

SCD43010DRxD – Compact SFP (Option 2) Single Fibre

Tx 1490 & Rx 1310 / 10km / 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

SCD43010DRxD is a high performance transceiver dual module for downstream Gigabit Ethernet and Fast Ethernet data links. The maximum reach¹ is 10km with 10dB end of life (EOL) power budget, over a single mode fiber (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 companion module is SBU34010DRxD.

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 modules other than the recommended SBU34010DRxD.

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
- 2x1490nm DFB transmitters, 2x1310nm PIN receivers
- 10km, point-to-point transmission on single strand, single mode fiber
- 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

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]
SCD43010DRxD	Tx 1490nm Rx 1310nm	-9.5 to -3	≤ -19.5	-3	≥ 10

1. Distance is estimated assuming typical optical losses after decent quality fiber 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. 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	Units	Notes
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70	°C	For SCD43010DR0D
Operating Case Temperature	-40		85	°C	For SCD43010DR2D
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3,1	3.3	3,5	V	
Power Supply Current			400	mA	2 channels

5.2. Transmitter Optical Specifications (-40 to 85°C, 3.3V +/-5%)

Parameter	Min	Typ	Max	Units	Notes
Average Output Power	-9.5		-3	dBm	5
Centre Wavelength	1450	1490	1550	nm	
Spectral Width (-20dB)			1	nm	
Extinction Ratio	6			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
Sensitivity			-19.5	dBm	6
Receiver Overload	-3			dBm	6
Wavelength of Operation	1260		1360	nm	

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

6. Transceiver Electrical Pad Layout

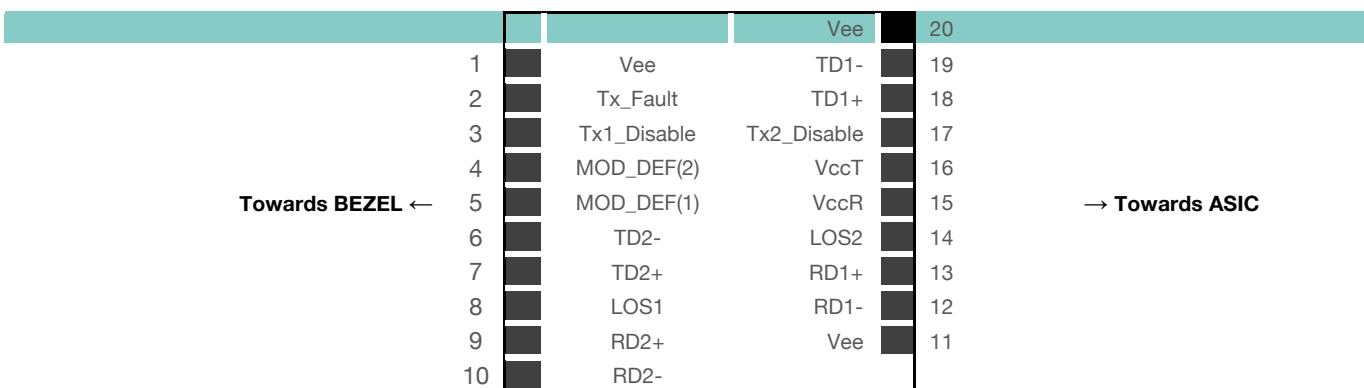


Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

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)

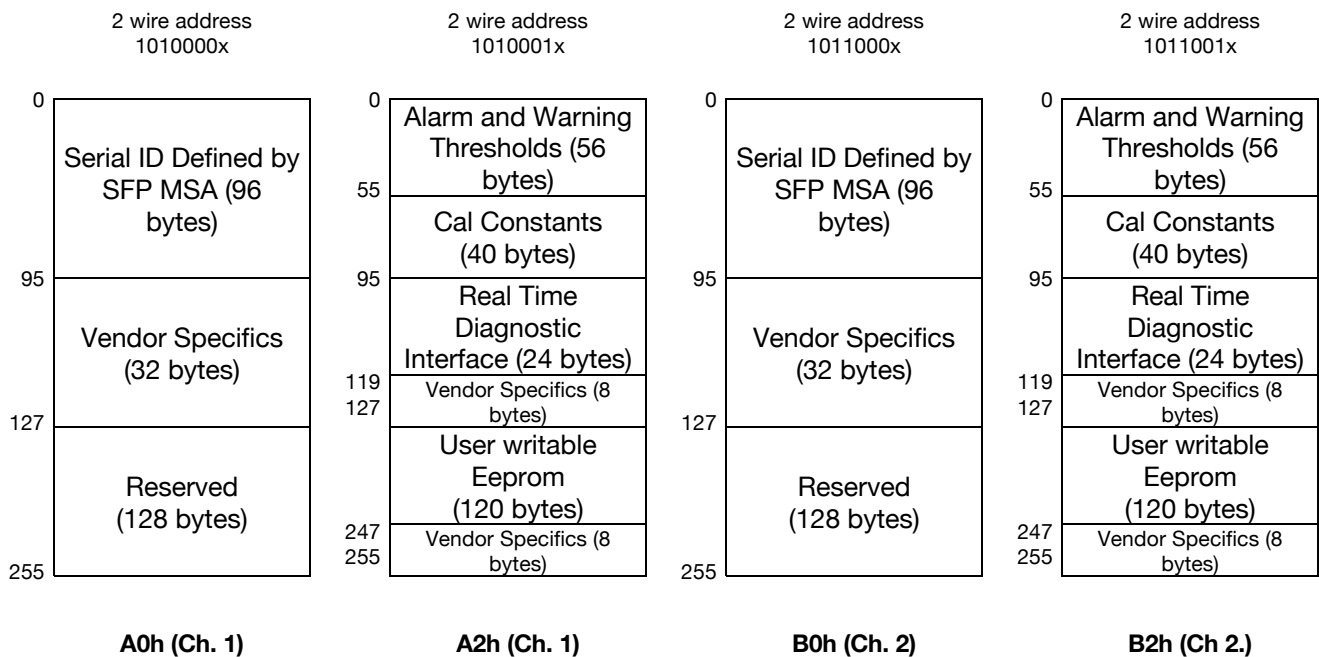


Figure 3. EEPROM of a Compact SFP

9. Ordering Information

Part Number	Description
SCD43010DR0D	Compact SFP (Option 2) single fiber, LC connector, Dual Rate (Gigabit Ethernet & Fast Ethernet), nominal reach 10km, Tx 1490nm (DFB), Rx 1310nm (PIN), nominal power budget 12 dB, 0°C to 70°C , DDM
SCD43010DR2D	Compact SFP (Option 2) single fiber, LC connector, Dual Rate (Gigabit Ethernet & Fast Ethernet), nominal reach 10km, Tx 1490nm (DFB), Rx 1310nm (PIN), nominal power budget 12 dB, -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:
support@skylaneoptics.com

**Beyond
Quality**

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