SFDxx080PA0D – SFP Dual Fibre DWDM

ITU DWDM / 80km / OC-48 Multirate

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

SFDxx080PA0D is a high performance transceiver module for up to 2.67 Gbps data links over a single mode fibre pair. The maximum reach[1] is 80km, with 26dB end of life (EOL) power budget. The transmitter is a DWDM Distributed Feedback (DFB) laser; the receiver is an Avalanche Photo Diode (APD).

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

2. Features

- SFP Multi-Source Agreement compliant (INF-8074)
- Hot pluggable SFP footprint
- Management interface specification as per SFF-8431 and SFF-8472
- Dual LC connector
- DWDM DFB transmitter
- APD receiver
- Supports data rates up to 2.67Gbps
- 80km point-to-point transmission on single mode fibre
- Operating temperature range 0°C to 70°C
- Power dissipation <1.5W
- Digital Diagnostics Monitoring (DDM)

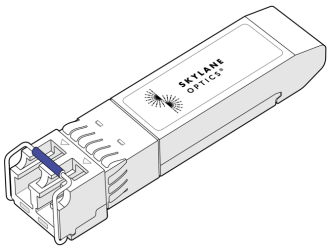

Figure 1. SFP Dual Fiber
(non-binding illustration)

3. Applications

- Sonet/SDH OC-48/STM-16, OC-12/STM-4, OC-3/STM-1
- Gigabit Ethernet, Fast Ethernet
- 2×/1× Fiber Channel

4. Optical Interface

P/N	Wavelength [nm]	Optical Output Power[2] [dBm]	Optical Receiver Sensitivity[3] [dBm]	Optical Receiver Overload[4] [dBm]	Power Budget[2] [dB]
SFDxx080PA0D	ITU DWDM	0 to 4	≤ -26	-7	≥ 26

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 with 2.488Gbps PRBS 223-1, ER=9dB, 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**	**Units**	**Notes**
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70	°C	
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3.135	3.3	3.465	V	
Power Supply Current			450	mA	

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	
Wavelength	λ_T -100	λ_T	λ_T +100	pm	6
Spectral Width (-20dB)			0.3	nm	
Extinction Ratio	8.2			dB	

5. Output power coupled into a 9/125 µm single-mode fibre
6. λ_T according to the ITU-T DWDM 100GHz grid, see Section 9 for details

5.3. Receiver Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Units**	**Notes**
Receiver Sensitivity			-26	dBm	7
Receiver Overload	-7			dBm	7
Receiver Operating Range	1528.77		1563.86	nm	

7. Measured with 2.488Gbps PRBS 2^{23}-1, ER=9dB, BER≤10^{-12}

6. Transceiver Electrical Pad Layout

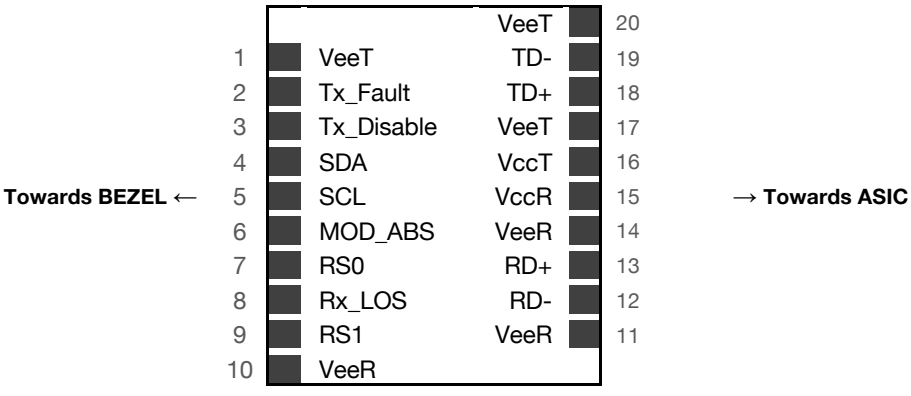

Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

SFP MSA (INF-8074i)

Pin Number	Name	Function
1	VeeT	Transmitter Ground
2	TX Fault	Transmitter Fault Indication
3	TX_ Disable	Transmitter Disable
4	MOD-DEF2	2-Wire Serial Interface Data
5	MOD-DEF1	2-Wire Serial Interface Clock
6	MOD-DEF0	Grounded in Module
7	Rate Select	Not Connected
8	LOS	Loss of Signal
9	VeeR	Receiver Ground
10	VeeR	Receiver Ground
11	VeeR	Receiver Ground
12	RD-	Inverted Received Data Out
13	RD+	Received Data Out
14	VeeR	Receiver Ground
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	VeeT	Transmitter Ground
18	TD+	Transmit Data In
19	TD-	Inverted Transmit Data In
20	VeeT	Transmitter Ground

8. EEPROM

SFP+ MSA (SFF-8431)

