

SFCxxB32GExD – SFP Dual Fibre CWDM

ITU CWDM / 32dB / 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

SFCxxB32GExD is a high performance transceiver module for Gigabit Ethernet data links over a singlemode fibre pair. The power budget is 32dB end of life (EOL). The emitter is a CWDM DFB laser, the receiver an APD 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
- CWDM DFB transmitter
- Power budget >32dB
- 1x Fibre Channel compatible
- Gigabit Ethernet compatible
- Operating temperature range 0°C to 70°C or -20°C to 85°C
- Low power dissipation (<1W)
- Digital diagnostics monitoring (DDM)

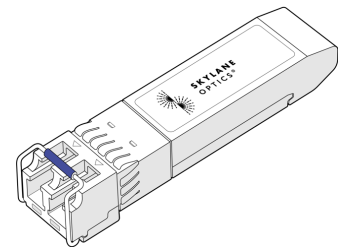


Figure 1. SFP Dual Fiber ITU CWDM (non-binding illustration)

3. Applications

- FTTx
- Gigabit Ethernet
- Storage

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]
SFCxxB32GExD	ITU CWDM (27 to 45)	0 to 5	≤ -32	-8	≥ 32

1. Only optical budget value is guaranteed, see section 9 for estimated transmission reach
2. EOL, over operating temperature range
3. Measured at 1.25Gbps, PRBS BER 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	Unit	Notes
Storage temperature	-40		85	°C	
Operating Case Temperature	-20		85	°C	For SFCxxB32GE1D
Operating Case Temperature	0		70	°C	For SFCxxB32GE0D
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 Specifications					
Parameter	Min	Typ	Max	Units	Notes
Average Output Power	0		5	dBm	5
Center Wavelength Range	1270				1450
Optical Wavelength	$\lambda_c - 6$	λ_c	$\lambda_c + 7.5$		6
Optical Extinction Ratio ER	8.2			dB	
Spectral Width			1	nm	

- 5. Output power coupled into a 9/125 μm single-mode fibre
- 6. ITU-T G.694.2 CWDM. For available wavelengths, see section 10.

5.3. Receiver Optical Specifications					
Parameter	Min	Typ	Max	Units	Notes
Sensitivity			-32	dBm	7
Receiver Overload	-8			dBm	7
Wavelength of Operation	1260		1630	nm	

- 7. With BER better than or equal to 1×10^{-12} , measured in the center of the eye opening with 2^7-1 PRBS

6. Transceiver Electrical Pad Layout

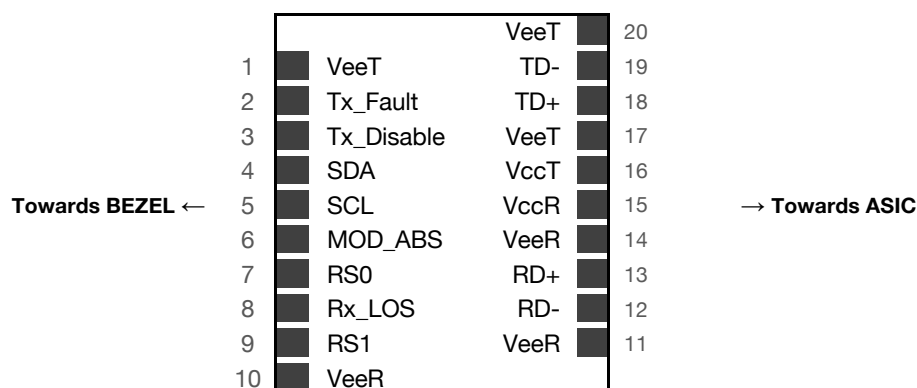


Figure 2. Transceiver Electrical Pad Layout

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

SFP+ MSA [SFF-8431]

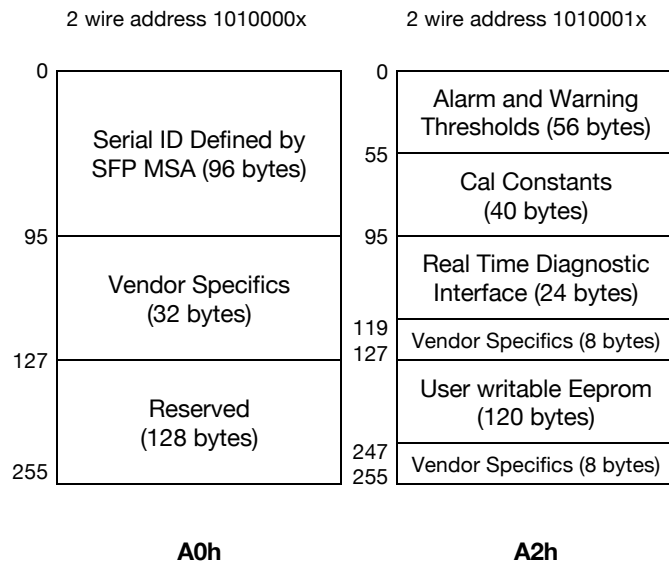


Figure 3. EEPROM of a an SFP

9. Transmission Reach

The actual transmission reach is depending on the CWDM channel used, due to the wavelength dependent attenuation in the fibre path. The table below shows the *estimated* transmission reach for CWDM channels 27 to 45.

NB: Distances are purely indicative and only valid for G.652 fibre. Only the optical power budget is guaranteed. Additional optical insertion loss from CWDM filters, splices, optical connectors etc. is not included.

CWDM Channel	Nominal Wavelength [nm]	Estimated Reach [km]
27	1270	80
29	1290	85
31	1310	90
33	1330	90
35	1350	90
37	1370	80
39	1390	60
41	1410	80
43	1430	100
45	1450	110

10. Ordering Information

Part Number	Description
SFC27B32GE0D	SFP dual fibre CWDM, Tx 1270nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC29B32GE0D	SFP dual fibre CWDM, Tx 1290nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC31B32GE0D	SFP dual fibre CWDM, Tx 1310nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC33B32GE0D	SFP dual fibre CWDM, Tx 1330nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC35B32GE0D	SFP dual fibre CWDM, Tx 1350nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC37B32GE0D	SFP dual fibre CWDM, Tx 1370nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC39B32GE0D	SFP dual fibre CWDM, Tx 1390nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC41B32GE0D	SFP dual fibre CWDM, Tx 1410nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC43B32GE0D	SFP dual fibre CWDM, Tx 1430nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC45B32GE0D	SFP dual fibre CWDM, Tx 1450nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, 0°C to 70°C, DDM
SFC27B32GE1D	SFP dual fibre CWDM, Tx 1270nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC29B32GE1D	SFP dual fibre CWDM, Tx 1290nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC31B32GE1D	SFP dual fibre CWDM, Tx 1310nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC33B32GE1D	SFP dual fibre CWDM, Tx 1330nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC35B32GE1D	SFP dual fibre CWDM, Tx 1350nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC37B32GE1D	SFP dual fibre CWDM, Tx 1370nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC39B32GE1D	SFP dual fibre CWDM, Tx 1390nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC41B32GE1D	SFP dual fibre CWDM, Tx 1410nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C, DDM
SFC43B32GE1D	SFP dual fibre CWDM, Tx 1430nm (CWDM DFB) , Rx (APD),


	power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C , DDM
SFC45B32GE1D	SFP dual fibre CWDM, Tx 1450nm (CWDM DFB) , Rx (APD), power budget 32dB, Gigabit Ethernet, LC connector, -20°C to 85°C , DDM

11. 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



- Beyond Quality
- Reliable Alliance
- Performing Smartly