02310XQV-BX53-C

Huawei® Compatible TAA 1000Base-BX 2-Channel SFP Transceiver (SMF, 1550nmTx/1310nmRx, 40km, 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 Ethernet
- Access and Enterprise

Product Description

This Huawei® compatible SFP transceiver provides 1000Base-BX 2-Channel throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1550nmTx/1310nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Huawei®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. 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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		3.6	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Operating Relative Humidity	RH			95	%	
Power Supply Current	Icc			300	mA	
Power Supply Noise Rejection				100	mVp-p	
Data Rate		100		1250	Mbps	

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage		Vcc	3.1	3.3	3.45	V	
9μm Core Diameter SMF		L		40		km	
Transmitter							
LVPECL Differential Inputs		VIN	400		2000	mVp-p	
Input Differential Impedance		ZIN	85	100	115	Ω	
Tx_Disable	**Disable**		2		Vcc+0.3	V	
	Enable		0		0.8	V	
Tx_Fault	**Fault**		2		Vcc+0.3	V	
	Normal		0		0.5	V	
Receiver							
LVPECL Differential Ouputs		VOUT	400		2000	mVp-p	
Output Differential Impedance		ZOUT	85	100	115	Ω	
Rx_LOS	**LOS**		2		Vcc+0.3	V	
	Normal		0		0.8	V	
MOD_DEF(0:2)		VOH	2.5			V	
		VOL	0		0.5	V	

Notes:

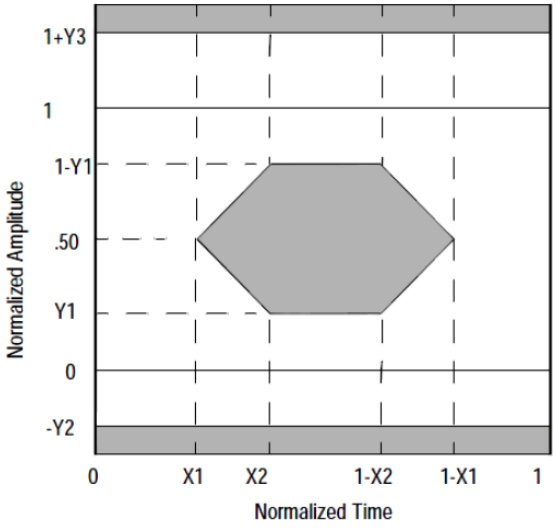
1. AC coupled inputs. LVPECL logic. Internally AC coupled.
2. RIN>100kΩ @ DC.
3. AC coupled outputs. LVPECL logic. Internally AC coupled.
4. With serial ID.

Optical Characteristics

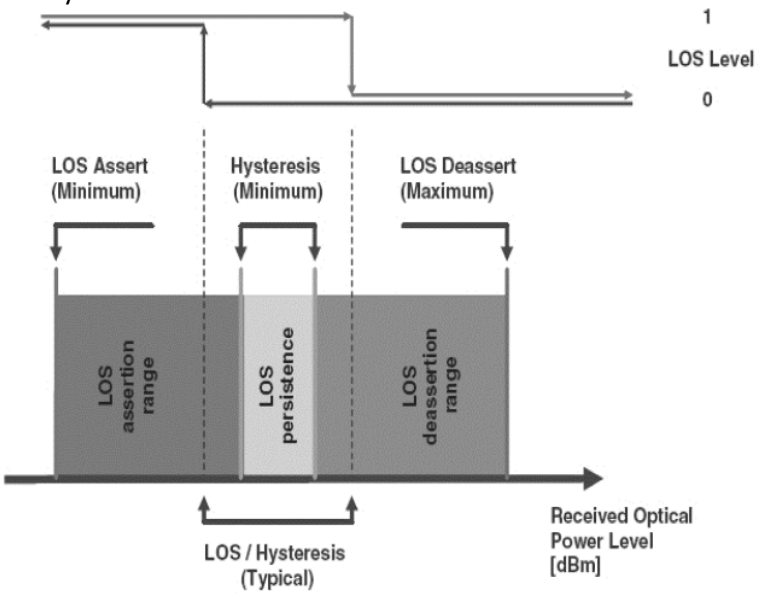
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	1540	1550	1560	nm	
Spectral Width (-20dB)	Δλ			1	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	POUT	-5		0	dBm	1
Extinction Ratio @1250Mbps	ER	6			dB	
Rise/Fall Time (20-80%)	Tr/Tf			0.26	ns	
Tx_Disable Assert Time	t_off			10	us	
POUT @ Tx_Disable Asserted	POUT			-45	dBm	
Output Optical Eye	Compliant with IEEE 802.3ah-2004					3
Receiver						
Wavelength Range		1260	1310	1360	nm	
Receiver Sensitivity	S			-23	dBm	2
Receiver Overload	Pol	-3			dBm	
Return Loss	ORL	12			dB	
Optical Path Penalty				1		
LOS De-Assert	LOSD			-24	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis		0.5			dB	4

Notes:

1. Output is coupled into a 9/125µm single-mode fiber.
2. Minimum average optical power measured at BER<$1E^{-12}$, with a 2^7-1 PRBS and ER=9dB.
3. Filtered, measured with a PRBS 2^7-1.



