



XBO52020PR3D000

MSA Compliant 10GBase-OLT XFP Transceiver (SMF, 1577nmTx/1270nmRx, 20km, SC, DOM, -40 to 85C, BEAD Compliant)

Product Description

This MSA compliant XFP transceiver provides 10GBase-OLT throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1577nmTx/1270nmRx via a SC connector. It can operate at temperatures between -40 and 85C. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

Features:

- SC Optical Connector
- 1577nm CW Mode EML
- LVCML AC/DC Coupled Input and Output
- 3.3V DC Power Supply
- Hot-Pluggable
- 1270nm Burst-Mode APD/TIA Receiver
- RoHS Compliant and Lead-Free
- Operating Temperature: 0 to 70 Celsius



Applications:

- PON
- Broadband Access

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.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Operating Case Temperature	T _c	-40	85	°C
Storage Temperature	T _{stg}	-40	85	
Relative Storage Humidity	RH _{stg}	0	95	%
Relative Operating Humidity	RH _o	0	85	%
Module Supply Voltage	V _{cc}	0	3.6	V

Notes:

- Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the condition of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{cc}	3.135	3.3	3.465	V	
Power Supply Current	I _{cc}		650	1000	mA	
Transmitter						
Tx Differential Input Impedence	Z _{IN}	90	100	110	Ω	
10Gbps Tx Differential Input Amplitude	V _{IN10}	120		820	mV	
Tx_Disable = High (Transmitter Off/Disabled)	V _{TDH}	2.0		V _{cc3} +0.3	V	1
Tx_Disable = Low (Transmitter On/Enabled)	V _{TDL}	0		0.8	V	1
Parameter						
Rx Differential Output Impedence	Z _{OUT}	90	100	110	Ω	
10Gbps Rx_Data Differential Output Voltage Amplitude	V _{OUT10}		700		mV	
10Gbps Output High Voltage	V _{OH10}	V _{cc3} -20	V _{cc3} -5	V _{cc3}	mV	
10Gbps Output Low Voltage	V _{OL10}	V _{cc3} -400	V _{cc3} -350	V _{cc3} -300	mV	
Rx_LOS = High (Receiver Off)	V _{OH}	2.0		V _{cc} +0.3	V	2
Rx_LOS = Low (Receiver On)	V _{OL}	0		0.8	V	2
Control Function Logic Levels						
Tx_Disable	Tx_Dis	0		V _{cc3} +0.5	V	3
Burst-Mode Loss of Signal	Rx_LOS	0		V _{cc3} +0.5	V	3
Rx_RateSelect	Rx_RateSel	0		V _{cc3} +0.5	V	4
Digital Rx_RSSI_Trigger Input	TRI	0		V _{cc3} +0.5	V	4
I ² C Serial Data	SDA	0		V _{cc3} +0.5	V	5
I ² C Serial Clock	SCL	0		V _{cc3} +0.5	V	4

Notes:

1. LVTTTL control input.
2. LVTTTL monitor output.
3. LVTTTL.
4. Single-ended LVTTTL input.
5. Single-ended LVTTTL I/O.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Laser Type		1577nm CW EML				
Downstream Signal Rate			10.3125		Gbps	
Average Launch Power	P	2		5	dBm	
Optical Center Wavelength	λ_{10}	1575	1577	1580	nm	
Spectral Width	$\Delta\lambda_{10}$			1	nm	
Side-Mode Suppression Ratio	SMSR ₁₀	30			dB	
Extinction Ratio	ER ₁₀	6			dB	
Output Eye Diagram		Compliant with IEEE802.3av				
Receiver						
Receiver Type		1270nm APD/TIA Receiver				
Upstream Signal Rate		10.3125			Gbps	
Optical Center Wavelength	λ	1260	1270	1280	nm	
Receiver Sensitivity	P _{IN}			-28	dBm	
Receiver Optical Overload	P _{IN} (SAT)	-6			dBm	1
Damaged Input Optical Power	P _d	-5			dBm	1
Receiver Settling Time	Trx			800	ns	
Rx_LOS Assert	P _a	-45			dBm	
Rx_LOS De-Assert	P _d			-28.5	dBm	
Rx_LOS Hysteresis	Phy	0.5		5	dB	

