

## XFP-10GB-CW51-40-HW2-C

Huawei® Compatible TAA 10GBase-CWDM XFP Transceiver (SMF, 1510nm, 40km, LC, DOM)

### Features:

- INF-8077i Compliance
- Duplex 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:

- 10x Gigabit Ethernet over CWDM
- 8x/10x Fibre Channel
- Access, Metro and Enterprise
- Mobile Fronthaul CPRI/OBSAI

### Product Description

This Huawei® compatible XFP transceiver provides 10GBase-CWDM throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1510nm via an LC connector. It can operate at temperatures between 0 and 70C. The listed reach has been determined using a link budget calculation and tested in a standard environment. Actual link distances achieved will be dependent upon the deployed environment. 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. 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.")



## 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

## CWDM Available Wavelengths

Wavelengths	Min.	Typ.	Max.
47	1463.5	1471	1476.5
49	1483.5	1491	1496.5
51	1503.5	1511	1516.5
53	1523.5	1531	1536.5
55	1543.5	1551	1556.5
57	1563.5	1571	1576.5
59	1583.5	1591	1596.5
61	1603.5	1611	1616.5

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc3	-0.5		4.0	V
	Vcc5	-0.5		6.0	V
Storage Temperature	Ts	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Relative Humidity	RH	5		95	%
Data Rate		9.95		11.3	Gbps

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Power Supply Voltage</b>	Vcc3	3.135	3.3	3.465	V	
	Vcc5	4.75	5.00	5.25	V	
<b>Power Supply Current</b>	Icc3			750	mA	
	Icc5			500	mA	
<b>Power Dissipation</b>	PD			3500	mW	
<b>Transmitter</b>						
<b>Differential data input swing</b>	Vin,p-p	120		1000	mVp-p	
<b>Input differential impedance</b>	Zin		100		$\Omega$	
<b>Tx_Disable, P_Down/RST</b>	V <sub>IH</sub>	2.0		Vcc3+0.3	V	
	V <sub>IL</sub>	-0.3		0.8	V	
<b>Transmit Disable Assert Time</b>				10	us	
<b>Receiver</b>						
<b>Differential data output swing</b>	Vout, p-p	340		850	mVp-p	1
<b>Output differential impedance</b>	Zo		100		$\Omega$	
<b>Data Output Rise Time, Fall Time</b>	tr, tf	24			ps	2
<b>Rx_LOS, Mod_NR, Interrupt</b>	V <sub>OH</sub>	V <sub>CCHOST</sub> -0.5		V <sub>CCHOST</sub> +0.3	V	3
	V <sub>OL</sub>	0		0.4	V	3

### Notes:

1. Internally AC coupled, but requires an external 100 $\Omega$  differential termination.
2. 20–80%.
3. Loss of Signal is an open collector output. Should be pulled up with a 4.7k $\Omega$ -10k $\Omega$  resistor on the host board.

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
<b>Launch Average Optical Power</b>	P <sub>o</sub>	-1		4	dBm	1
<b>Center Wavelength Range</b>	λ <sub>c</sub>	1464.5		1617.5	nm	
<b>Center Wavelength Tolerance</b>	Δλ <sub>c</sub>	-6.5		6.5	nm	
<b>Extinction Ratio</b>	EX	8.2			dB	2
<b>Spectral Width (-20dB)</b>	Δλ			0.3	nm	
<b>Side Mode Suppression Ratio</b>	SMSR	30			dB	
<b>Dispersion Penalty @ 800ps/nm</b>	DP			2	dB	2
<b>Average Optical Power (Laser Off)</b>	P <sub>OFF</sub>			-30	dBm	1
<b>Eye Diagram</b>	ITU-T G.691 SDH STM S-64.2b compatible					2
<b>Receiver</b>						
<b>Center Wavelength</b>	λ <sub>c</sub>	1460		1620	nm	
<b>Receiver Sensitivity (P<sub>avg</sub>)</b>	S			-16	dBm	3
<b>Receiver Overload (P<sub>avg</sub>)</b>	POL	-1.0			dBm	3
<b>Optical Return Loss</b>	ORL	27			dB	
<b>LOS De-Assert</b>	LOS <sub>D</sub>			-20	dBm	
<b>LOS Assert</b>	LOS <sub>A</sub>	-27			dBm	
<b>LOS Hysteresis</b>		0.5			dB	

