SFP13040GExx – SFP Dual fibre
1310nm / 40km / 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

SFP13040GExx is a high-performance transceiver module for Gigabit Ethernet data links over a single mode fibre pair. The maximum reach[1] is 40km, with 22dB end of life (EOL) power budget. The transmitter is a 1310nm Distributed Feedback (DFB) laser, the receiver is a PIN photodiode.

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.

2. Features

- SFP Multi-Source Agreement compliant (INF-8074)
- Hot pluggable SFP footprint
- Serial ID functionality supported according to (SFF-8472)
- Class 1 laser safety standard IEC 60825 compliant
- Dual LC connector
- 1310nm DFB transmitter
- 40km point-to-point transmission on single mode fibre
- Operating temperature range 0°C to 70°C, -20°C to 85°C or -40°C to 85°C
- Low power dissipation (<1W)
- Digital diagnostics monitoring (DDM)

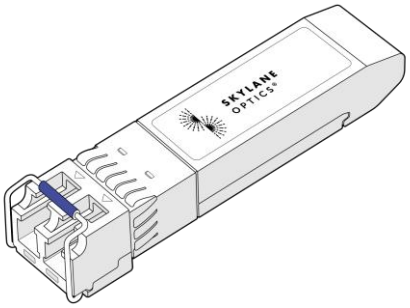

Figure 1. SFP Dual Fiber
(non-binding illustration)

3. Applications

- Gigabit Ethernet
- 1× Fiber Channel

4. Optical Interface

P/N	Wavelength [nm]	Optical Output Power[2] [dBm]	Optical Receiver Sensitivity[3] [dBm]	Optical Receiver Overload[4] [dBm]	Power Budget[2] [dB]
SFP13040GExx	1310nm	-2 to 3	≤ -24	0	≥ 22

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 with 1.25Gbps PRBS 2^7-1, 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	SFP13040GE0D, SFP13040GE0B
	-20		85		SFP13040GE1D, SFP13040GE1B
	-40		85		SFP13040GE2D, SFP13040GE2B
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3.15	3.3	3.45	V	
Power Supply Current			300	mA	

5.2. Transmitter Optical Specification					
Parameter	**Min**	**Typ**	**Max**	**Units**	**Notes**
Average Output Power	-2		3	dBm	5
Centre Wavelength	1260	1310	1360	nm	
Extinction Ratio	9			dB	
Spectral Width (-20dB)			1	nm	

5.3. Receiver Optical Specification					
Parameter	**Min**	**Typ**	**Max**	**Units**	**Notes**
Receiver Sensitivity			-24	dBm	6
Receiver Overload	0			dBm	
Wavelength of Operation	1260		1600	nm	