Notes:

1. BER@10⁻³, PRBS 2³¹-1, and ER=6dB.

Pin Descriptions

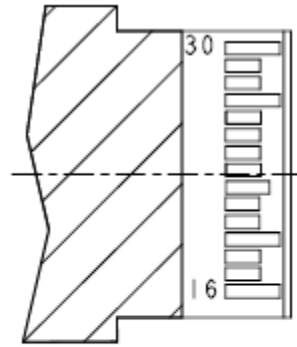
Pin	Symbol	Name/Description	Notes
1	GND	Module Ground.	
2	1G_Tx+	Transmit Non-Inverted 1.25Gbps Data Input. AC coupled inside the module.	
3	1G_Tx-	Transmit Inverted 1.25Gbps Data Input. AC coupled inside the module.	
4	GND	Module Ground.	
5	Tx_Dis	Transmit Disable. When asserted “high,” both 10Gbps and 1.25Gbps transmitters’ output are turned off.	1
6	NC	Not Connected. Reserved for rate select for future use.	
7	GND	Module Ground.	
8	Vcc3	+3.3V Power Supply.	
9	Vcc3	+3.3V Power Supply.	
10	SCL	2-Wire Serial Interface Clock.	2
11	SDA	2-Wire Serial Interface Data.	2
12	MOD_ABS	Module Ground. “High” stands for “module is physically absent.”	2
13	NC	Not Connected. Reserved for rate select for future use.	3
14	Rx_LOS	Rx Loss of Signal Indication Output.	2
15	GND	Module Ground.	
16	GND	Module Ground.	
17	10G_Rx-	Receive Burst-Mode Inverted 10.3125Gbps Data Output. DC coupled inside the module.	
18	10G_Rx+	Receive Burst-Mode Non-Inverted 10.3125Gbps Data Output. DC coupled inside the module.	
19	GND	Module Ground.	
20	1G_Rx-	Receive Burst-Mode Inverted 1.25Gbps Data Output. DC coupled inside the module.	
21	1G_Rx+	Receive Burst-Mode Non-Inverted 1.25Gbps Data Output. DC coupled inside the module.	
22	NC	Not Connected.	
23	Rx_RSSI_TRI	Receiver Signal Strength Indication Trigger Input for Digital RSSI. Digital RSSI can be read from I2C.	3
24	NC	Not Connected.	
25	NC	Not Connected.	
26	NC	Not Connected.	
27	GND	Module Ground.	
28	10G_Tx-	Transmit Inverted 10.3125Gbps Data Input. AC coupled inside the module.	
29	10G_Tx+	Transmit Non-Inverted 10.3125Gbps Data Input. AC coupled inside the module.	
30	GND	Module Ground.	

Notes:

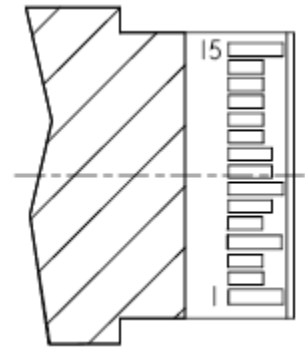
1. Internal 4.7k Ω to 10k Ω pull-up to the Vcc3.
2. Shall be pulled up with 4.7k Ω to 10k Ω to a voltage between 3.15V and 3.6V on the host board.
3. A 200 Ω resistance shall be put in series on the host board.

