CSFP-1G-2BX-53-D-C

MSA and TAA 1000Base-BX 2-Channel SFP Transceiver (SMF, 1550nmTx/1310nmRx, 10km, LC, DOM)

Features:

- INF-8074 and SFF-8472 Compliance
- Simplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

Applications:

- 1000Base-BX Ethernet
- 1x Fibre Channel
- Access (FTTx) and Enterprise

Product Description

This MSA Compliant SFP transceiver provides 1000Base-BX 2-Channel throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1550nmTx/1310nmRx via an LC connector. 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. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

TAA COMPLIANT

Rev. 081522

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		4.0	V
Storage Temperature	TS	-40		85	°C
Operating Case Temperature	Tc	-10		70	°C
Relative Humidity	RH	5		95	%
Data Rate			1.25/1.25		Gb/s

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	3.15	3.30	3.43	V	
Transmitter						
Module Supply Current	Icc			450	mA	
Power dissipation	P_D			1.5	W	
Low speed output: Transmitter Fault(TX_FAULT) / Loss of Signal (LOS)	VOH	2.0		Vcc+0.3	V	1
	VOL	0		0.8	V	
Low speed output: Transmitter Disable (TX_DISABLE), MOD_DEF 1, MOD_DEF 2	VIH	2.0		Vcc+0.3	V	2
	VIL	0		0.8	V	

Notes:

1. Pulled up externally with a 4.7KΩ-10KΩ resistor on the host board to VCCT,R.
2. Mod_Def1 and Mod_Def2 must be pulled up externally with a 4.7KΩ-10KΩ resistor on the host board to VCCT,R.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	Po	-9		-3	dBm	
Center Wavelength Range	Λc	1530	1550	1570	nm	
Extinction Ratio	EX	9			db	
Spectral Width (-20dB) @1490nm	Δλ			1	nm	
Pout @TX-Disable Asserted	Poff			-45	dBm	
Eye Diagram	Compliant with IEEE802.3 ah (class 1 laser safety)					
Receiver						
Wavelength Range		1260	1310	1360	nm	
Receiver Sensitivity	S			-20	dBm	1
Receiver Overload	P_{OL}	-3			dBm	1
Optical Return Loss	ORL	12			dB	
LOS De-Assert	LOS_D			-22	dBm	1
LOS Assert	LOS_A	-35			dBm	
LOS Hysteresis		0.5	3	5	dB	

Notes:

1. Measured with PRBS 27-1 test pattern, 1.25Gb/s, EX=9dB, BER<10-12

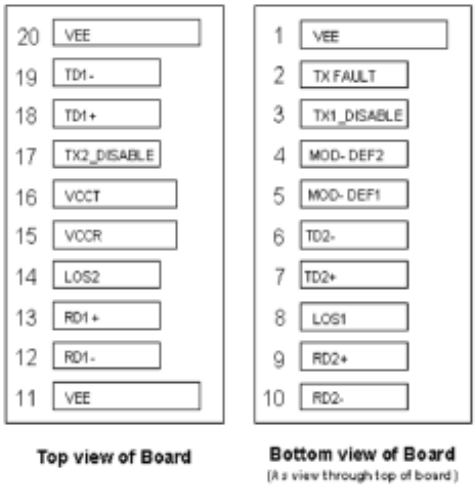
Pin Descriptions

Pin	Symbol	Function/Descriptions	Notes
1	Vee	Transceiver Ground	VEE may be internally connected within the SFP module
2	TX Fault	Transmitter Fault Indication	TX Fault is an open collector/ drain output, which should be pulled up with a 4.7K–10K resistor on the host board. Note 1 for more information
3	TX1_ Disable	Transmitter Disable of Ch A	Module channel A disables function
4	MOD-DEF2	Two-wires interface Data	2 wire serial ID interface, SDA
5	MOD-DEF1	Two-wires interface Clock	2 wire serial ID interface, SCL
6	TD2-	Inverted Transmit Data Input of Ch B	These are the differential transmitter puts. They are AC-coupled, differential lines with 100 differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board
7	TD2+	Transmit Data Input of Ch B	
8	LOS1	Loss of Signal of Ch A	Loss of Signal detected function. Note 2 for more information.
9	RD2+	Received Data Output of Ch B	These are the differential receiver outputs. They are AC coupled 100 differential lines which should be terminated with 100(differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.
10	RD2-	Inverted Received Data Output of Ch B	
11	VEE	Transceiver Ground	VEE may be internally connected within the SFP module.
12	RD1-	Inverted Received Data Output of Ch A	These are the differential receiver outputs. They are AC coupled 100 differential lines which should be terminated with 100(differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.
13	RD1+	Received Data Output of Ch A	
14	LOS2	Loss of Signal of CH B	Loss of Signal detected function. Note 2 for more information.
15	VCCR	Receiver Power	3.3V± 5%. Note 3 for more information
16	VCCT	Transmitter Power	3.3V± 5%. Note 3 for more information
17	TX2_Disable	Transmitter Disable of Ch B	Module channel B disables function
18	TD1+	Transmit Data Input of Ch A	These are the differential transmitter puts. They are AC-coupled, differential lines with 100 differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board
19	TD1-	Inverted Transmit Data Input of Ch A	
20	VEE	Transceiver Ground	VEE may be internally connected within the SFP module.

