

# SFCxx040DRxD – SFP Dual Fibre CWDM

## CWDM / 40km / Dual Rate

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

SFCxx040DRxD is a high-performance transceiver module for up to 1.25Gbps data links over a single mode fibre pair. The maximum reach<sup>1</sup> is 40km, with 16dB end of life (EOL) power budget. The transmitter is a CWDM Distributed Feedback (DFB) laser, the receiver is a PIN 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)
- Dual LC connector
- CWDM DFB transmitter (channels 47 to 61)
- PIN receiver
- 40km point-to-point transmission on single mode fibre
- Operating temperature range 0°C to 70°C or -20°C to 85°C
- Low power dissipation (<1W)
- Digital diagnostics monitoring (DDM)

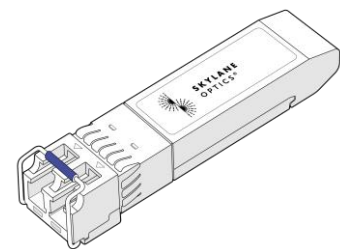


Figure 1. SFP Dual Fiber (non-binding illustration)

### 3. Applications

- Gigabit Ethernet
- 1x Fiber Channel
- Fast Ethernet

### 4. Optical Interface

P/N	Wavelength [nm]	Optical Output Power <sup>2</sup> [dBm]	Optical Receiver Sensitivity <sup>3</sup> [dBm]	Receiver Overload <sup>4</sup> [dBm]	Power Budget <sup>1</sup> [dB]
SFCxx040DRxD	ITU CWDM	-5 to 0	≤ -21	0	≥ 16

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 BER 2<sup>-1</sup>, ER=9dB, BER≤10<sup>-12</sup>  
 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	SFCxx040DR0D
	-20		85		SFCxx040DR1D
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3.15	3.3	3.45	V	
Power Supply Current			300	mA	

5.2. Transmitter Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Average Output Power	-5		0	dBm	5
Centre Wavelength Range	1464		1617.5		
Wavelength	$\lambda_T - 6$	$\lambda_T$	$\lambda_T + 7.5$	nm	6
Spectral Width (-20dB)			1	nm	
Extinction Ratio	8.2			dB	

5. Output power coupled into a 9/125  $\mu$ m single mode fibre  
 6. ITU-T G.694.2 CWDM. For available wavelengths, see section 9

5.3. Receiver Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Receiver Sensitivity			-21	dBm	7
Receiver Overload	-3			dBm	7
Receiver Operating Range	1260		1630	nm	

7. Measured at 1.25Gbps, PRBS 2<sup>7</sup>-1, ER=9dB, BER<sub>s</sub>10<sup>-12</sup>

6. Transceiver Electrical Pad Layout

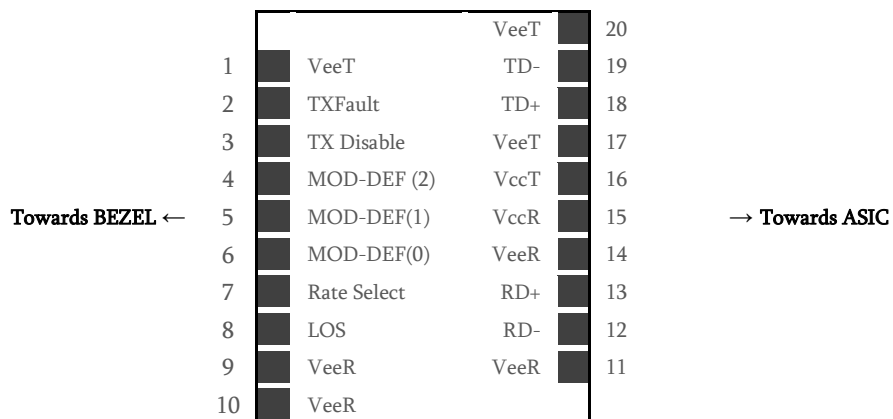


Figure 2. Transceiver Electrical Pad Layout

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 Used
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 (INF-8074)

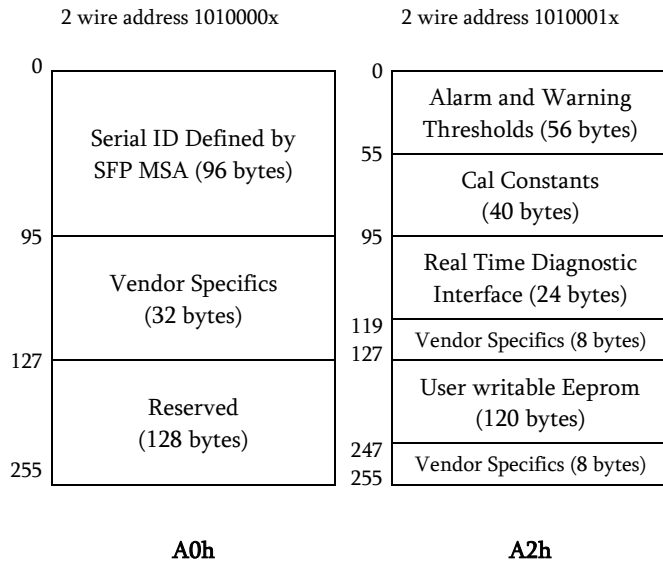


Figure 3. EEPROM of a an SFP

## 9. Ordering Information

Part Number	Description
SFC47040DR0D	SFP dual fibre CWDM, Tx <b>1470nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC49040DR0D	SFP dual fibre CWDM, Tx <b>1490nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC51040DR0D	SFP dual fibre CWDM, Tx <b>1510nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC53040DR0D	SFP dual fibre CWDM, Tx <b>1530nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC55040DR0D	SFP dual fibre CWDM, Tx <b>1550nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC57040DR0D	SFP dual fibre CWDM, Tx <b>1570nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC59040DR0D	SFP dual fibre CWDM, Tx <b>1590nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC61040DR0D	SFP dual fibre CWDM, Tx <b>1610nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>0°C to 70°C</b> , DDM
SFC47040DR1D	SFP dual fibre CWDM, Tx <b>1470nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC49040DR1D	SFP dual fibre CWDM, Tx <b>1490nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC51040DR1D	SFP dual fibre CWDM, Tx <b>1510nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC53040DR1D	SFP dual fibre CWDM, Tx <b>1530nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC55040DR1D	SFP dual fibre CWDM, Tx <b>1550nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC57040DR1D	SFP dual fibre CWDM, Tx <b>1570nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC59040DR1D	SFP dual fibre CWDM, Tx <b>1590nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , DDM
SFC61040DR1D	SFP dual fibre CWDM, Tx <b>1610nm</b> (CWDM DFB), Rx (PIN), maximum distance 40km, power budget 16dB, Dual Rate, LC connector, <b>-20°C to 85°C</b> , 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](mailto:support@skylaneoptics.com)

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