

XFDxx080100D – XFP DWDM Dual Fibre Transceiver

ITU DWDM / 80km / 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

XFDxx080100D is a high performance XFP transceiver module for 10 Gigabit Ethernet data links over a single mode fibre pair. The maximum reach¹ is 80km, with 23dB end of life (EOL) power budget. The transmitter is a DWDM 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-8077)
- Hot pluggable XFP footprint
- Serial ID functionality supported according to (INF-8077)
- Class 1 laser safety standard IEC 60825 compliant
- Dual LC connector
- DWDM EML transmitter
- 80km 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)

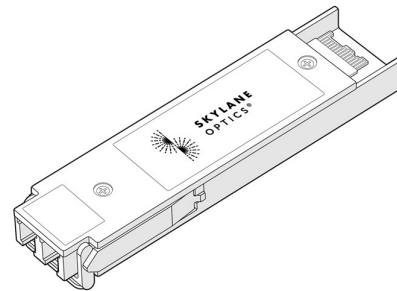


Figure 1. XFP Dual Fiber (non-binding illustration)

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]
XFDxx080100D	ITU DWDM	0 to 4	≤ -23	-10	≤ 2	≥ 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	XFDxx080100D
	-40		85		XFDxx080102D
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage, VCC5	4.75	5.0	5.25	V	
Power Supply Current, ICC5			400	mA	
Power Supply Voltage, VCC3	3.13	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	Units	Notes
Average Output Power	0		4	dBm	5
Centre Wavelength, Range	1528.77		1563.86	nm	
Centre Wavelength	$\lambda_T - 100$	λ_T	$\lambda_T + 100$	pm	6
Transmitter and Dispersion Penalty			2	dB	
Optical Extinction Ratio ER	8.2			dB	
Spectral Width (-20dB)			1	nm	

5. Output power coupled into a 9/125 μ m single-mode fibre

6. λ_T according to the ITU-T 100GHz grid

5.3. Receiver Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Sensitivity			-23	dBm	7
Receiver Overload	-10			dBm	7
Wavelength of Operation	1520		1600	nm	

