

SPP13P22100A – SFP+ Dual Fibre

1310nm / 220m / 10x Gigabit Ethernet / 10GBASE-LRM

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

SPP13P22100A is a high performance transceiver module for 10x Gigabit Ethernet data links over a multimode fibre pair. The maximum reach is 220 m, for a 6.2 dB end of life (EOL) power budget. The emitter is a 1310 nm FP 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 [SFF-8431]
- Hot pluggable SFP+ footprint
- Serial ID functionality supported according to [SFF-8472]
- Class 1 laser safety standard IEC 60825 compliant
- Dual LC connector
- 1310 nm FP transmitter
- 220 m point-to-point transmission on 50/125 µm multimode fibre
- 10x Gigabit Ethernet compliant
- Operating temperature range 0°C to 70°C
- Low power dissipation (< 1W)
- Digital diagnostics monitoring (DDM)
- Linear amplifier

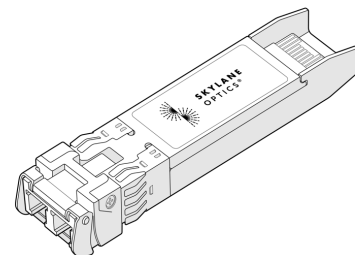


Figure 1. SFP+ Dual Fiber 1310nm (non-binding illustration)

3. Applications

- 10GE switches and routers

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]
SPP13P22100A	1310nm	-8.2 to 0.5	≤ -14.4	0.5	≥ 6.2

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 10x 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	0		70	°C	
Relative Humidity	5		95	%	Non condensing
Power Supply Voltage	3.15	3.30	3.45	V	
Power Supply Current			300	mA	

5.2. Transmitter Optical Specifications

Parameter	Min	Typ	Max	Unit	Notes
Average Output Power	-8.2		0.5	dBm	5
Center Wavelength	1270	1310	1355	nm	
Optical Extinction Ratio ER	3.5			dB	
Spectral Width			3.5	nm	

5. Output power coupled into a 62.5/125 µm multi-mode fibre

5.3. Receiver Optical Specifications

Parameter	Min	Typ	Max	Unit	Notes
Sensitivity			-14.4	dBm	6
Receiver Overload	0.5			dBm	
Wavelength of Operation	1260	1410	1565	nm	

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

6. Transceiver Electrical Pad Layout

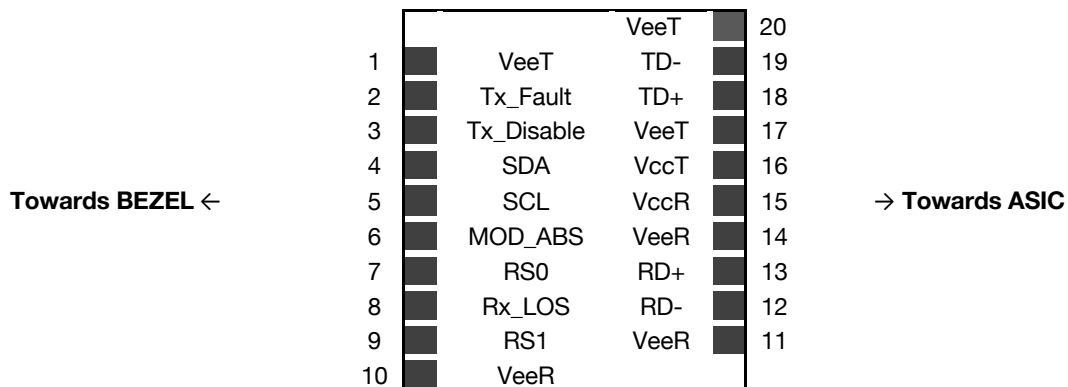


Figure 2. Transceiver Electrical Pad Layout



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

MSA compliant [SFF-8431]

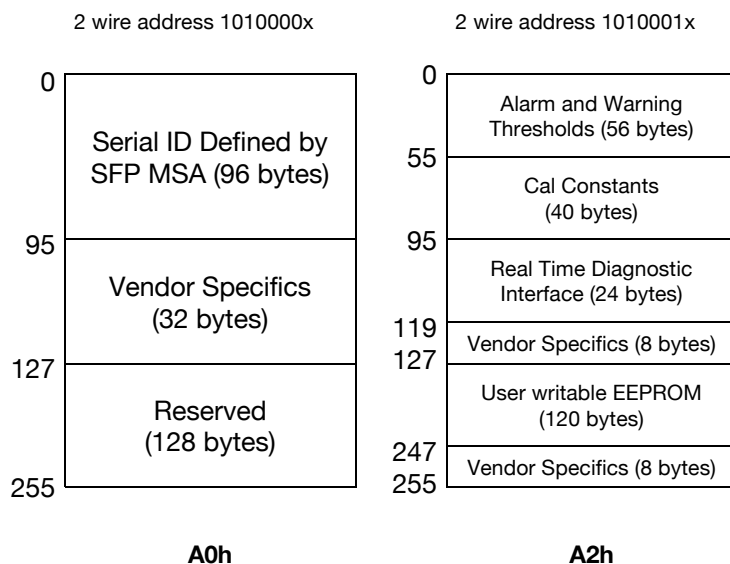


Figure 3. EEPROM of a SFP+

Datasheet

SPP13P22100A.docx



9. Ordering Information

Part Number	Description
SPP13P22100A	SFP+ Dual Fibre, Tx 1310 nm (FP), Rx (PIN), maximum distance 220 m, power budget 3.5 dB, 10x Gigabit Ethernet, LC connector, 0°C to 70°C, linear amplifier, 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

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