

SFDxx120GE0D – SFP Dual Fibre DWDM

ITU DWDM / 120km / 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 Class 1 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

SFDxx120GE0D is a high performance transceiver module for Gigabit Ethernet data links over a single mode fibre pair. The maximum reach is 120km, with 32dB end of life (EOL) power budget. The transmitter is a cooled DWDM DFB laser, the receiver is an APD photodiode.

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
- Serial ID functionality supported according to (SFF-8472)
- Class 1 laser safety standard IEC 60825 compliant
- Dual LC connector
- DWDM DFB transmitter
- APD receiver
- 120km point-to-point transmission on single mode fibre
- Operating temperature range 0°C to 70°C
- Power dissipation <1.5W
- Digital diagnostics monitoring (DDM)

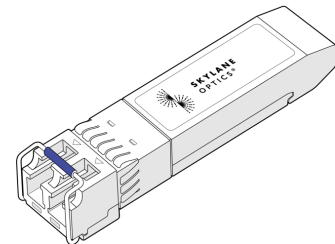


Figure 1. SFP Dual Fibre (non-binding illustration)

3. Applications

- Gigabit Ethernet
- 1x Fibre Channel

4. Optical Interface

P/N	Wavelength [nm]	Output Optical Power ² [dBm]	Optical Receiver Sensitivity ³ [dBm]	Optical Receiver Overload ⁴ [dBm]	Power Budget ² [dB]
SFDxx120GE0D	ITU DWDM	0 to 5	≤ -32	-10	≥ 32

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 1.25Gbps, PRBS 27-1, ER=9dB, BER_≤ 1x10⁻¹²

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	3.15	3.3	3.45	V	
Power Supply Current			450	mA	

5.2. Transmitter Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Average Output Power	0		5	dBm	5
Centre Wavelength Range	1528.77		1565.50	nm	
Wavelength	$\lambda_T - 100$	λ_T	$\lambda_T + 100$	pm	6
Spectral Width			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 ordering information for details

5.3. Receiver Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Receiver Sensitivity			-32	dBm	7
Receiver Overload	-10			dBm	7
Receiver Operating Range	1528		1566	nm	

7. Measured at 1.25Gbps, PRBS 2⁷-1, ER=9dB, BER_≤ 1x10⁻¹²

6. Transceiver Electrical Pad Layout

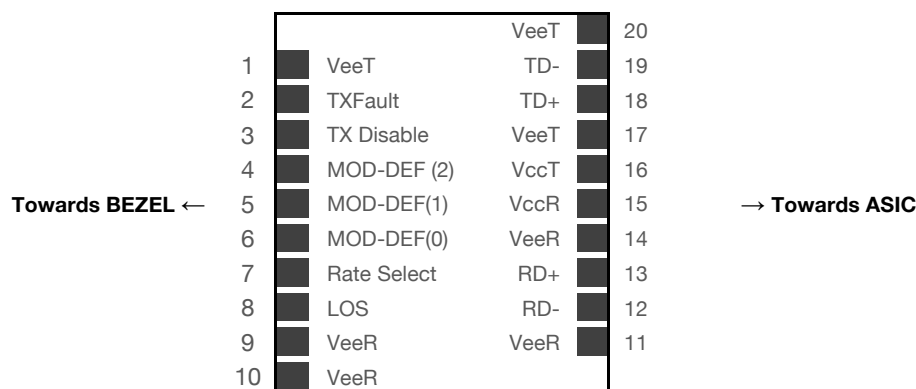


Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

(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

(SFF-8472)

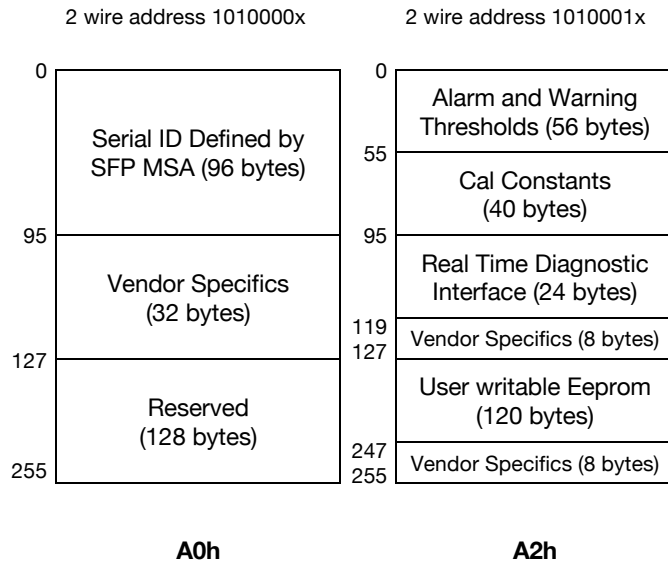


Figure 3. EEPROM of a an SFP

SFD48120GE0D	SFP dual fibre DWDM, Tx 1538.98nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD49120GE0D	SFP dual fibre DWDM, Tx 1538.19nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD50120GE0D	SFP dual fibre DWDM, Tx 1537.4nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD51120GE0D	SFP dual fibre DWDM, Tx 1536.61nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD52120GE0D	SFP dual fibre DWDM, Tx 1535.82nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD53120GE0D	SFP dual fibre DWDM, Tx 1535.04nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD54120GE0D	SFP dual fibre DWDM, Tx 1534.25nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD55120GE0D	SFP dual fibre DWDM, Tx 1533.47nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD56120GE0D	SFP dual fibre DWDM, Tx 1532.68nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD57120GE0D	SFP dual fibre DWDM, Tx 1531.9nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD58120GE0D	SFP dual fibre DWDM, Tx 1531.12nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD59120GE0D	SFP dual fibre DWDM, Tx 1530.33nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD60120GE0D	SFP dual fibre DWDM, Tx 1529.55nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFD61120GE0D	SFP dual fibre DWDM, Tx 1528.77nm (DWDM DFB), Rx (APD), maximum distance 120km, power budget 32dB, Gigabit Ethernet, 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