### Notes:

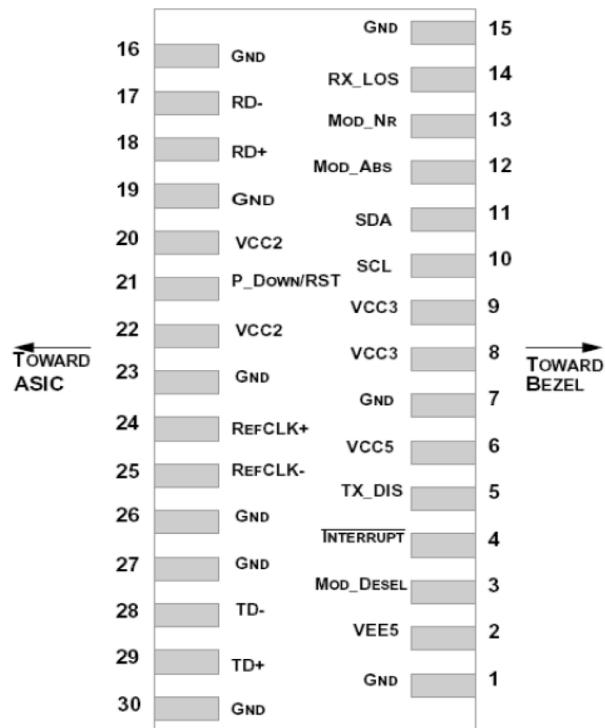
1. The optical power is launched into 9/125 $\mu$ m SMF.
2. Measured with a PRBS 2<sup>31</sup>-1 test pattern @ 9.953Gbps.
3. Average received power; BER less than 1E-12 and PRBS 231-1 test pattern.

## Pin Descriptions

Pin	Logic	Symbol	Name/Descriptions	Notes
1		GND	Module Ground	1
2		V <sub>EE5</sub>	Optional -5.2V Power Supply - Not Required	
3	LVTTL-I	MOD_DESEL	Module De-select; When held low allows module to respond to 2-wire serial interface	
4	LVTTL-O	Interrupt	Interrupt; Indicates presence of an important condition which can be read via the 2-wire serial interface.	2
5	LVTTL-I	TX_DIS	Transmitter Disable; Turns off transmitter laser output	
6		VCC5	+5V Power Supply	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTL-I/O	SCL	2-Wire Serial Interface Clock.	2
11	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	2
12	LVTTL-O	MOD_Abs	Indicates Module is not present. Grounded in the Module.	2
13	LVTTL-O	MOD_NR	Module Not Ready; Indicating Module Operational Fault	2
14	LVTTL-O	RX_LOS	Receiver Loss of Signal Indicator	2
15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RD-	Receiver Inverted Data Output	
18	CML-O	RD+	Receiver Non-Inverted Data Output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply (Not required).	
21	LVTTL-I	P_DOWN/RST	Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode. Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle.	
22		VCC2	+1.8V Power Supply (Not required)	
23		GND	Module Ground	1
24	PECL-I	REFCLK+	Reference Clock Non-Inverted Input, AC coupled on the host board - Not Required	3
25	PECL-I	REFCLK-	Reference Clock Inverted Input, AC coupled on the host board – Not Required	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter Inverted Data Input	
29	CML-I	TD+	Transmitter Non-Inverted Data Input	
30		GND	Module Ground	1

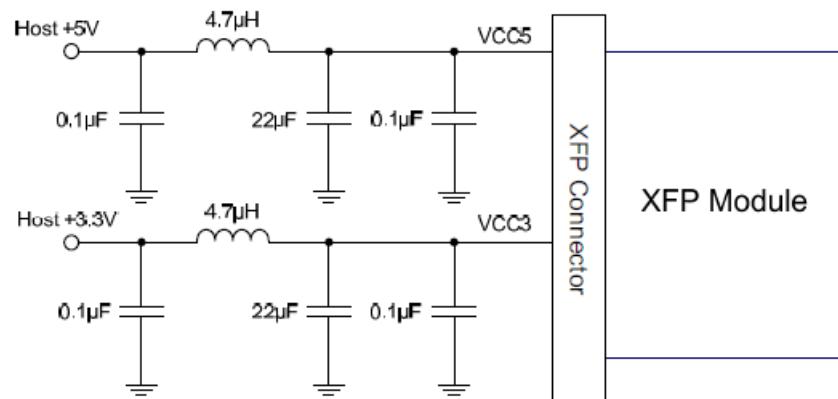
**Notes:**

1. Module ground pins Gnd are isolated from the module case.
2. Shall be pulled up with  $4.7\text{K}\Omega$  to  $10\text{K}\Omega$  to a voltage between  $3.15\text{V}$  and  $3.45\text{V}$  on the host board.
3. Reference Clock is not required. If present, it will be ignored.

