

SCD53020DRxx – Compact SFP (Option 2) Single Fibre

Tx 1550 & Rx 1310 / 20km / 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 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

SCD53020DRxx is a high performance CSFP transceiver module for two downstream dual rate (Fast Ethernet & Gigabit Ethernet) data links over a single mode fibre pair. The maximum reach¹ is 20km with 15dB end of life (EOL) power budget. The transmitters are 1550nm Distributed Feedback (DFB) lasers, the receivers are 1310nm PIN photodiodes. Consequently, a module with a 1310nm transmitter and a 1550nm receiver is required at the opposite side of the link. The recommended counterpart is SBU35020DRxD.

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, or for use with other modules than the recommended SBU35020DRxD.

2. Features

- C-SFP Multi-Source Agreement Option 2 compliant (INF-MSA CSFP 2.0)
- Hot pluggable C-SFP footprint
- Serial ID functionality supported according to (SFF-8472) and Compact SFP MSA (INF-MSA CSFP 2.0)
- Class 1 laser safety standard IEC 60825 compliant
- 2x LC connector
- 2x1550nm DFB transmitters, 2x1310nm PIN photodiodes
- 20km, point-to-point transmission on single strands, single mode fibre
- Operating temperature range 0°C to 70°C or -40°C to 85°C
- Digital Diagnostic Monitoring (DDM)

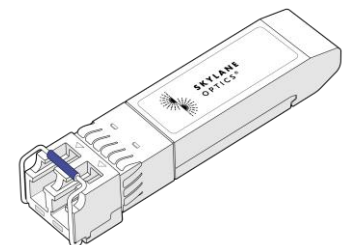


Figure 1. Compact SFP (non-binding illustration)

3. Applications

- Gigabit Ethernet
- Fast Ethernet
- 1x Fiber 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]
SCD53020DRxx	Tx 1550nm Rx 1310nm	-8 to -2	≤ -23	-3	≥ 15

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 2⁷-1, 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	SCD53020DR0D, SCD53020DR0B
	-40		85		SCD53020DR2D
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3.1	3.3	3.5	V	
Power Supply Current			500	mA	

5.2. Transmitter Optical Specifications

Parameter	Min	Typ	Max	Units	Notes
Average Output Power	-8		-2	dBm	5
Centre Wavelength	1530	1550	1570	nm	
Spectral Width (-20dB)			1	nm	
Extinction Ratio	6			dB	

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

5.3. Receiver Optical Specifications

Parameter	Min	Typ	Max	Units	Notes
Sensitivity			-23	dBm	6
Receiver Overload	-3			dBm	6
Wavelength of Operation	1260		1360	nm	

6. Measured with 1.25Gbps PRBS 2⁷-1, ER=9dB, BER≤10⁻¹²

6. Transceiver Electrical Pad Layout

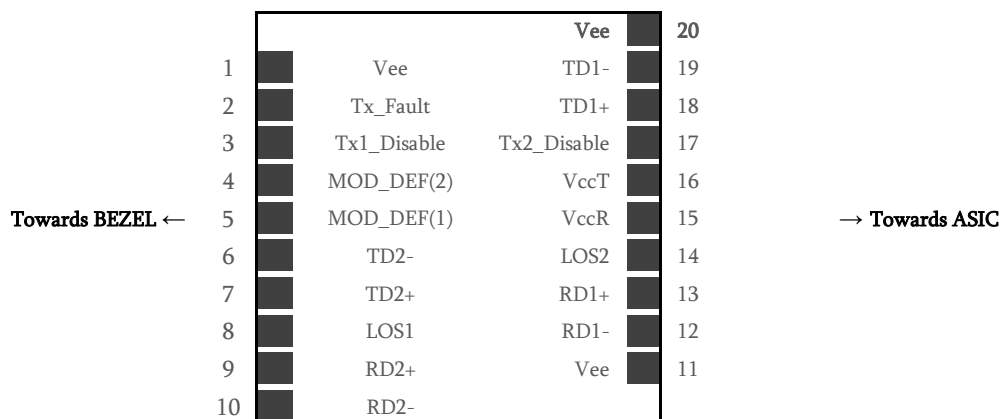


Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

Pin Number	Name	Function
1	Vee	Transceiver Ground
2	TX_Fault	Transmitter Fault Indication
3	TX1_Disable	Transmitter Disable of Channel 1
4	MOD-DEF(2)	2-Wire Serial Interface Data (SDA)
5	MOD-DEF(1)	2-Wire Serial Interface Clock (SCL)
6	TD2-	Inverted transmit data input of Channel 2
7	TD2+	Transmit Data Input of Channel 2
8	LOS1	Loss of signal of Channel 1
9	RD2+	Received sata output of Channel 2
10	RD2-	Inverted received data output of Channel 2
11	Vee	Transceiver Ground
12	RD1-	Inverted received data output of Channel 1
13	RD1+	Received data output of Channel 1
14	LOS2	Loss of signal of Channel 2
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	TX2_Disable	Transmitter disable of Channel 2
18	TD1+	Transmit data input of Channel 1
19	TD1-	Inverted transmit data input of Channel 1
20	Vee	Transceiver Ground

