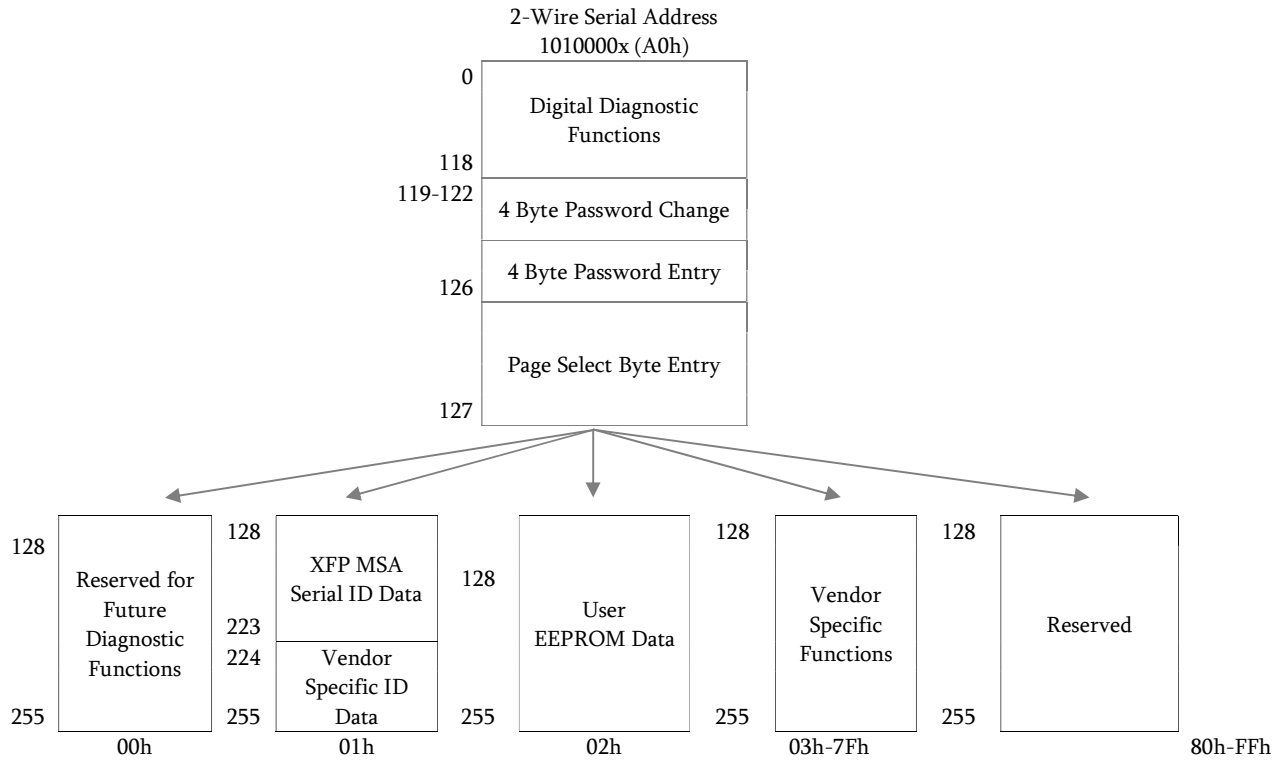
Datasheet

XFCxx07010xD_RevC



8. EEPROM

XFP MSA (INF-8077)



9. Ordering Information

Part Number	Description
XFC47070100D	XFP CWDM dual fibre, Tx 1470nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC49070100D	XFP CWDM dual fibre, Tx 1490nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC51070100D	XFP CWDM dual fibre, Tx 1510nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC53070100D	XFP CWDM dual fibre, Tx 1530nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC55070100D	XFP CWDM dual fibre, Tx 1550nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC57070100D	XFP CWDM dual fibre, Tx 1570nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC59070100D	XFP CWDM dual fibre, Tx 1590nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC61070100D	XFP CWDM dual fibre, Tx 1610nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFC47070102D	XFP CWDM dual fibre, Tx 1470nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFC49070102D	XFP CWDM dual fibre, Tx 1490nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFC51070102D	XFP CWDM dual fibre, Tx 1510nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFC53070102D	XFP CWDM dual fibre, Tx 1530nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFC55070102D	XFP CWDM dual fibre, Tx 1550nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFC57070102D	XFP CWDM dual fibre, Tx 1570nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFC59070102D	XFP CWDM dual fibre, Tx 1590nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFC61070102D	XFP CWDM dual fibre, Tx 1610nm (CWDM EML), Rx (APD), maximum distance 70km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM

10. Document Revision Information

Revision	Description
A	Initial release
B	Dispersion penalty changed to max. 3.5dB. Some minor typos corrected
C	Industrial temperature variant added

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

Beyond
Quality

Reliable
Alliance

Performing
Smartly