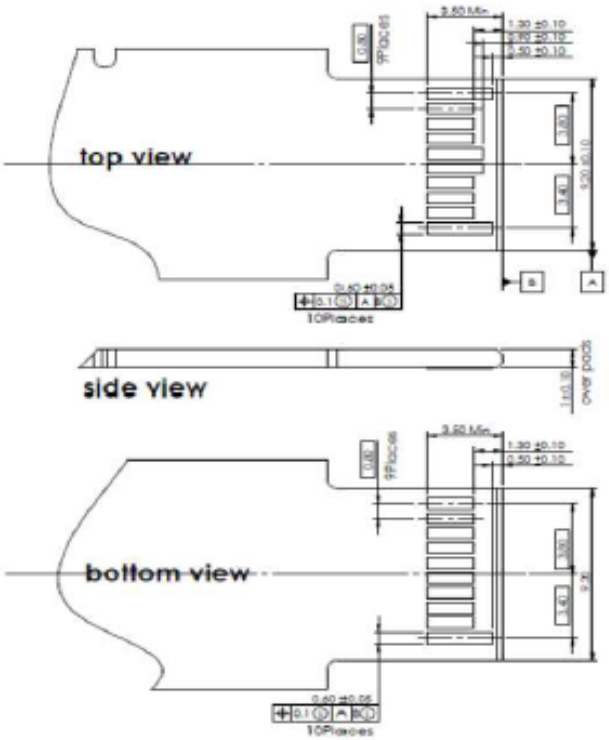
Notes:

1. When high, output indicates a laser fault of some kind either in Channel A or Channel B. The Host shall read Channel A/B for details: TX Fault from channel A if bit 2 is set in [A2H:110]; TX Fault from channel B if bit 2 is set in [B2H: 110]. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

2. When high, this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to < 0.4V.
3. VccT VccR are the power supplies. They are defined as 3.3V ±5% at the SFP connector pin. Maximum supply current is 400Ma@3.3V. Vcc may be internally connected within the SFP transceiver module.

