SCD43020DRxD – Compact SFP (Option 2) Single Fibre

Tx 1490 & 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 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

SCD43020DRxD is a high performance dual transceiver module for downstream Gigabit Ethernet and Fast Ethernet data links. The maximum reach[1] is 20km with 13dB end of life (EOL) power budget, over a single mode fibre (9/125um). The transmitters are 1490nm Distributed Feedback (DFB) lasers, the receivers are 1310nm PIN photodiodes. Consequently, a module with a 1310nm transmitter and a 1490nm receiver is required at the opposite side of the link. The recommended counterpart is SBU34020DRxD.

This transceiver module is compliant with the C-SFP Multisource Agreement (MSA) and is hot pluggable. Always contact Skylane Optics commercial agents for compatibility with different equipment platforms, or for use with modules other than the recommended SBU34020DRxD.

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
- Dual LC connector
- 2×1490nm DFB transmitters, 2×1310nm PIN receivers
- 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
- Low power dissipation
- Digital Diagnostic Monitoring (DDM)

Figure 1. Compact SFP
(non-binding illustration)

3. Applications

- Gigabit Ethernet
- Fast Ethernet

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]
SCD43020DRxD	Tx 1490nm Rx 1310nm	-9 to -3	≤ -22	-3	≥ 13

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≤10-12
4. The optical input to the receiver should not exceed this value. Never connect the product directly (optical loop back) to any other transceiver 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	SCD43020DR0D
	-40		85	°C	SCD43020DR2D
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3.15	3.3	3.45	V	
Power Supply Current			400	mA	Total for both channels

5.2. Transmitter Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Units**	**Notes**
Average Output Power	-9		-3	dBm	5
Centre Wavelength	1450	1490	1550	nm	
Spectral Width (-20dB)			1	nm	
Extinction Ratio	8.2			dB	

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

5.3. Receiver Optical Specifications (-40 to 85°C, 3.3V +/- 5%)					
Parameter	**Min**	**Typ**	**Max**	**Units**	**Notes**
Receiver Sensitivity			-22	dBm	6
Receiver Overload	-3			dBm	6
Receiver Operating Range	1260		1360	nm	

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

6. Transceiver Electrical Pad Layout

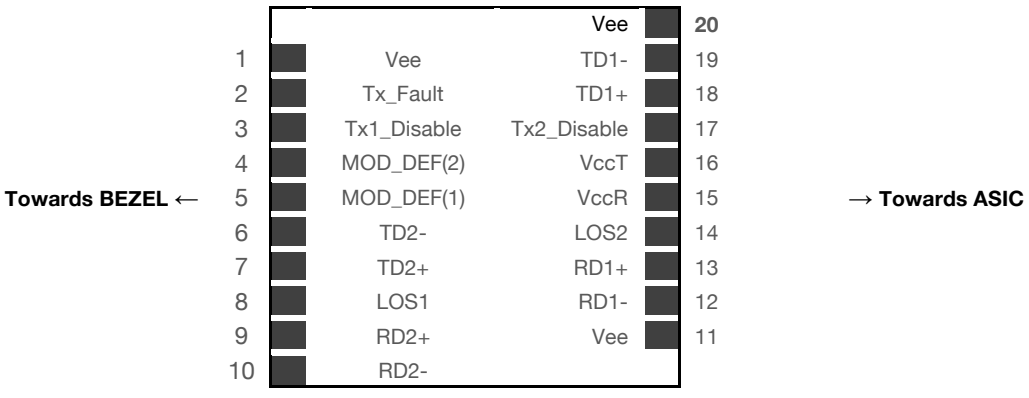

Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

C-SFP (INF-MSA C-SFP 2.0)

Pin Number	Name	Function
1	Vee	Transceiver Ground
2	TX_Fault	Transmitter Fault Indication
3	TX1_ Disable	Channel 1 Transmitter Disable
4	MOD-DEF(2)	2-Wire Serial Interface Data (SDA)
5	MOD-DEF(1)	2-Wire Serial Interface Clock (SCL)
6	TD2-	Channel 2 Inverted Data Input
7	TD2+	Channel 2 Data Input
8	LOS1	Channel 1 Loss Of Signal
9	RD2+	Channel 2 Data Output
10	RD2-	Channel 2 Inverted Data Output
11	Vee	Transceiver Ground
12	RD1-	Channel 1 Inverted Data Output
13	RD1+	Channel 1 Data Output
14	LOS2	Channel 2 Loss Of Signal
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	TX2_ Disable	Channel 2 Transmitter Disable
18	TD1+	Channel 1 Data Input
19	TD1-	Channel 1 Inverted Data Input
20	Vee	Transceiver Ground

