100-04211-C

Calix® 100-04211 Compatible TAA 10GBase-CWDM XFP Transceiver (SMF, 1510nm, 80km, 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 Calix® 100-04211 compatible XFP transceiver provides 10GBase-CWDM throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1510nm via an LC connector. It is capable of withstanding -40 to 85C 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. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Calix®. 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.")

TAA COMPLIANT

Rev. 052026

CWDM Available Wavelengths

Wavelength	Min.	Typ.	Max.
47	1465	1471	1477
49	1485	1491	1497
51	1505	1511	1517
53	1525	1531	1537
55	1545	1551	1557
57	1565	1571	1577
59	1585	1591	1597
61	1605	1611	1617

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	-40		85	°C	2

Notes:

1. Operating environment.
2. Case temperature.

Electrical Characteristics

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			350	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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power	PTX	0		4	dBm	1
Optical Center Wavelength	λC	1505	1511	1517		
Extinction Ratio	ER	9			dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Relative Intensity Noise	RIN			-130	dB/Hz	
Transmitter Dispersion Penalty	TDP			3	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	
Receiver Overload	POL	-7			dBm	
Receiver Sensitivity @10.3Gbps	RX_SEN			-24	dBm	2
Receiver Reflectance	TRRX			-27	dB	
LOS Assert	LOSA	-35			dBm	
LOS De-Assert	LOSD			-27	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

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

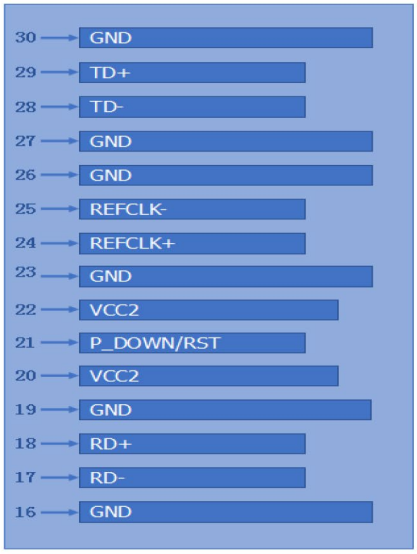
Pin Descriptions

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

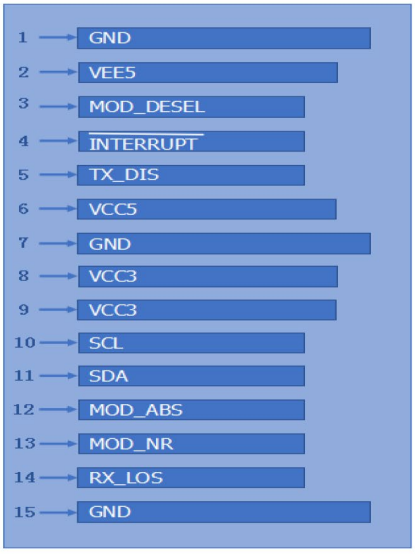
Notes:

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.