8. EEPROM

CSFP+ MSA (INF-MSA CSFP 2.0)

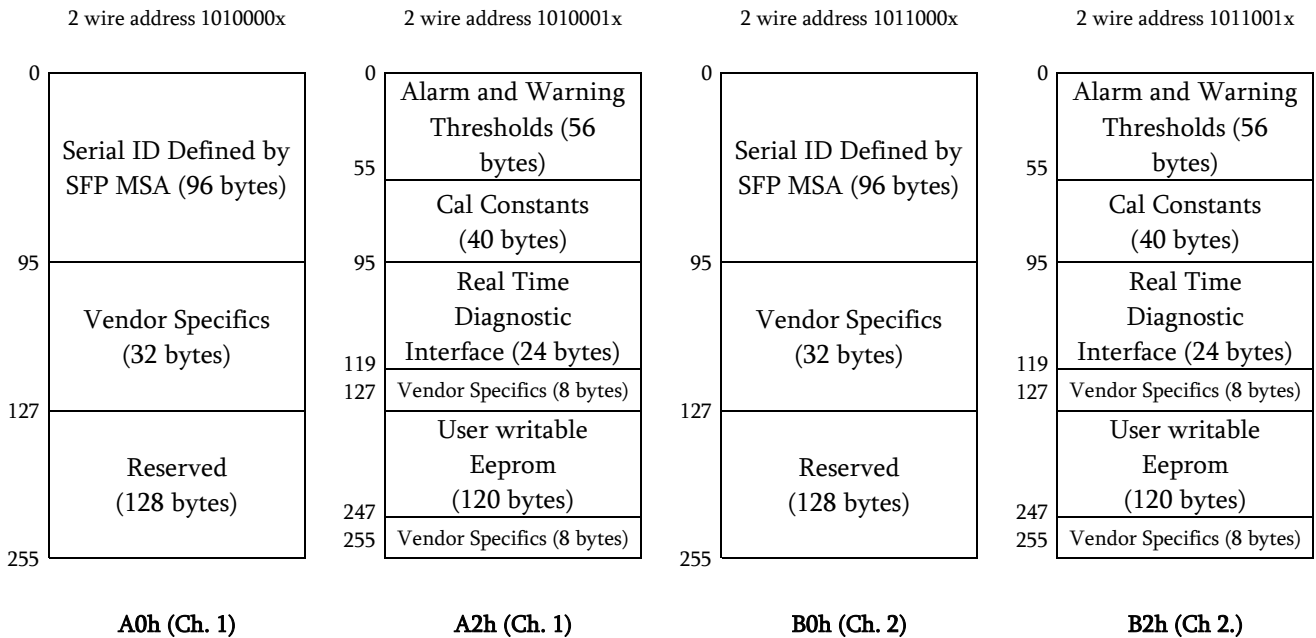


Figure 3. EEPROM of a Compact SFP

9. Ordering Information

Part Number	Description
SCD53020DR0D	Compact SFP (option 2) single fiber, LC connector, Gigabit Ethernet/Fast Ethernet, maximum distance 20km, Tx 1550nm (DFB), Rx 1310 nm (PIN), power budget 11 dB, 0°C to 70°C , DDM
SCD53020DR0B	Compact SFP (option 2) single fiber, LC connector, Gen B , Gigabit Ethernet/Fast Ethernet, maximum distance 20km, Tx 1550nm (DFB), Rx 1310 nm (PIN), power budget 11 dB, 0°C to 70°C , DDM
SCD53020DR2D	Compact SFP (option 2) single fiber, LC connector, Gigabit Ethernet/Fast Ethernet, maximum distance 20km, Tx 1550nm (DFB), Rx 1310 nm (PIN), power budget 11 dB, -40°C to 85°C , DDM

10. Document Revision Information

Revision	Description
A	Initial release
B	Gen B 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