7. Measured at 10.3125Gbps, PRBS 2³¹-1, BER \leq 10⁻¹²

6. Transceiver Electrical Pad Layout

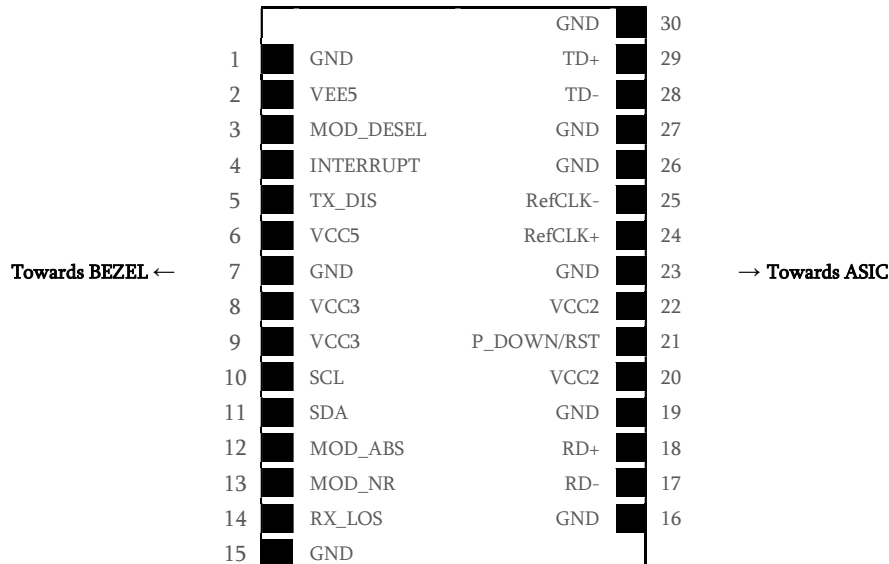


Figure 2. Transceiver Electrical Pad Layout

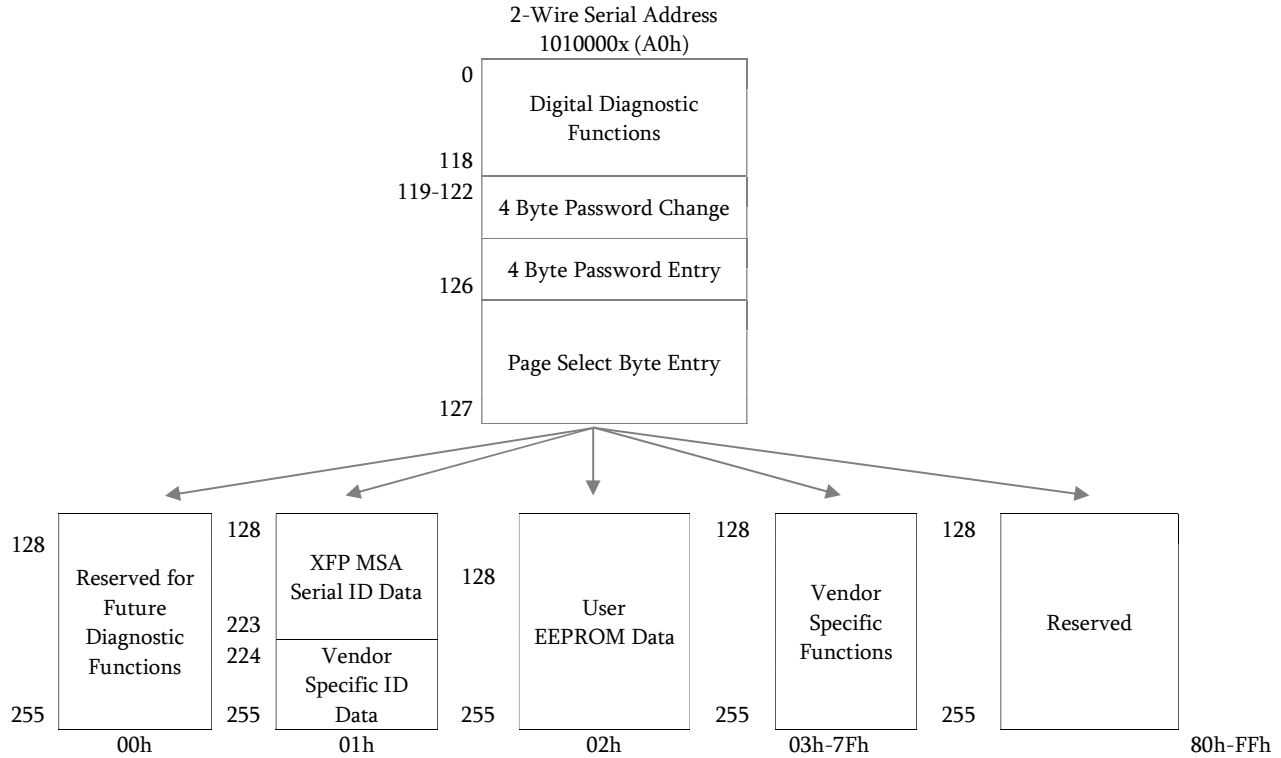


7. Pin Functions Definitions

Pin Number	Name	Description
1	GND	Ground
2	VEE5	Not Used (Optional – 5.2V Power Supply)
3	MOD_DESEL	Module de-select
4	Interrupt	Indicator of important condition
5	TX_Disable	Transmitter Disable
6	VCC5	+5V Power Supply
7	GND	Ground
8	VCC3	+3.3V Power Supply
9	VCC3	+3.3V Power Supply
10	SCL	2-Wire Serial Interface Data
11	SDA	2-Wire Serial Interface Clock
12	Mod-Abs	Indicates module is not present
13	Mod_Nr	Module Not Ready
14	RX_LOS	Loss of Signal
15	GND	Ground
16	GND	Ground
17	RD-	Receiver Inverted Data Output
18	RD+	Receiver Non-Inverted Data Output
19	GND	Ground
20	VCC2	Not Used (+1.8V Power Supply)
21	P_DOWN/RST	Power Down / Reset
22	VCC2	Not Used (+1.8V Power Supply)
23	GND	Ground
24	RefCLK+	Not Used (Ref. Clock Non-Inverted Input)
25	RefCLK-	Not Used (Ref. Clock Inverted Input)
26	GND	Ground
27	GND	Ground
28	TD-	Transmitter Inverted Data Input
29	TD+	Transmitter Non-Inverted Data Input
30	GND	Ground

8. EEPROM

XFP MSA (INF-8077)



9. Ordering Information

Part Number	Description
XFD17080100D	XFP DWDM dual fibre, Tx 1563.86nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD18080100D	XFP DWDM dual fibre, Tx 1563.05nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD19080100D	XFP DWDM dual fibre, Tx 1562.23nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD20080100D	XFP DWDM dual fibre, Tx 1561.42nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD21080100D	XFP DWDM dual fibre, Tx 1560.61nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD22080100D	XFP DWDM dual fibre, Tx 1559.79nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD23080100D	XFP DWDM dual fibre, Tx 1558.98nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD24080100D	XFP DWDM dual fibre, Tx 1558.17nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD25080100D	XFP DWDM dual fibre, Tx 1557.36nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD26080100D	XFP DWDM dual fibre, Tx 1556.56nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD27080100D	XFP DWDM dual fibre, Tx 1555.75nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD28080100D	XFP DWDM dual fibre, Tx 1554.94nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD29080100D	XFP DWDM dual fibre, Tx 1554.13nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM
XFD30080100D	XFP DWDM dual fibre, Tx 1553.33nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, 0°C to 70°C , DDM

Datasheet

XFDxx08010xD_RevB



XFD52080102D	XFP DWDM dual fibre, Tx 1535.82nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD53080102D	XFP DWDM dual fibre, Tx 1535.04nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD54080102D	XFP DWDM dual fibre, Tx 1534.25nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD55080102D	XFP DWDM dual fibre, Tx 1533.47nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD56080102D	XFP DWDM dual fibre, Tx 1532.68nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD57080102D	XFP DWDM dual fibre, Tx 1531.90nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD58080102D	XFP DWDM dual fibre, Tx 1531.12nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD59080102D	XFP DWDM dual fibre, Tx 1530.33nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD60080102D	XFP DWDM dual fibre, Tx 1529.55nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM
XFD61080102D	XFP DWDM dual fibre, Tx 1528.77nm (DWDM EML), Rx (APD), maximum distance 80km, power budget 23dB, 10 Gigabit Ethernet, LC connector, -40°C to 85°C , DDM

10. Document Revision Information

Revision	Description
A	Initial release
B	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