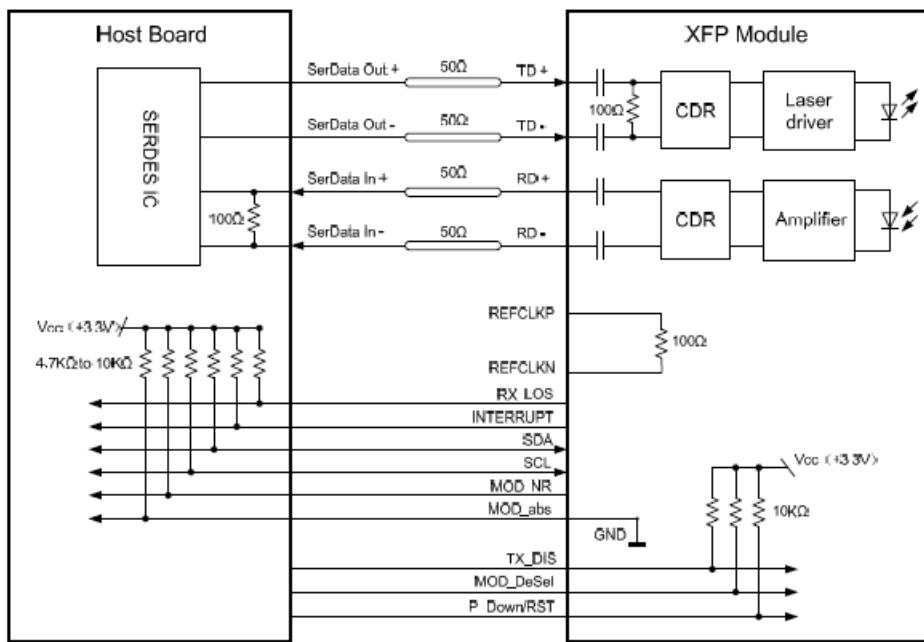


Pin-out of connector Block on Host board

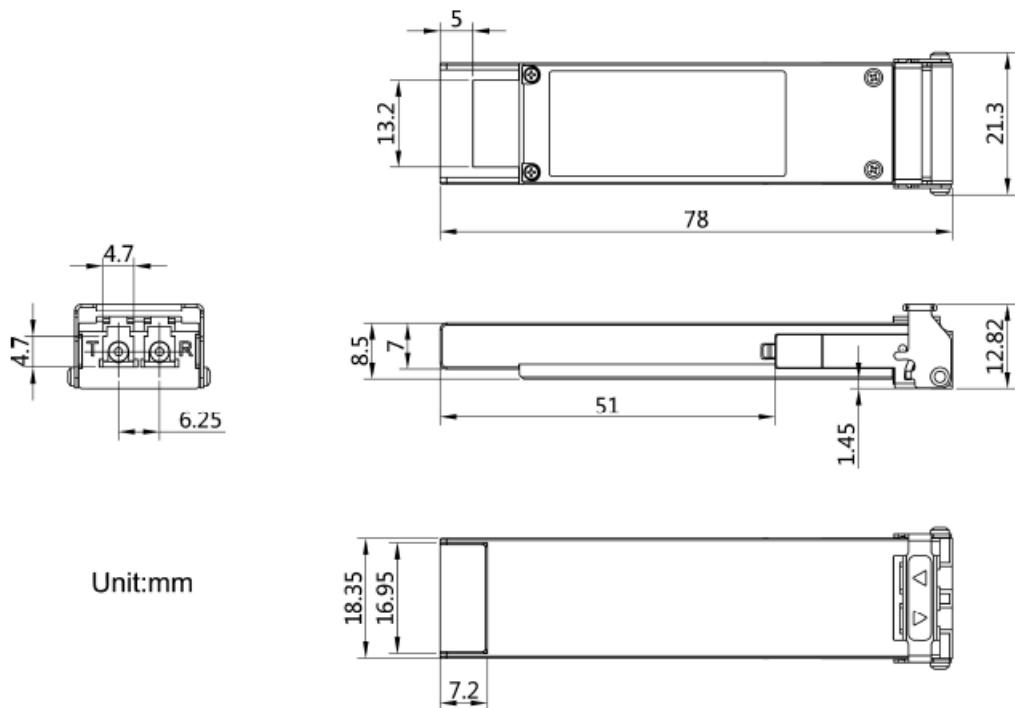
**Recommended Host Board Power Supply Filter Network**



## Recommended Application Interface Block Diagram



## Mechanical Specifications



## About ProLabs

Our extensive experience comes as standard. For over 20 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 more than 100 optical switching and transport platforms.

## A 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 1.6T 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.

## The Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure compatible products, and immediate answers to your questions. 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.



## Contact Information

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