SFDxx040GE0D – SFP Dual Fibre DWDM 100GHz

DWDM / 40km / 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

SFDxx040GE0D is a high performance transceiver module for Gigabit Ethernet data links over a single mode fibre pair. The maximum reach[1] is 40km, with 20dB end of life (EOL) power budget. The transmitter is a DWDM Distributed Feedback (DFB) laser, the receiver is a PIN photodiode.

This transceiver module is compliant with the Small Form-factor Pluggable (SFP) 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
- PIN Receiver
- Up to 40km Point-to-Point Transmission on Single Mode Fibre
- Operating temperature range 0°C to 70°C
- Power Dissipation <1.5W
- Digital diagnostics monitoring (DDM)

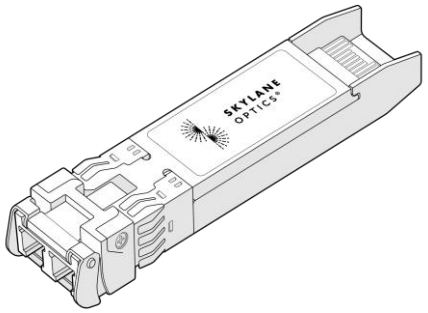

Figure 1. SFP Dual Fibre
(non-binding illustration)

3. Applications

- Gigabit Ethernet

4. Optical Interface

P/N	Wavelength	Optical Output Power[2] [dBm]	Receiver Sensitivity[3] [dBm]	Receiver Overload[4] [dBm]	Power Budget[2] [dB]
SFDxx040GE0D	ITU DWDM 100GHz	0 to 4	≤ -20	-1	≤ 20

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 1.25Gbps, PRBS 2^7-1, 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**	**Unit**	**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	
Power Dissipation			1.5	W	

5.2. Transmitter Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Average Output Power	0		4	dBm	5
Centre Wavelength Range	1528.77		1563.86	nm	
Centre Wavelength	λ_T -100	λ_T	λ_T +100	pm	6
Spectral Width (-20dB)			0.3	nm	
Extinction Ratio	8			dB	

5. Output power coupled into a 9/125 µm single mode fibre
6. ITU-T G.694.1 DWDM. For available wavelengths, see section 9

5.3. Receiver Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Unit**	**Notes**
Receiver Sensitivity			-20	dBm	7
Receiver Overload	-1			dBm	7
Operating Wavelength	1528.77		1563.86	nm	

7. Measured with 1.25Gbps, PRBS 2^7-1, ER=9dB, BER≤10^{-12}

6. Transceiver Electrical Pad Layout

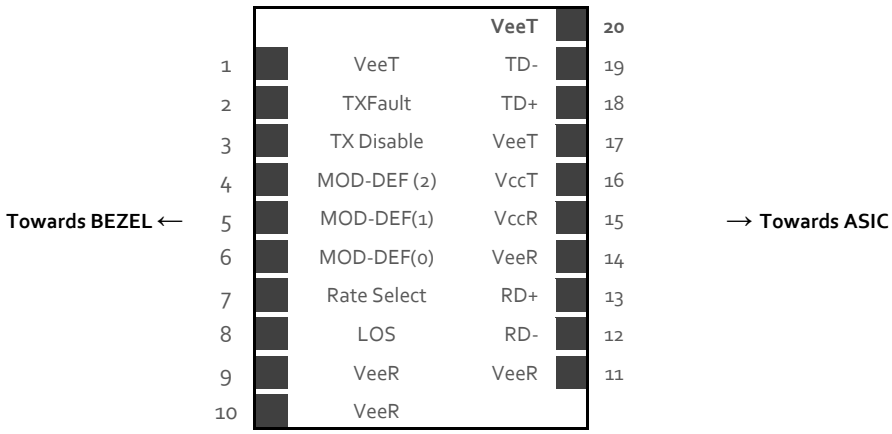

Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

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-8472)