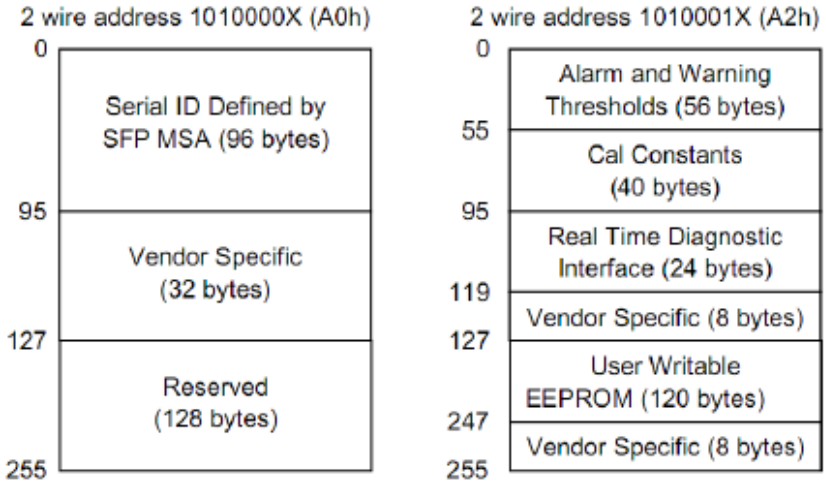


Pin-out of connector Block on Host board

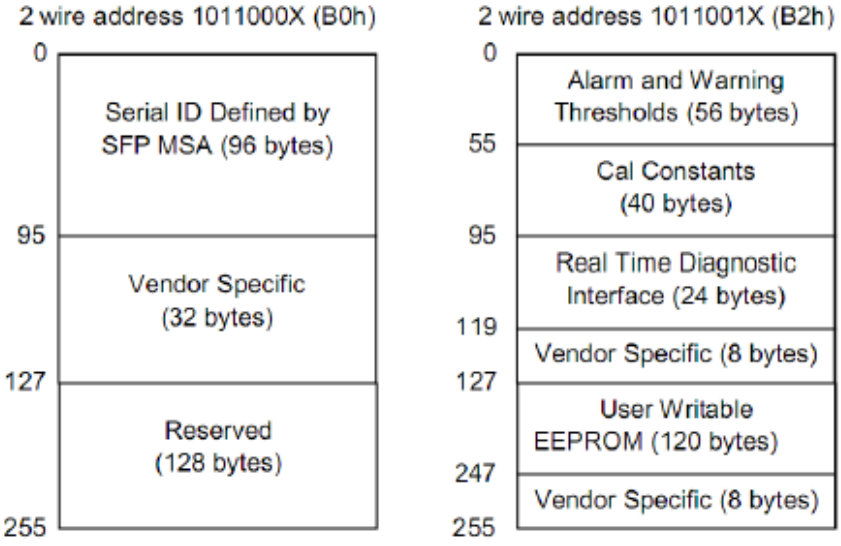


EEPROM Memory Map

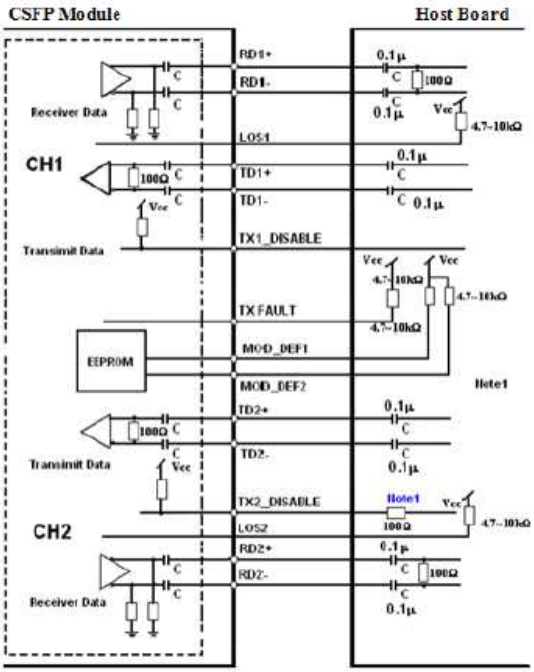
Channel 1:



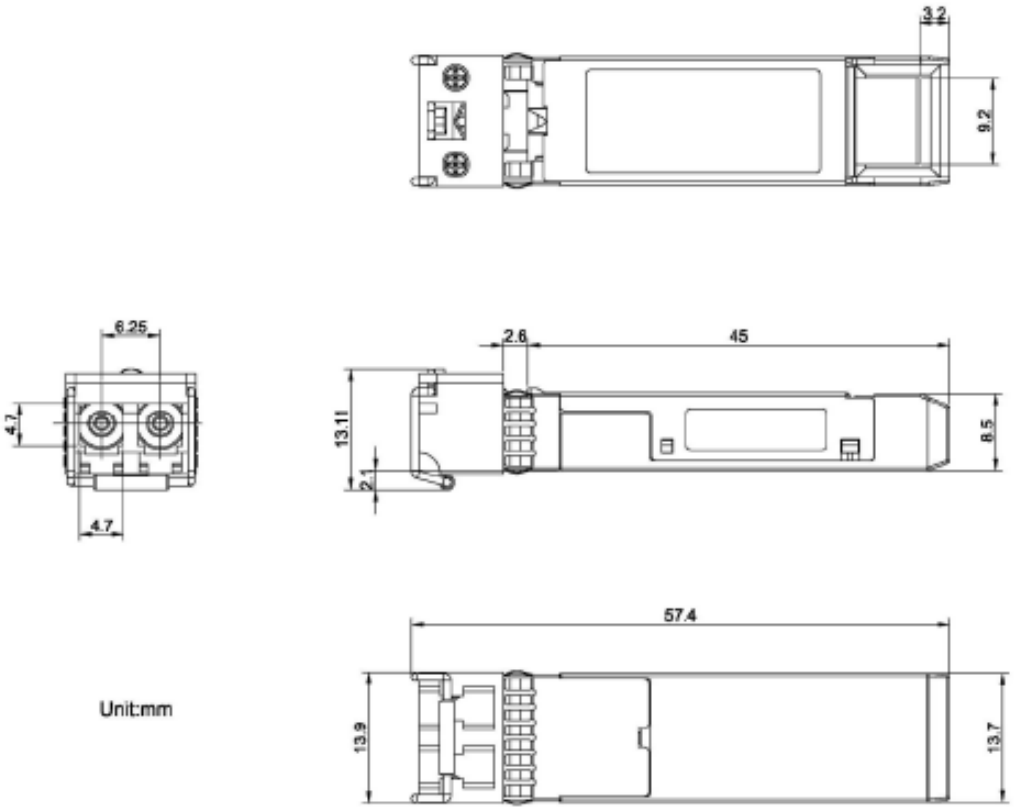
Channel 2:



Recommended Application Interface Circuit



Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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