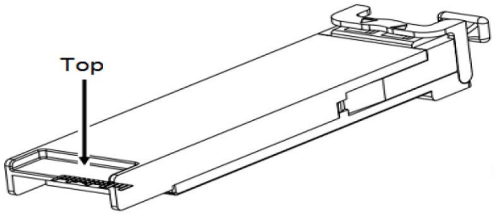
Electrical Pad Layout

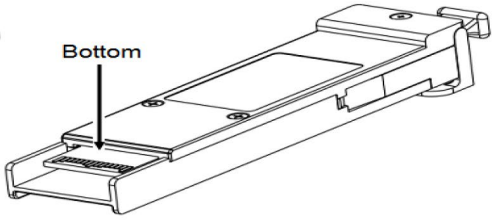


Top of Board

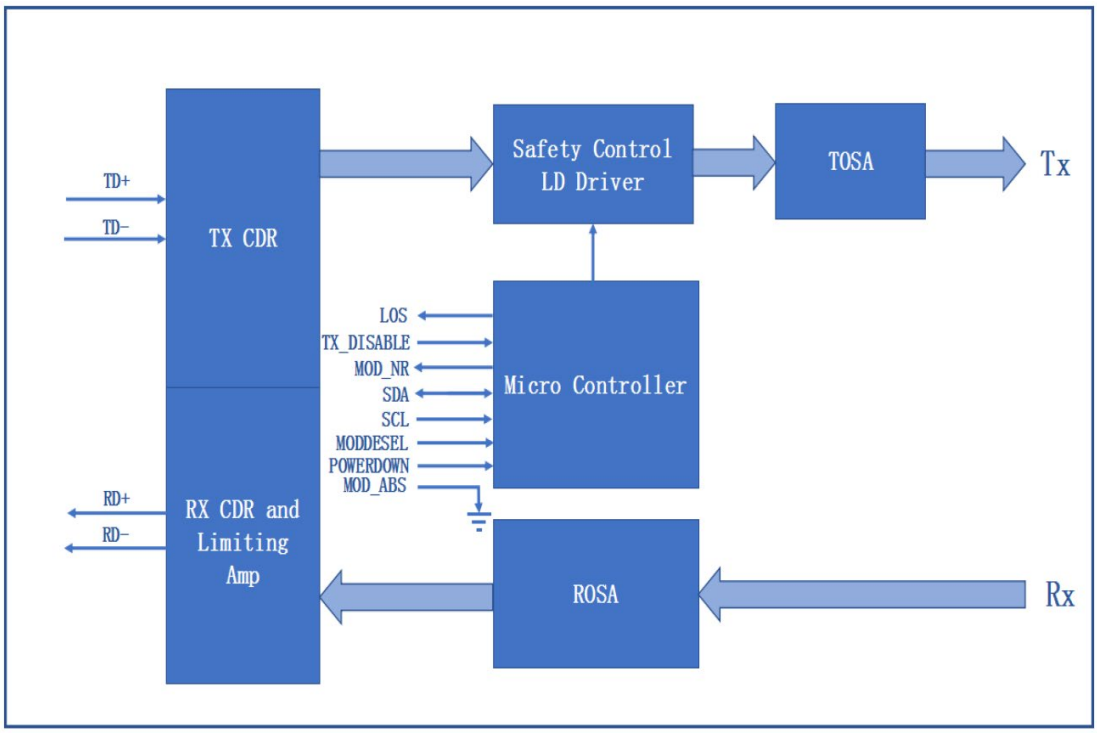


Bottom of Board

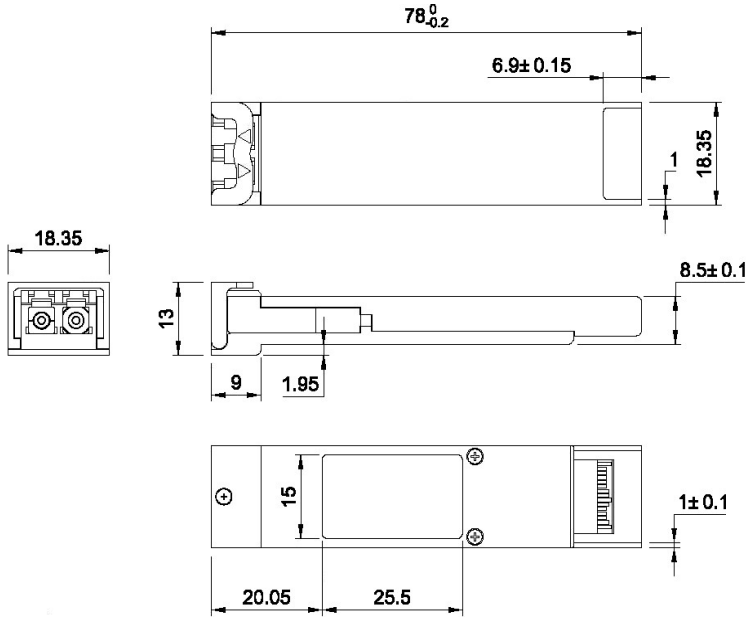


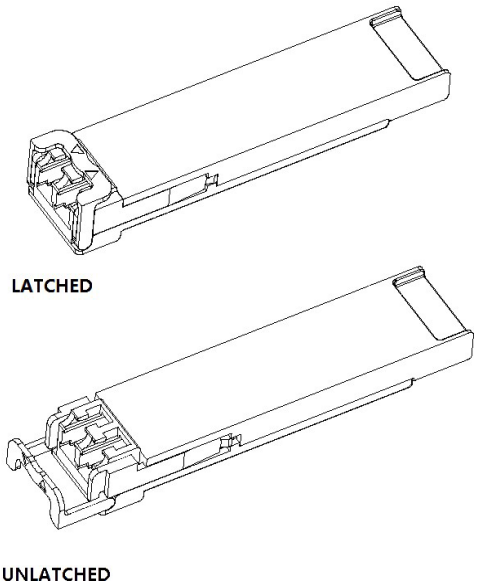


Block Diagram



Mechanical Specifications





All dimensions are ±0.2mm unless otherwise specified.

Unit: mm

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.

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