

SBU35020DRxx – SFP Single Upstream Transceiver **Tx 1310nm & Rx 1550nm / 20km / Dual Rate**

#01 Overview

SBU35020DRx0 is a high performance transceiver module for Gigabit Ethernet and Fast Ethernet data links over one single mode fibre. The maximum reach is 20km, with 14dB end of life (EOL) power budget. The emitter is a 1310nm Fabry-Pérot (FP) laser, the receiver is a 1550nm PIN photodiode. Consequently, a module with a 1550nm emitter and a 1310nm receiver is required at the opposite side of the link. The recommended counterpart is SBD53020DRxx.

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.

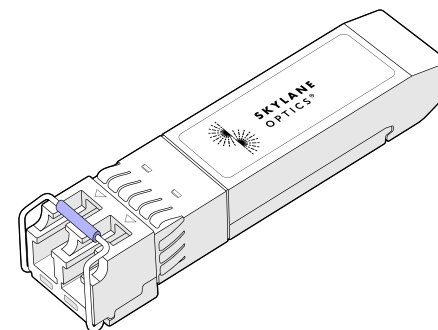


Figure 1. SFP Single Fiber
(non-binding illustration)

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#02 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
- Single LC or SC connector
- 1310nm FP transmitter, 1550nm PIN receiver
- 20km point-to-point transmission on single mode fibre
- Operating temperature range 0°C to 70°C or -40°C to 85°
- Low power dissipation (<1W)
- Digital Diagnostics Monitoring (DDM)

#03 Applications

- Gigabit Ethernet
- Fast Ethernet
- 1x Fibre Channel

#04 Optical Interface

P/N	SBU35020DRxx
Wavelength [nm]	Tx 1310 nm Rx 1550 nm
Output Optical Power ² [dBm]	-8 to -3
Optical Receiver Sensitivity ³ [dBm]	≤ -22
Optical Receiver Overload ⁴ [dBm]	-3
Power Budget ² [dB]	≥ 14

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 with 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.

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#05 Technical Parameters

5.1. Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit	Notes
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70	°C	SBU35020DR0x, SBD35020DR3x
	-40		85	°C	SBD35020DR2x, SBD35020DR5x
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	Unit	Notes
Average Output Power	-8		-3	dBm	5
Centre Wavelength	1260	1310	1360	nm	
Optical Extinction Ratio ER	6	9		dB	
Spectral Width (-20dB)			3.5	nm	

5.3. Receiver Optical Specifications

Parameter	Min	Typ	Max	Unit	Notes
Sensitivity			-22	dBm	6
Receiver Overload	-3			dBm	6
Wavelength of Operation	1480	1550	1580	nm	

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

6. Measured with 1.25Gbps PRBS 2⁷-1, ER=9dB, BER_s10⁻¹²

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#06 Transceiver Electrical Pad Layout

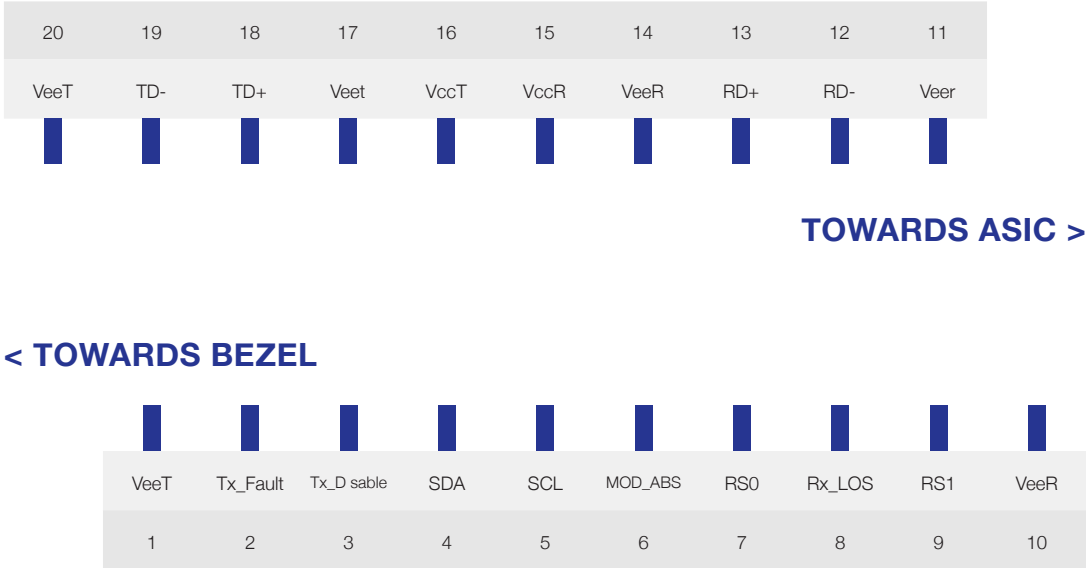


Figure 2. Transceiver Electrical Pad Layout

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#07 Module Electrical Pin Definition

Pin	Symbol	Description	Pin	Symbol	Description
1	VeeT	Transmitter Ground	11	VeeR	Receiver Ground
2	Tx_Fault	Transmitter Fault Indication	12	RD-	Inverted received data output
3	Tx_Disable	Transmitter Disable	13	RD+	Received data output
4	SDA	2-Wire Serial Interface Data	14	VeeR	Receiver Ground
5	SCL	2-Wire Serial Interface Clock	15	VccR	Receiver Power
6	Mod_ABS	Grounded within the module	16	VccT	Transmitter Power
7	RS0	Not Connected	17	VeeT	Transmitter Ground
8	Rx_LOS	Loss of signal	18	TD+	Transmit data input
9	RS1	Receiver Ground	19	TD-	Inverted transmit data input
10	VeeR	Receiver Ground	20	VeeT	Transmitter Ground

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#08 EEPROM - SFP MSA (INF-8074 & SFF-8472)

A0H

2 wire address 1010000x	
0	Serial ID Defined by SFP MSA (96 Bytes)
95	Vendor Specifics (32 Bytes)
127	Reserved (128 Bytes)
255	

A2H

2 wire address 1010001x	
0	Alarm and Warning-Thresholds (56 Bytes)
55	Cal Constants (40 Bytes)
95	Real Time Diagnostic Interface (24 Bytes)
119	Vendor Specifics (8 Bytes)
127	User writable EEPROM (120 Bytes)
247	Vendor Specifics (8 Bytes)
255	

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#09 Ordering information

Part Number	Description
SBU35020DR00	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 14dB, Dual Rate, LC connector, 0°C to 70°C
SBU35020DR0D	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 14dB, Dual Rate, LC connector, 0°C to 70°C, DDM
SBU35020DR20	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 14dB, Dual Rate, LC connector, -40°C to 85°C
SBU35020DR2D	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 8dB, Dual Rate, LC connector, -40°C to 85°C, DDM
SBU35020DR30	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 14dB, Dual Rate, SC connector, 0°C to 70°C
SBU35020DR3D	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 14dB, Dual Rate, SC connector, 0°C to 70°C, DDM
SBU35020DR50	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 14dB, Dual Rate, SC connector, -40°C to 85°C
SBU35020DR5D	SFP single fibre upstream, Tx 1310nm (FP) , Rx 1550nm (PIN), maximum distance 20km, power budget 14dB, Dual Rate, SC connector, -40°C to 85°C, DDM

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#10 Document Revision Information

Revision	Description
RevA	Initial release

For your product safety, please read the following information carefully before any manipulation of the box:



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).

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