Pin Assignment

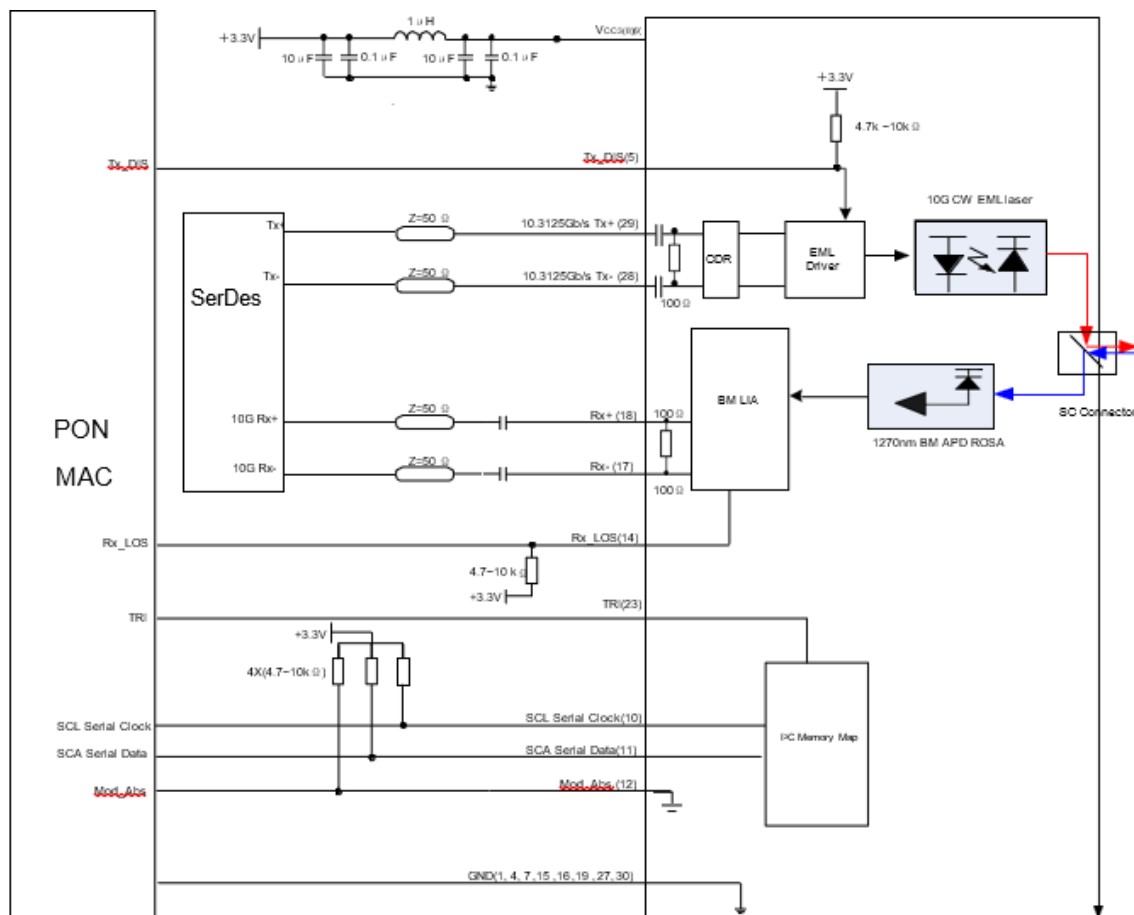
TOP VIEW
OF BOARD



BOTTOM VIEW
OF BOARD

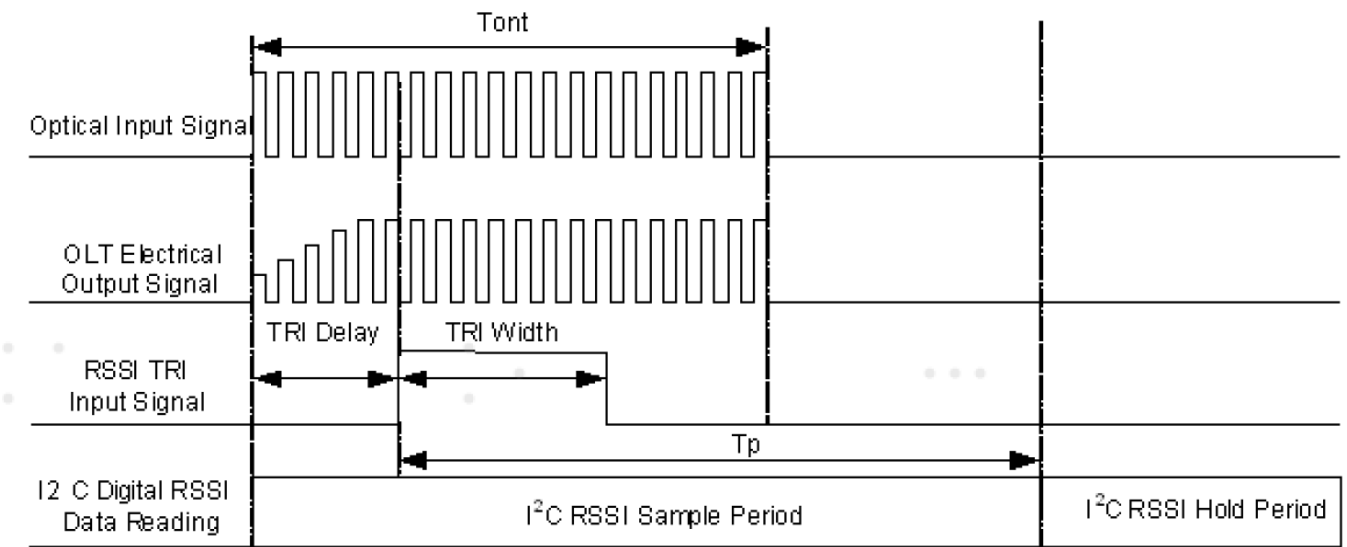


Electrical Interface

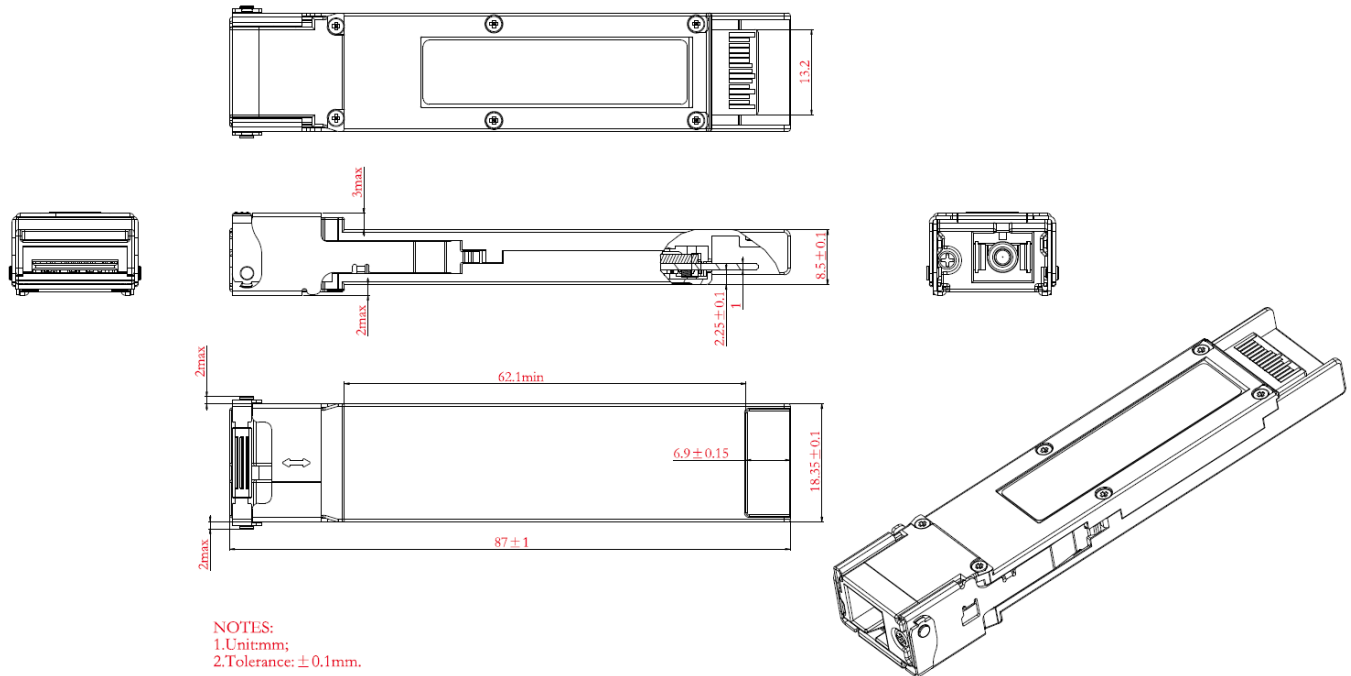