5. Output power coupled into a 9/125 µm single-mode fibre
6. Measured with 1.25Gbps PRBS 2^7-1, ER=9dB, BER≤10^{-12}

6. Transceiver Electrical Pad Layout

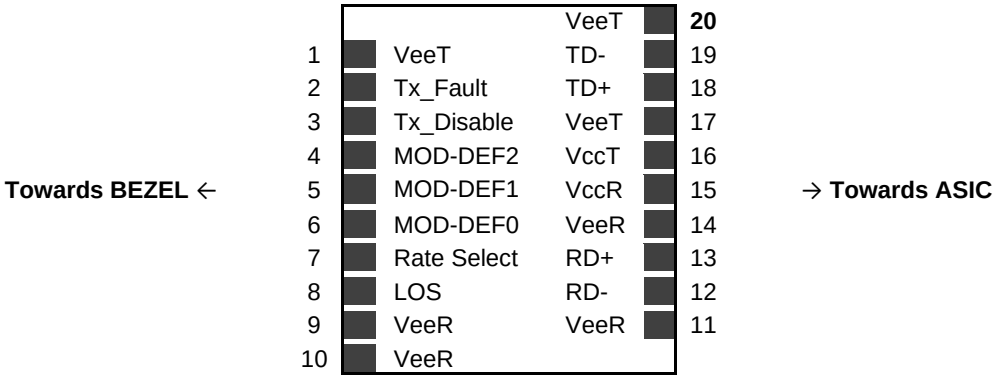

Figure 2. Transceiver Electrical Pad Layout

7. Module Electrical Pin Definition

Pin Number	Name	Function
1	VeeT	Transmitter Ground
2	TX_Fault	Transmitter Fault Indication
3	TX_ Disable	Transmitter Disable
4	MOD-DEF2	2-Wire Serial Interface Data
5	MOD-DEF1	2-Wire Serial Interface Clock
6	MOD-DEF0	Grounded in Module
7	Rate Select	Not Connected
8	LOS	Loss of Signal
9	VeeR	Receiver Ground
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

SFP MSA (INF-8074)

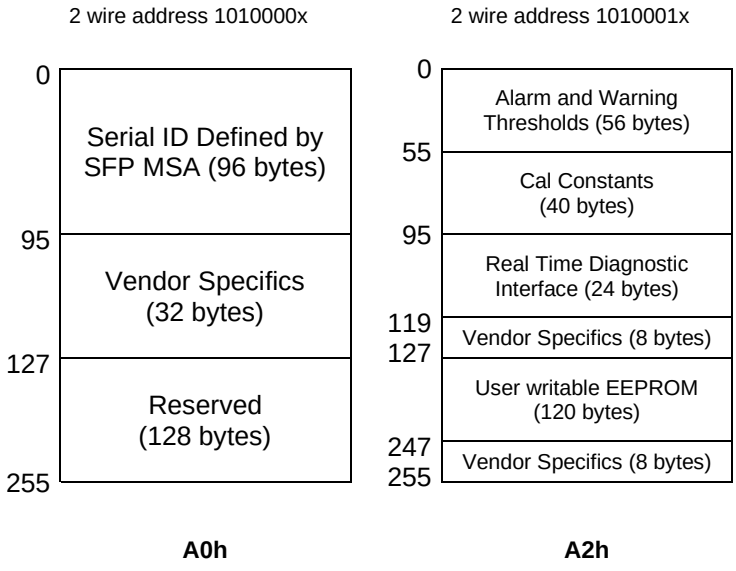

Figure 3. EEPROM of a SFP

9. Ordering Information

Part Number	Description
SFP13040GE0D	SFP dual fibre, Tx 1310nm (DFB), Rx (PIN), maximum distance 40km, power budget 22dB, Gigabit Ethernet, LC connector, **0°C to 70°C**, DDM
SFP13040GE0B	SFP dual fibre, Tx 1310nm (DFB), Rx (PIN), maximum distance 40km, power budget 22dB, Gigabit Ethernet, LC connector, **Gen B, 0°C to 70°C**, DDM
SFP13040GE1D	SFP dual fibre, Tx 1310nm (DFB), Rx (PIN), maximum distance 40km, power budget 22dB, Gigabit Ethernet, LC connector, **-20°C to 85°C**, DDM
SFP13040GE1B	SFP dual fibre, Tx 1310nm (DFB), Rx (PIN), maximum distance 40km, power budget 22dB, Gigabit Ethernet, LC connector, **Gen B, -20°C to 85°C,** DDM
SFP13040GE2D	SFP dual fibre, Tx 1310nm (DFB), Rx (PIN), maximum distance 40km, power budget 22dB, Gigabit Ethernet, LC connector, **-40°C to 85°C**, DDM
SFP13040GE2B	SFP dual fibre, Tx 1310nm (DFB), Rx (PIN), maximum distance 40km, power budget 22dB, Gigabit Ethernet, LC connector, **Gen B, -40°C to 85°C,** DDM

10. Document Revision Information

Revision	Description
A	Initial release
B	Generation B variants added. Non-DDM variants removed. Industrial temperature variants 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