4. LOS Hysteresis:



Pin Descriptions

Pin	Symbol	Channel No.	Name/Description	Notes
1	VeeT	Common	Transmitter Ground.	3
2	Tx_Fault	Common	Transmitter Fault Indication.	8
3	Tx_Disable	1	Transmitter Disable of CH 1. Module disables on “high” or “open.”	1
4	MOD_DEF2	Common	2-Wire Serial Interface Data (SDA).	2
5	MOD_DEF1	Common	2-Wire Serial Interface Clock (SCL).	2
6	TD2-	2	Inverted Transmit Data Input of CH 2.	6
7	TD2+	2	Transit Data Input of CH 2.	6
8	LOS1	1	Loss of Signal of CH 1.	7
9	RD2+	2	Receiver Data Output of CH 2.	4
10	RD2-	2	Inverted Received Data Output of CH 2.	4
11	VeeT	Common	Transceiver Ground.	3
12	RD1-	1	Inverted Receiver Data Output of CH 1.	4
13	RD1+	1	Receiver Data Output of CH 1.	4
14	LOS2	2	Loss of Signal of CH 2.	7
15	VccR	Common	3.3V ± 5 % Receiver Power Supply.	5
16	VccT	Common	3.3V ± 5 % Transmitter Power Supply.	5
17	Tx2_Disable	2	Transmitter Disable of CH2. Module disables on “high” or “open.”	1
18	TD1+	1	Transmit Data Input of CH 1.	6
19	TD1-	1	Inverted Transmit Data Input of CH 1.	6
20	VeeT	Common	Transmitter Ground.	6

Notes:

1. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7kΩ to 10kΩ resistor. Its states are:

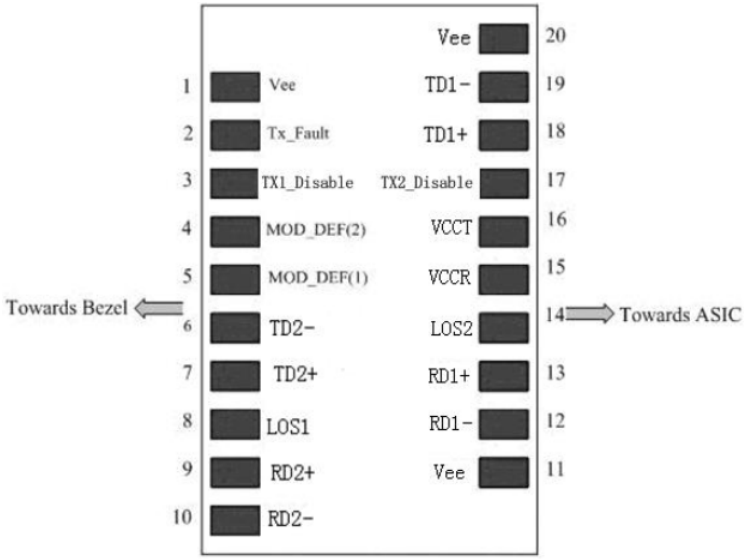
   Low (0V – 0.8V): Transmitter On.
   Between (0.8V and 2.0V): Undefined.
   High (2.0V – 3.465V): Transmitter Disabled.
   Open: Transmitter Disabled.

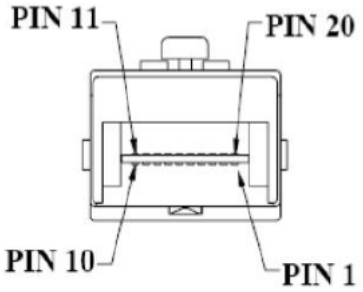
2. MOD_DEF1 & 2. These are the module definition pins. They should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.

   MOD_DEF1 is the clock line of the 2-wire serial interface for serial ID.
   MOD_DEF2 is the data line of the 2-wire serial interface for serial ID.

