

# SCD53020GExD – Compact SFP (Option 2) Single Fibre

## Tx 1550 & Rx 1310 / 20km / 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

SCD53020GExD is a high performance transceiver dual module for downstream Gigabit Ethernet data links. The maximum reach<sup>1</sup> is 20km with 15dB end of life (EOL) power budget, over a single mode fibre (9/125um). 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 SBU35020GExD.

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 SBU35020GExD.

## 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 strand, 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
- 1x Fiber Channel

## 4. Optical Interface

P/N	Wavelength [nm]	Output Optical Power <sup>2</sup> [dBm]	Optical Receiver Sensitivity <sup>3</sup> [dBm]	Optical Receiver Overload <sup>4</sup> [dBm]	Power Budget <sup>2</sup> [dB]
SCD53020GExD	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<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	SCD53020GE0D
	-40		85	°C	SCD53020GE2D
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3,1	3.3	3,5	V	
Power Supply Current			500	mA	Two channels

### 5.2. Transmitter Optical Specifications

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

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

### 5.3. Receiver Optical Specifications

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

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

## 6. Transceiver Electrical Pad Layout

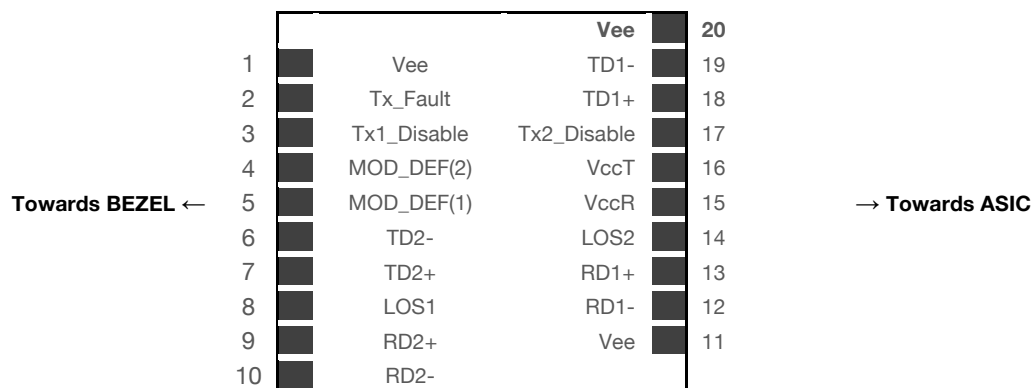


Figure 2. Transceiver Electrical Pad Layout

## 7. Module Electrical Pin Definition

CSFP+ MSA (INF-MSA CSFP 2.0)

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)

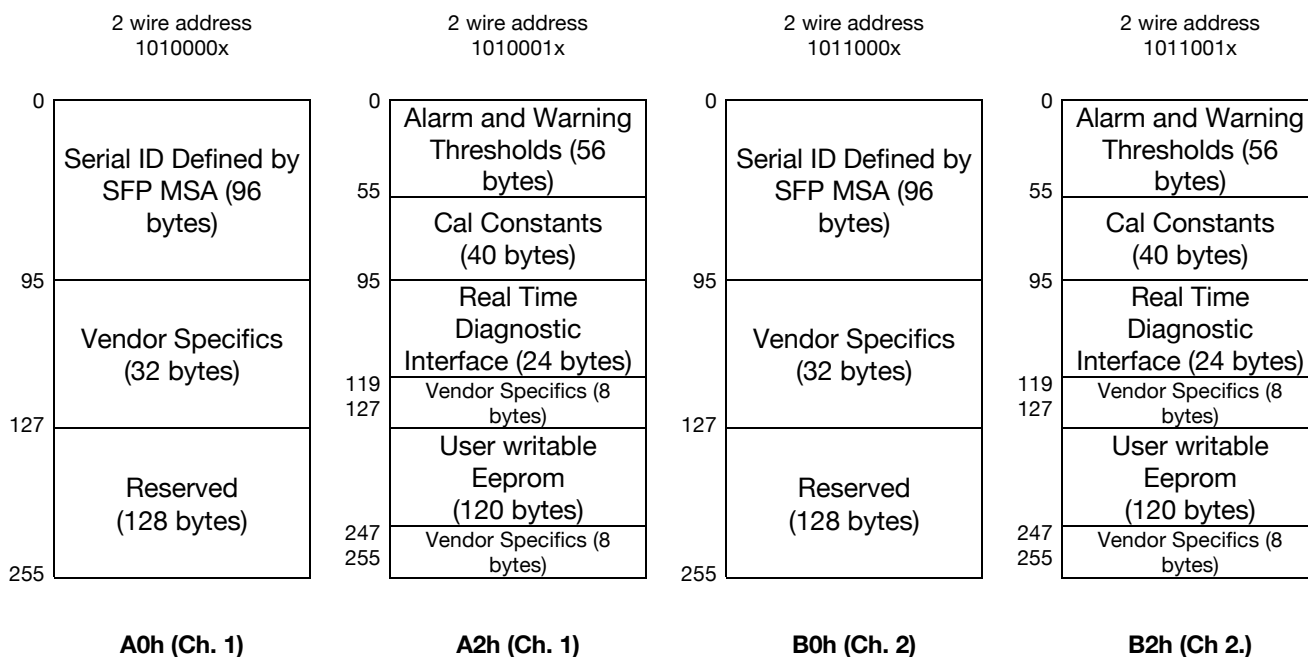


Figure 3. EEPROM of a Compact SFP

## 9. Ordering Information

Part Number	Description
SCD53020GE0D	Compact SFP (option 2) single fibre, Tx 1550nm (DFB), Rx 1310nm (PIN), maximum distance 20km, power budget 15dB, Gigabit Ethernet, LC connector, <b>0°C to 70°C</b> , DDM
SCD53020GE2D	Compact SFP (option 2) single fibre, Tx 1550nm (DFB), Rx 1310nm (PIN), maximum distance 20km, power budget 15dB, Gigabit Ethernet, LC connector, <b>-40°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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