XFP-10GB-CW59-40-I-C

MSA and TAA 10GBase-CWDM XFP Transceiver (SMF, 1590nm, 40km, LC, DOM, -40 to 85C)

Features:

- INF-8077i Compliance
- Duplex LC Connector
- Single-mode Fiber
- Industrial Temperature -40 to 85 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 MSA compliant XFP transceiver provides 10GBase-CWDM throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1590nm via an LC connector. It is capable of withstanding rugged environments and can operate at temperatures between -40 and 85C. 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. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows 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. 100225

CWDM Available Wavelengths

Wavelength	Min.	Typ.	Max.
47	1464	1470	1477.5
49	1484	1490	1497.5
51	1504	1510	1517.5
53	1524	1530	1537.5
55	1544	1550	1557.5
57	1564	1570	1577.5
59	1584	1590	1597.5
61	1604	1610	1617.5

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	℃	
Supply Voltage 5V	Vcc5	-0.5		5.5		
Supply Voltage 3.3V	Vcc3	-0.5		4	V	
Data Rate	DR	9.95		11.3	Gbps	
Bit Error Rate	BER			10^{-12}		
Operating Case Temperature	Tc	0		70	°C	2

Notes:

1. Operating environment.
2. Case temperature.

Electrical Characteristics (Vcc5=4.75V to 5.25V, Vcc3=3.14V to 3.46V, Tc)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Total Power Consumption	PC			2.5	W	
Power Supply Voltage -5V	Vcc5	4.75	5.0	5.25	V	1
Power Supply Voltage -3.3V	Vcc3	3.14		3.46	V	1
Power Supply Current – Vcc5	Icc5			200	mA	
Power Supply Current - Vcc3	Icc3			500	mA	
Transmitter						
Input Differential Impedance	RIN		100		Ω	2
Differential Data Input Swing	VIN,pp	120		820	mV	
Transmit Disable Voltage	VD	2		Vcc	V	3
Transmit Enable Voltage	VEN	GND		GND+0.8	V	
Transmit Disable Assert Time				10	us	
Receiver						
Differential Data Output Swing	VOUT,pp	340	650	850	mV	
Data Output Rise/Fall Time (20-80%)	Tr/Tf			38	ps	
LOS Fault	VLOSA	Vcc-0.5		Host_Vcc	V	
LOS Normal	VLOSD	GND		GND+0.5	V	

Notes:

1. Operating Environment.
2. After internal AC coupling.
3. Or open circuit.

Optical Characteristics (Vcc5=4.75V to 5.25V, Vcc3)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power	PTX	-4		4	dBm	1
Extinction Ratio	ER	8.2			dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Relative Intensity Noise	RIN			-130	dB/Hz	
Transmitter Dispersion Penalty	TDP			2	dB	
Launch Power of Off Transmitter	Poff			-30	dBm	1
Transmitter Jitter (Pk-Pk)	TJ			0.1	UI	
Receiver						
Center Wavelength Range	λC	1260		1600	nm	
Optical Input Power	P_{RX}	-16		0.5	dBm	
Receiver Sensitivity @10.3Gbps	RX_SEN			-16	dBm	2
Receiver Reflectance	TRRX			-27	dB	
LOS Assert	LOSA	-25			dBm	
LOS De-Assert	LOSD			-18	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Average.
2. Measured with worst ER, BER<10^{-12}, and 2^{31}-1 PRBS.

