SPP15080100D – SFP+ Dual Fibre
1550nm / 80km / 10x Gigabit Ethernet/ 10GBase-ZR

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

SPP15080100D is a high performance transceiver module for 10 Gigabit Ethernet data links over a single mode fibre pair. The maximum reach[1] is 80km for a 23dB end of life (EOL) power budget. The emitter is a 1550nm EML, the receiver is 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 [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
- 1550nm EML transmitter
- 80km, point-to-point transmission on single mode fibre pair
- 10x Gigabit Ethernet compatible
- 2/4/8 Fibre channel compatible
- Operating temperature range 0°C to 70°C
- Low power dissipation (<1W)
- Digital Diagnostics monitoring (DDM)

Figure 1. SFP+ Dual Fibre 1550nm
(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]	Transmitter Dispersion Penalty [dB]	Optical Receiver Overload[4] [dBm]	Power Budget[2] [dB]
SPP15080100D	1550nm	0 to 5	≤ -23	3	-8	≥ 23

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	3.3	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		1550		nm	
Optical Extinction Ratio ER	3.5			dB	
Spectral Width			1	nm	

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

5.3. Receiver Optical Specifications					
Parameter	**Min**	**Typ**	**Max**	**Units**	**Notes**
Sensitivity			-23	dBm	6
Receiver Overload	-8			dBm	
Wavelength of Operation	1250		1600	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

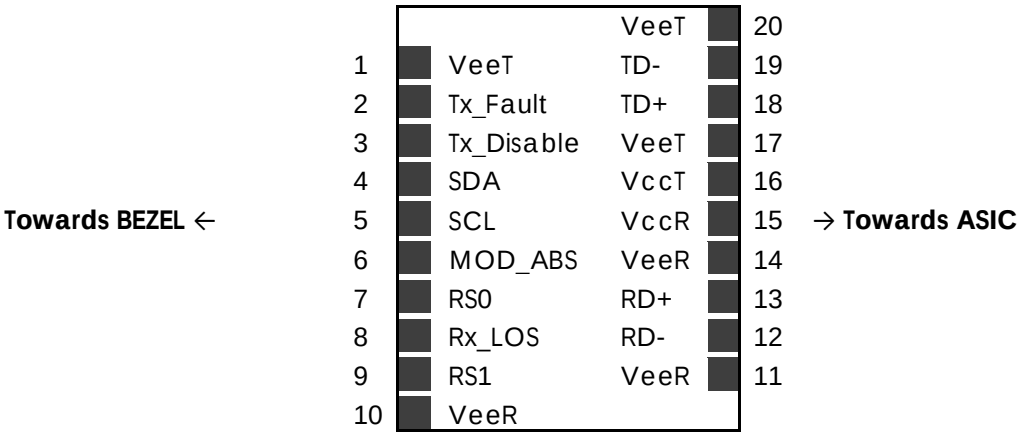

Figure 2. Transceiver Electrical Pad Layout

7. Pin Functions Definitions

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]

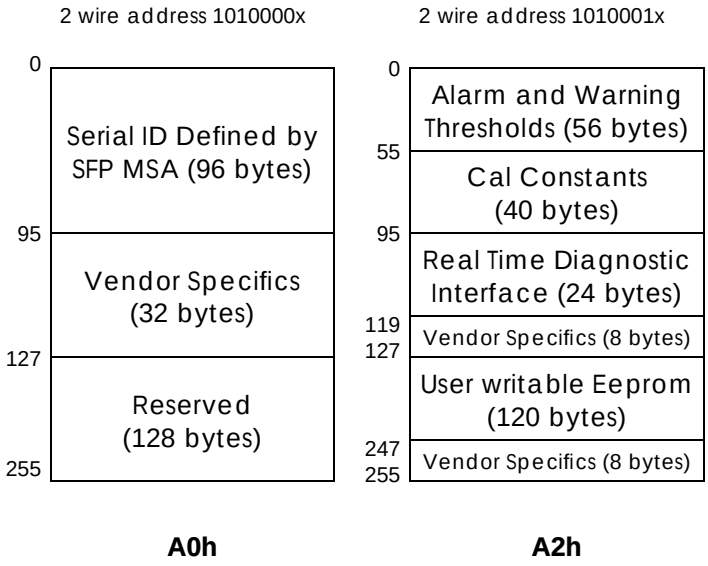

Figure 3. EEPROM of a SFP+

9. Ordering information

Part Number	Description
SPP15080100D	SFP+ Dual Fibre, Tx 1550nm (EML), Rx (APD), maximum distance 80km, power budget 23dB, 10x Gigabit Ethernet, LC connector, 0°C to 70°C, DDM

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