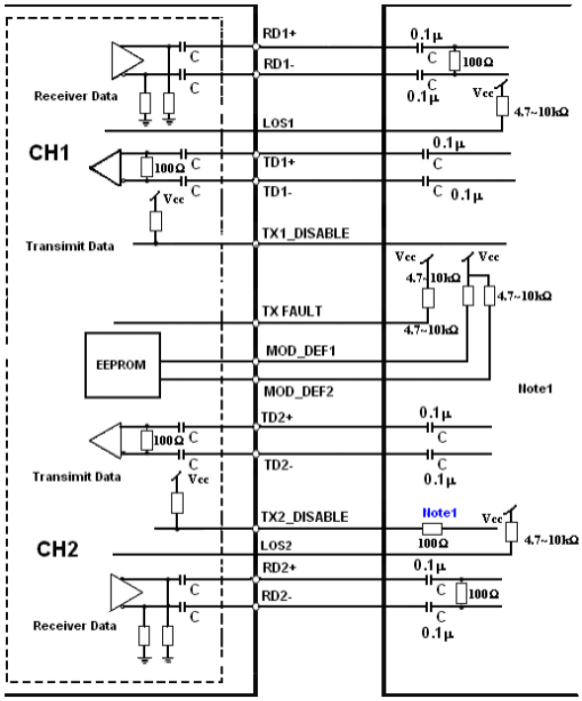
3. Vee may be internally connected within the SFP module.
4. RD1, 2 -/+. These are the differential receiver outputs. They are AC-coupled, 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.
5. VccT,R are the power supplies. They are defined as 3.3V ± 5% at the SFP connector pin. Maximum supply current is 600mA @ 3.3V. Vcc may be internally connected within the SFP.
6. TD1, 2 -/+. These are the differential inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board.
7. LOS1,2 (Loss of Signal) is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor. Pull-up voltage between 2.0V and VccT,R+0.3V. When “high,” this output indicated the received optical power is below the worst-case receiver sensitivity (as defined by the standard use). "Low" indicates normal operation. In the low state, the output will be pulled to <0.4V.
8. Tx_Fault report transceiver status as following. Tx Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. Pull-up voltage between 2.0V and VccT,R +0.3V. When “high,” output indicates a laser fault of some kind either in Channel 1 or Channel 2. The host shall read Channel 1/2:A2H/AAH: 110 for details. Tx_Fault from Channel 1 if bit 2 is set in [A2H:110]. Tx_Fault from Channel 2 if bit 2 is set in [B2H: 110]. "Low" indicates normal operation. In the low state, the output will be pulled to <0.8V.

Pin Connectors

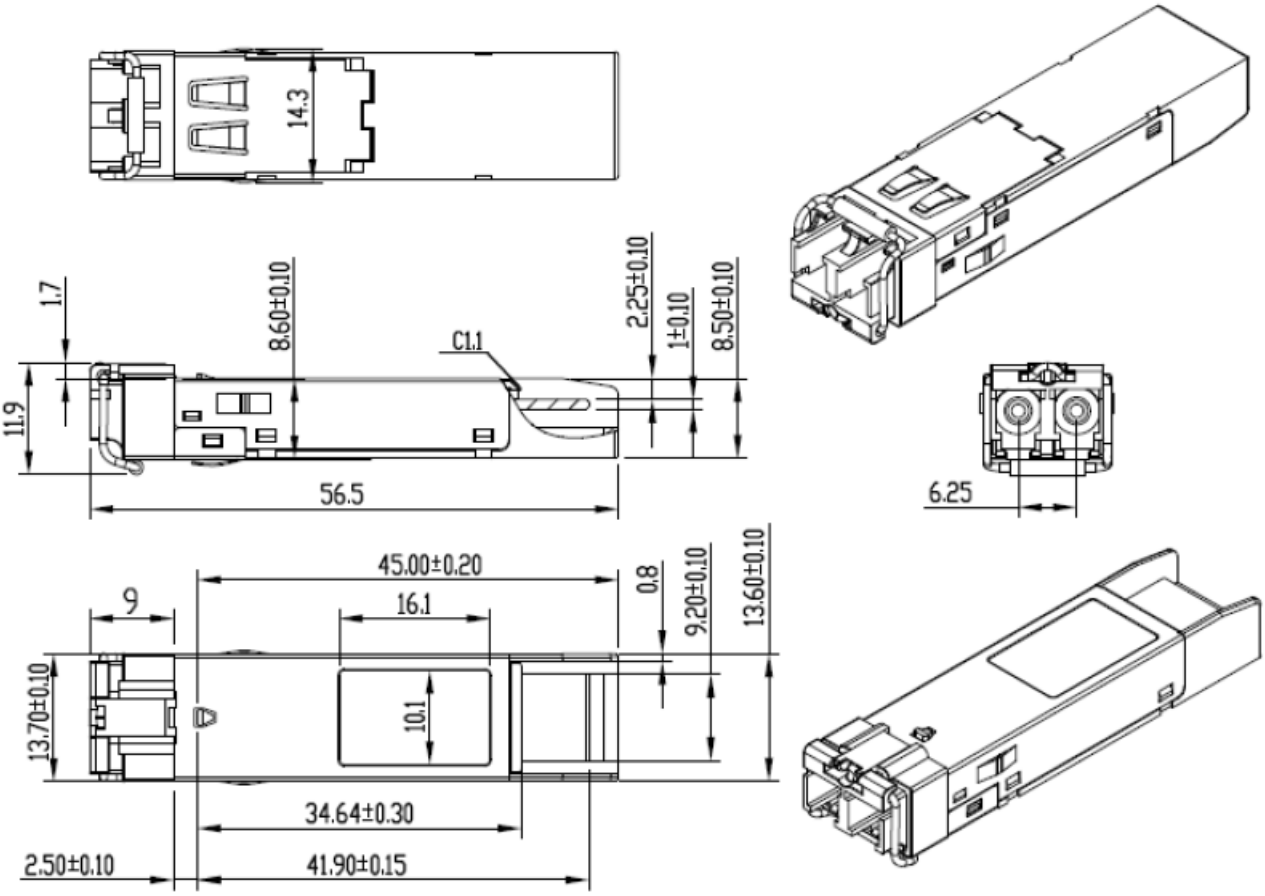




Recommended Circuit Schematic



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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