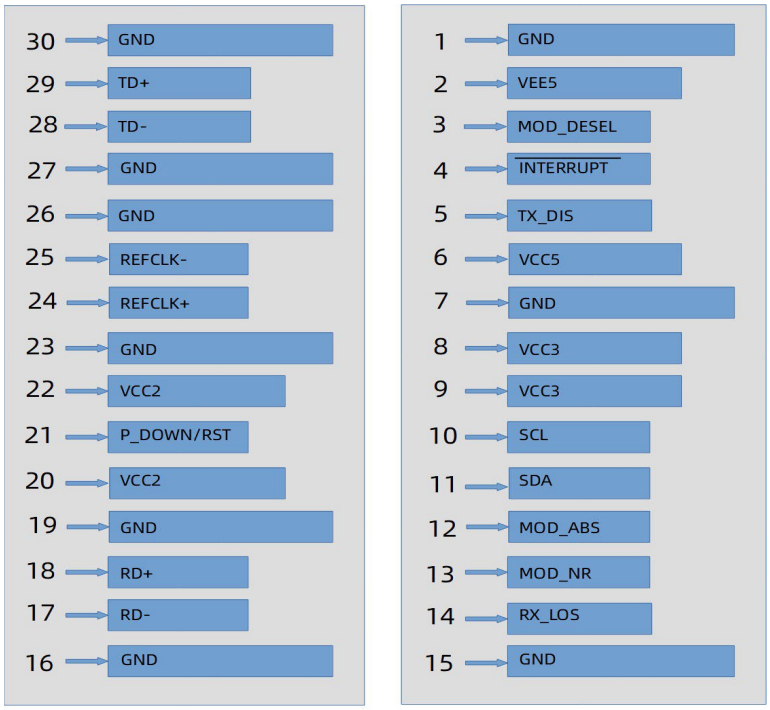
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	GND	Module Ground.	1
2	Vee5	Optional –5.2 Power Supply. Not Required.	
3	MOD_DESEL	Module De-Select. When held "low," allows the module to respond to 2-wire serial interface commands.	
4	Interrupt	Indicates the presence of an important condition which can be read over the serial 2-wire interface.	2
5	Tx_Disable	Transmitter Disable. Transmitter laser source is turned off.	
6	Vcc5	+5V Power Supply.	
7	GND	Module Ground.	1
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 Absent. Indicates that the module is not present. Grounded within the module.	2
13	MOD_ NR	Module Not Ready. Indicates a module operating fault.	2
14	Rx_LOS	Receiver Loss of Signal Indicator.	2
15	GND	Module Ground.	1
16	GND	Module Ground.	1
17	RD-	Receiver Inverted Data Output.	
18	RD+	Receiver Non-Inverted Data Output.	
19	GND	Module Ground.	1
20	Vcc2	+1.8V Power Supply.	
21	PDown/RST	Power Down. When "high," places the module in the low-power stand-by mode and, on the falling edge of P_Down, initiates a module reset. 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.	
23	GND	Module Ground.	1
24	RefCLK+	Reference Clock Non-Inverted Input. AC coupled on the host board.	
25	RefCLK-	Reference Clock Inverted Input. AC coupled on the host board.	
26	GND	Module Ground.	1
27	GND	Module Ground.	1
28	TD-	Transmitter Inverted Data Input.	
29	TD+	Transmitter Non-Inverted Data Input.	
30	GND	Module Ground.	1

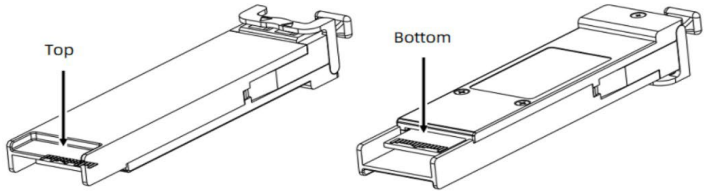
Notes:

1. The module ground pins (GND) are isolated from the module case and chassis ground within the module.
2. Open collector. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 3.15V and 3.6V.

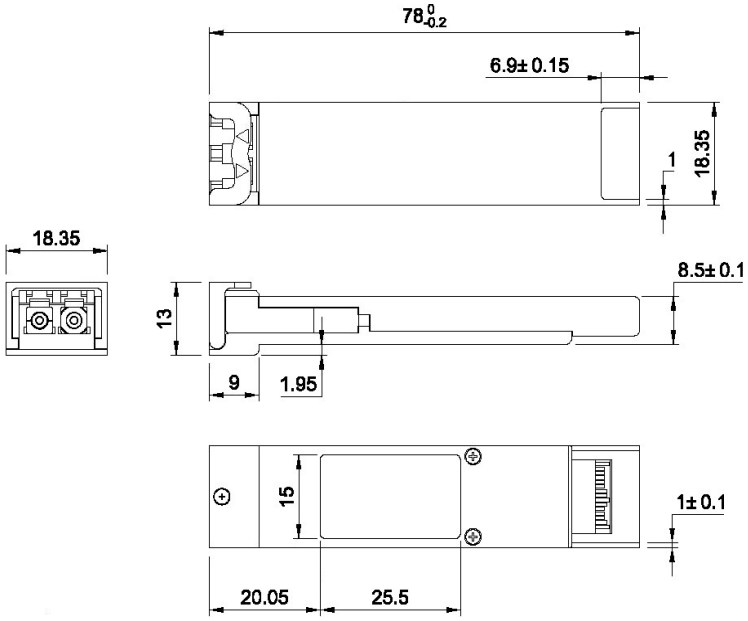
Electrical Pad Layout

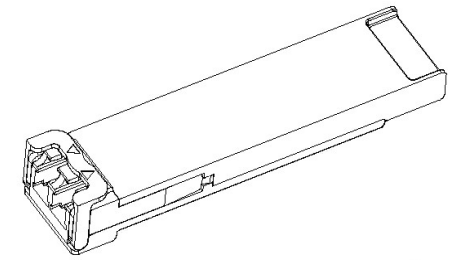


Top of Board **Bottom of Board**



Mechanical Specifications





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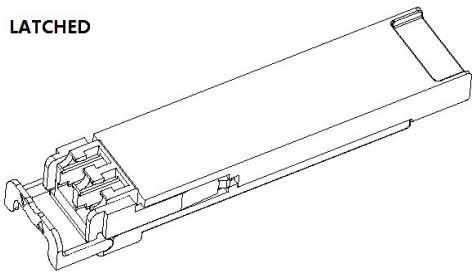

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About ProLabs

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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