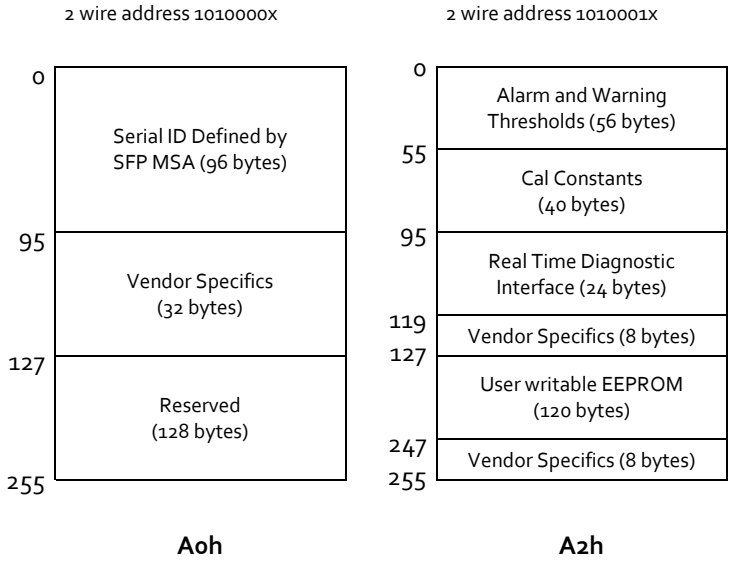

Figure 3. SFP Memory Map

9. Ordering Information

Part Number	Description
SPD17040GE0D	SFP DWDM Dual Fibre, T**x 1563.86nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD18040GE0D	SFP DWDM Dual Fibre, **Tx 1563.05nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD19040GE0D	SFP DWDM Dual Fibre, **Tx 1562.23nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD20040GE0D	SFP DWDM Dual Fibre, **Tx 1561.42nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD21040GE0D	SFP DWDM Dual Fibre, **Tx 1560.61nm (**DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD22040GE0D	SFP DWDM Dual Fibre, **Tx 1559.79nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD23040GE0D	SFP DWDM Dual Fibre, **Tx 1558.98nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD24040GE0D	SFP DWDM Dual Fibre, **Tx 1558.17nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD25040GE0D	SFP DWDM Dual Fibre**, Tx 1557.36nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD26040GE0D	SFP DWDM Dual Fibre, **Tx 1556.56nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD27040GE0D	SFP DWDM Dual Fibre, **Tx 1555.75nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD28040GE0D	SFP DWDM Dual Fibre**, Tx 1554.94nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD29040GE0D	SFP DWDM Dual Fibre, **Tx 1554.13nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD30040GE0D	SFP DWDM Dual Fibre, **Tx 1553.33nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD31040GE0D	SFP DWDM Dual Fibre, **Tx 1552.52nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD32040GE0D	SFP DWDM Dual Fibre, **Tx 1551.72nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD33040GE0D	SFP DWDM Dual Fibre, **Tx 1550.92nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD34040GE0D	SFP DWDM Dual Fibre, **Tx 1550.12nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD35040GE0D	SFP DWDM Dual Fibre, **Tx 1549.32nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD36040GE0D	SFP DWDM Dual Fibre, **Tx 1548.52nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD37040GE0D	SFP DWDM Dual Fibre, **Tx 1547.72nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD38040GE0D	SFP DWDM Dual Fibre, **Tx 1546.92nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD39040GE0D	SFP DWDM Dual Fibre, **Tx 1546.12nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD40040GE0D	SFP DWDM Dual Fibre, **Tx 1545.32nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD41040GE0D	SFP DWDM Dual Fibre, **Tx 1544.53nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD42040GE0D	SFP DWDM Dual Fibre, **Tx 1543.73nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD43040GE0D	SFP DWDM Dual Fibre, **Tx 1542.94nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD44040GE0D	SFP DWDM Dual Fibre, **Tx 1542.14nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD45040GE0D	SFP DWDM Dual Fibre, **Tx 1541.35nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD46040GE0D	SFP DWDM Dual Fibre, **Tx 1540.56nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM

SPD47040GE0D	SFP DWDM Dual Fibre, **Tx 1539.77nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD48040GE0D	SFP DWDM Dual Fibre, **Tx 1538.98nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD49040GE0D	SFP DWDM Dual Fibre, **Tx 1538.19nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD50040GE0D	SFP DWDM Dual Fibre, **Tx 1537.4nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD51040GE0D	SFP DWDM Dual Fibre, **Tx 1536.61nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD52040GE0D	SFP DWDM Dual Fibre, **Tx 1535.82nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD53040GE0D	SFP DWDM Dual Fibre, **Tx 1535.04nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD54040GE0D	SFP DWDM Dual Fibre, **Tx 1534.25nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD55040GE0D	SFP DWDM Dual Fibre, **Tx 1533.47nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD56040GE0D	SFP DWDM Dual Fibre, **Tx 1532.68nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD57040GE0D	SFP DWDM Dual Fibre, **Tx 1531.9nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD58040GE0D	SFP DWDM Dual Fibre, **Tx 1531.12nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD59040GE0D	SFP DWDM Dual Fibre, **Tx 1530.33nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD60040GE0D	SFP DWDM Dual Fibre, **Tx 1529.55nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SPD61040GE0D	SFP DWDM Dual Fibre, **Tx 1528.77nm** (DWDM DFB) , Rx (PIN), maximum distance 40km, power budget 20dB, 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