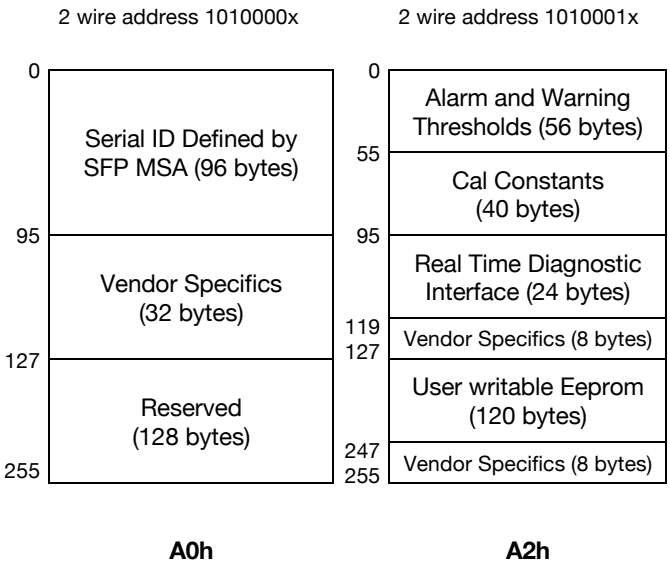

Figure 3. EEPROM of a an SFP

9. Ordering Information

Part Number	Description
SFD17080PA0D	SFP dual fibre DWDM, Tx 1563.86nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD18080PA0D	SFP dual fibre DWDM, Tx 1563.05nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD19080PA0D	SFP dual fibre DWDM, Tx 1562.23nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD20080PA0D	SFP dual fibre DWDM, Tx 1561.42nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD21080PA0D	SFP dual fibre DWDM, Tx 1560.61nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD22080PA0D	SFP dual fibre DWDM, Tx 1559.79nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD23080PA0D	SFP dual fibre DWDM, Tx 1558.98nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD24080PA0D	SFP dual fibre DWDM, Tx 1558.17nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD25080PA0D	SFP dual fibre DWDM, Tx 1557.36nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD26080PA0D	SFP dual fibre DWDM, Tx 1556.56nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD27080PA0D	SFP dual fibre DWDM, Tx 1555.75nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD28080PA0D	SFP dual fibre DWDM, Tx 1554.94nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD29080PA0D	SFP dual fibre DWDM, Tx 1554.13nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD30080PA0D	SFP dual fibre DWDM, Tx 1553.33nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD31080PA0D	SFP dual fibre DWDM, Tx 1552.52nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD32080PA0D	SFP dual fibre DWDM, Tx 1551.72nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD33080PA0D	SFP dual fibre DWDM, Tx 1550.92nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD34080PA0D	SFP dual fibre DWDM, Tx 1550.12nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD35080PA0D	SFP dual fibre DWDM, Tx 1549.32nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD36080PA0D	SFP dual fibre DWDM, Tx 1548.52nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD37080PA0D	SFP dual fibre DWDM, Tx 1547.72nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD38080PA0D	SFP dual fibre DWDM, Tx 1546.92nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD39080PA0D	SFP dual fibre DWDM, Tx 1546.12nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD40080PA0D	SFP dual fibre DWDM, Tx 1545.32nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD41080PA0D	SFP dual fibre DWDM, Tx 1544.53nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD42080PA0D	SFP dual fibre DWDM, Tx 1543.73nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD43080PA0D	SFP dual fibre DWDM, Tx 1542.94nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD44080PA0D	SFP dual fibre DWDM, Tx 1542.14nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD45080PA0D	SFP dual fibre DWDM, Tx 1541.35nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD46080PA0D	SFP dual fibre DWDM, Tx 1540.56nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD47080PA0D	SFP dual fibre DWDM, Tx 1539.77nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD48080PA0D	SFP dual fibre DWDM, Tx 1538.98nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD49080PA0D	SFP dual fibre DWDM, Tx 1538.19nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD50080PA0D	SFP dual fibre DWDM, Tx 1537.4nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM

SFD51080PA0D	SFP dual fibre DWDM, Tx 1536.61nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD52080PA0D	SFP dual fibre DWDM, Tx 1535.82nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD53080PA0D	SFP dual fibre DWDM, Tx 1535.04nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD54080PA0D	SFP dual fibre DWDM, Tx 1534.25nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD55080PA0D	SFP dual fibre DWDM, Tx 1533.47nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD56080PA0D	SFP dual fibre DWDM, Tx 1532.68nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD57080PA0D	SFP dual fibre DWDM, Tx 1531.9nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD58080PA0D	SFP dual fibre DWDM, Tx 1531.12nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD59080PA0D	SFP dual fibre DWDM, Tx 1530.33nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD60080PA0D	SFP dual fibre DWDM, Tx 1529.55nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM
SFD61080PA0D	SFP dual fibre DWDM, Tx 1528.77nm (DWDM DFB), Rx (APD), maximum distance 80km, power budget 26dB, OC-48 multirate, LC connector, 0°C to 70°C, DDM

10. 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