Digital RSSI Sample/Hold Timing

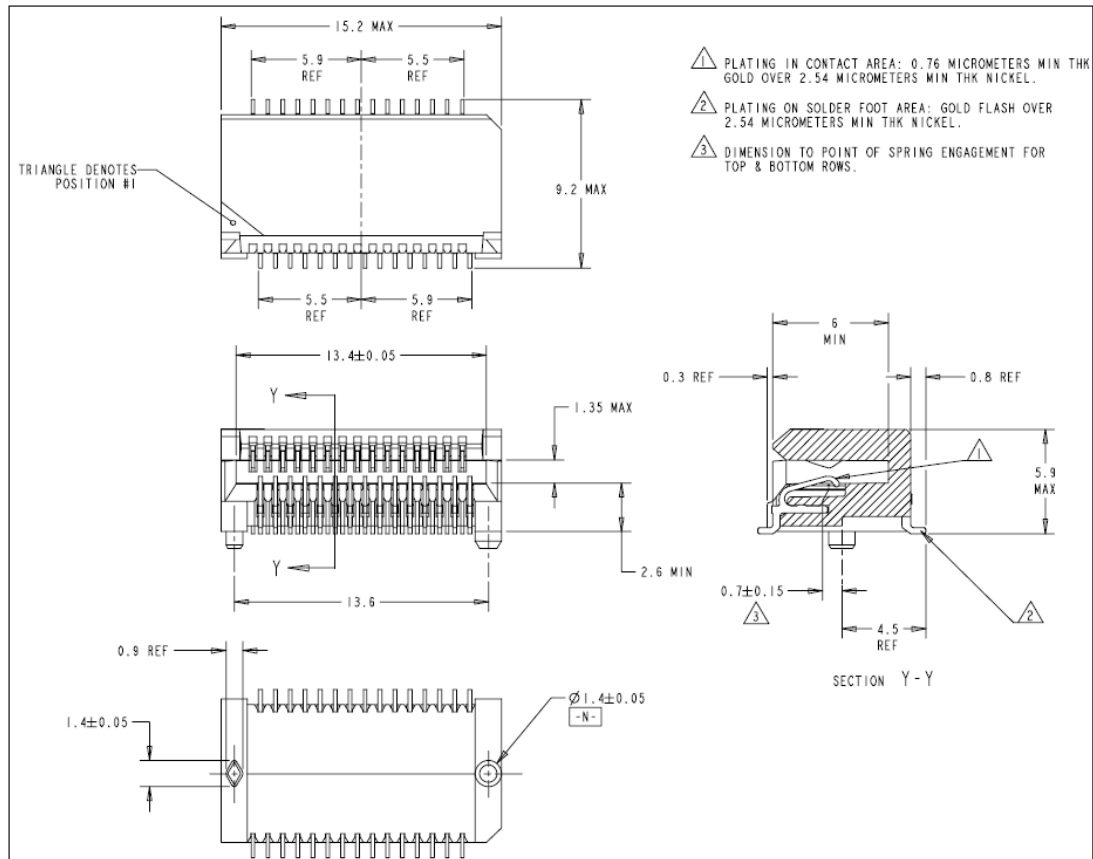
Parameter	Symbol	Min.	Max.	Unit
Operating Case Temperature	Tc	-40	85	°C
Storage Temperature	Tstg	-40	85	
Relative Storage Humidity	RHstg	0	95	%
Relative Operating Humidity	RHo	0	85	%
Module Supply Voltage	Vcc	0	3.6	V



Mechanical Specifications



XFP Connector Dimensions



About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