8. EEPROM

CSFP+ MSA (INF-MSA CSFP 2.0)

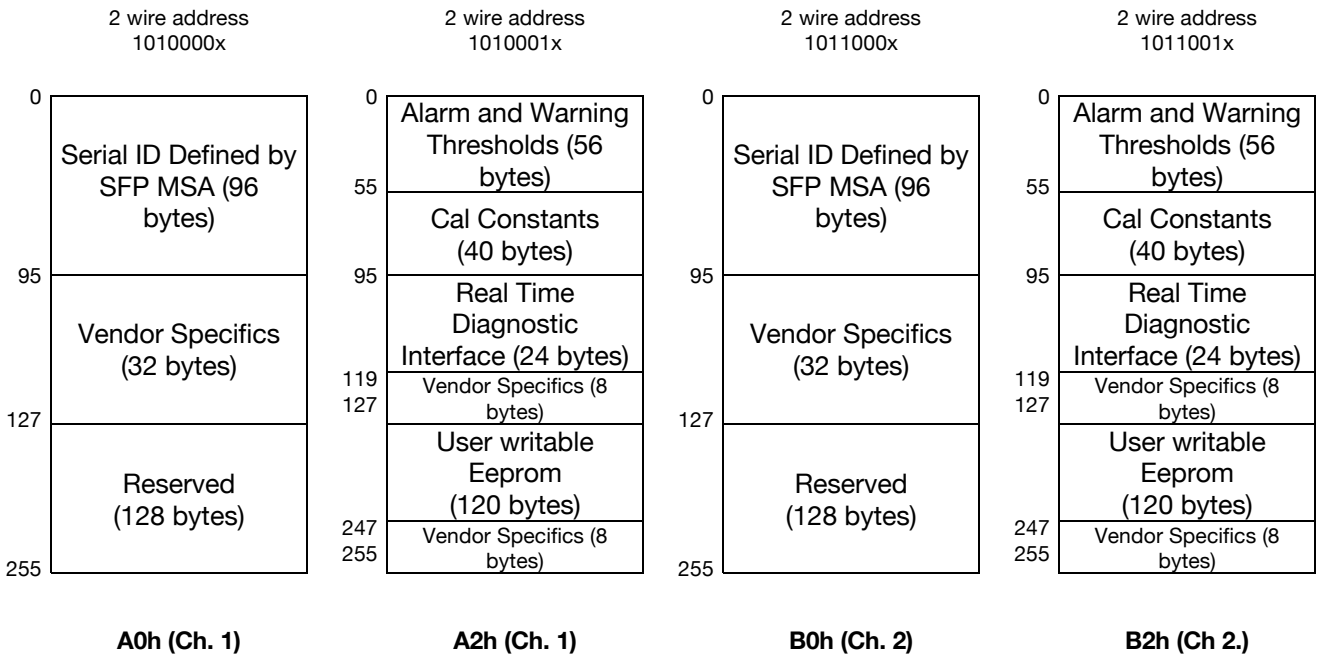

Figure 3. EEPROM of a Compact SFP

9. Ordering Information

Part Number	Description
SCD43020DR0D	Compact SFP (Option 2) single fibre, LC connector, Dual Rate (Gigabit Ethernet & Fast Ethernet), nominal reach 20km, Tx 1490nm (DFB), Rx 1310nm (PIN), power budget 13dB, **0°C to 70°C**, DDM
SCD43020DR2D	Compact SFP (Option 2) single fibre, LC connector, Dual Rate (Gigabit Ethernet & Fast Ethernet), nominal reach 20km, Tx 1490nm (DFB), Rx 1310nm (PIN), power budget 13dB, **-40°C to 85°C**, DDM

10. Document Revision Information

Revision	Description
A	Initial release
B	Low power consumption (400 mA total)

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:
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