SCD43010GE2D – Compact SFP

Tx 1490 & Rx 1310 / 10km / Gigabit Ethernet / Bidi

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

SCD43010GE2D is a high performance transceiver dual module for downstream data links at Gigabit Ethernet. The maximum reach[1] is 10km for a 11dB end of life (EOL) power budget, over a single mode fiber (9/125um). The emitter is a 1490nm Distributed Feedback (DFB) laser, the receiver is a 1310nm PIN photodiode. Consequently, a module with a 1310nm emitter and a 1490nm receiver is required at the other side of the link. The recommended companion module is SCU34010GE2D.

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.

2. Features

- C-SFP Multi-Source Agreement compliant *[INF-MSA CSFP 2.0]*
- Hot pluggable C-SFP footprint
- Serial ID functionality supported according to *[SFF-8472]* C-SFP MSA *[INF-MSA CSFP 2.0]*
- Class 1 laser safety standard IEC 60825 compliant
- 2x single LC connector
- 1490nm DFB transmitter, 1310nm PIN receiver
- 10km, point-to-point transmission on single strand, singlemode fiber
- Gigabit Ethernet compliant
- 1x Fibre Channel compatible
- Operating temperature range -40°C to 85°C
- Low power dissipation (<1,5W)
- Digital Diagnostic Monitoring (DDM)

Figure 1. Compact SFP Tx1490 & Rx1310
(non-binding illustration)

3. Applications

- Gigabit Ethernet
- FTTx

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]
SCD43010GE2D	Tx 1490nm Rx 1310nm	-9 to -3	≤ -20	-3	≥ 11

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 Gigabit Ethernet
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	-40		85	°C	
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3,1	3.3	3,5	V	
Power Supply Current			450	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		-3	dBm	5
Center Wavelength	1480	1490	1500	nm	
Spectral Width			1	nm	-20 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			-20	dBm	6
Receiver Overload	-3			dBm	
LOS De-Assert			-20	dBm	Transition: Low to high
LOS Assert	-35			dBm	Transition: High to low
LOS Hysteresis	0.5			dB	
Wavelength of Operation	1260	1310	1360	nm	

6. With BER better than or equal to $1x10^{-12}$, measured in the center of the eye opening with 2^7-1 PRBS

6. Transceiver Electrical Pad Layout

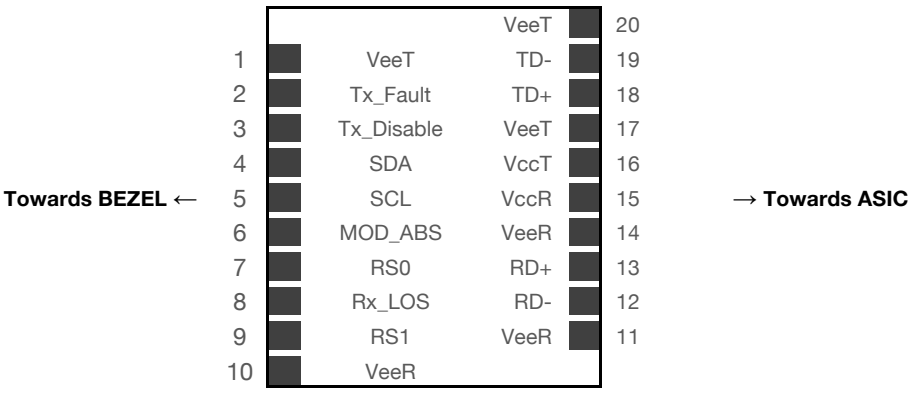

Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

Pin Number	Name	Function
1	VeeT	Transmitter Ground
2	TX_Fault	Transmitter Fault Indication
3	TX_ Disable	Transmitter Disable
4	SDA	2-Wire Serial Interface Data (SDA)
5	SCL	2-Wire Serial Interface Clock (SCL)
6	MOD_ABS	Function Not available
7	RS0	Rate Select 0 grounded
8	Rx_LOS	Loss of signal
9	RS1	Rate select 1 grounded
10	VeeR	Receiver Ground
11	VeeR	Receiver Ground
12	RD-	Inverted received data output
13	RD+	Received data output
14	VeeR	Receiver Ground
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	VeeT	Transmitter Ground
18	TD+	Transmit data input
19	TD-	Inverted transmit data input
20	VeeT	Transmitter Ground

8. EEPROM

CSFP+ MSA (INF-MSA CSFP 2.0)

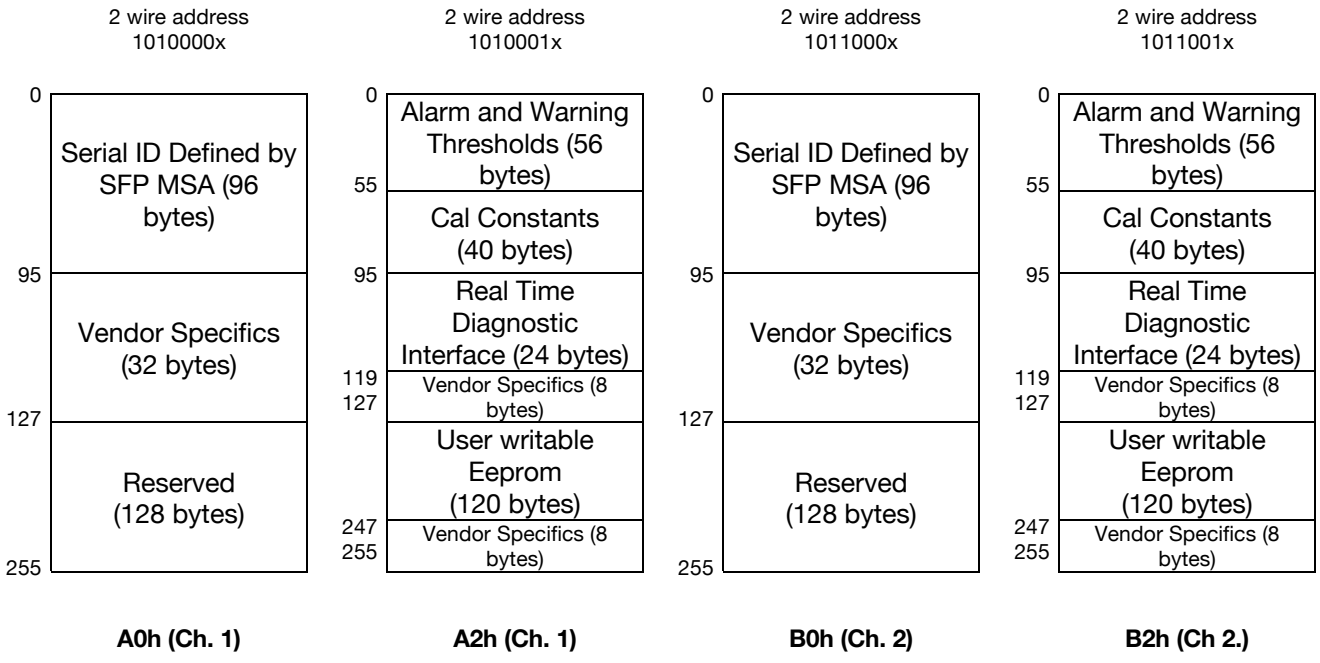

Figure 3. EEPROM of a Compact SFP

9. Ordering Information

Part Number	Description
SCD43010GE2D	Compact SFP single fiber, LC connector, Gigabit Ethernet, nominal reach 10km, Tx: 1490nm DFB, Option 2, Rx: 1310nm PIN, nominal power budget 11dB, -40°C to 85°C, 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