

+

Alpha Bridge AXFP-10G- ZR+ Datasheet

+



Features

- 4 CWDM lanes MUX/DEMUX design
- Up to 11.2Gb/s data rate per wavelength
- QSFP+ MSA compliant
- IEEE 802.3ba Electrical Interface
- Digital diagnostic capabilities
- Compliant with QDR/DDR Infiniband data rates
- Up to 150m transmission on OM3 multimode fiber (MMF) or 2km transmission on single mode fiber (SMF)
- Operating case temperature: 0 to 70°C
- Maximum power consumption 3.5W
- LC duplex connector

Applications

- 40GBASE-LX4 Ethernet Links
- Infiniband QDR and DDR interconnects
- Client-side 40G datacom connections

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T _s	-40	85	°C
Operating Case Temperature	T _{OP}	0	70	°C
Power Supply Voltage	V _{CC}	-0.5	3.6	V
Relative Humidity (non-condensation)	RH	0	85	%
Damage Threshold, each Lane	TH _d	4.5		dBm

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	T _{OP}	0		+70	°C
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V
Data Rate, each Lane			10.3125	11.2	Gb/s
Control Input Voltage High		2		V _{CC}	V
Control Input Voltage Low		0		0.8	V
Link Distance with (OM3 MMF)	D _{MMF}			150	m
Link Distance (SMF)	D _{SMF}			2	km

Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Power Consumption				3.5	W	
Supply Current	I _{CC}			1.1	A	

+	Transceiver Power-on Initialization Time				2000	ms	1
---	--	--	--	--	------	----	---

Notes:

1. Power-on initialization time is the time from when the power supply voltages reach and remain above the minimum recommended operating supply voltages to the time when the module is fully functional.

optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
	L0	1264.5	1271	1277.5	nm	
	L1	1284.5	1291	1297.5	nm	
Wavelength assignment	L2	1304.5	1311	1317.5	nm	
	L3	1324.5	1331	1337.5	nm	

Transmitter Electro-optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Operating Data Rate		9.95		11.3	Gbps	
Input Reference Clock Rate			Not Required			
Output Optical Power	P_{out}	1	---	4	dBm	
Extinction Ratio	ER	9			dB	
Center Wavelength	λ_c	1530		1565	nm	
Sidemode Suppression ratio	SSR_{min}	30				dB
Relative Intensity Noise	RIN	---	---	-130	dB/Hz	
Output Eye	Compliant with IEEE802.3ae					
Differential Input Voltage	V_{DIFF}	0.12	---	1.0	V	
Transmit Fault Output-Low	TX_FAULTL	0.0	---	0.5	V	
Transmit Fault Output-High	TX_FAULTH	2.4	---	Vcc	V	
TX_DISABLE Assert Time	t_{off}	---	---	10	μs	
TX_DISABLE Negate Time	t_{on}	---	---	2	ms	
Time to initialize	t_{init}	---	---	300	ms	
Interrupt assert delay	Interrupt_on	---	---	200	ms	
Interrupt negate delay	Interrupt_off	---	---	500	ms	
P_Down/RST assert delay	P_Down/RST_on			100	ms	
Mod_NR assert delay	Mod_nr_on			1	ms	
Mod_NR negate delay	Mod_nr_off			1	ms	
P-Down reset time		10			μs	
RX_LOS assert delay	t_loss_on			100	μs	

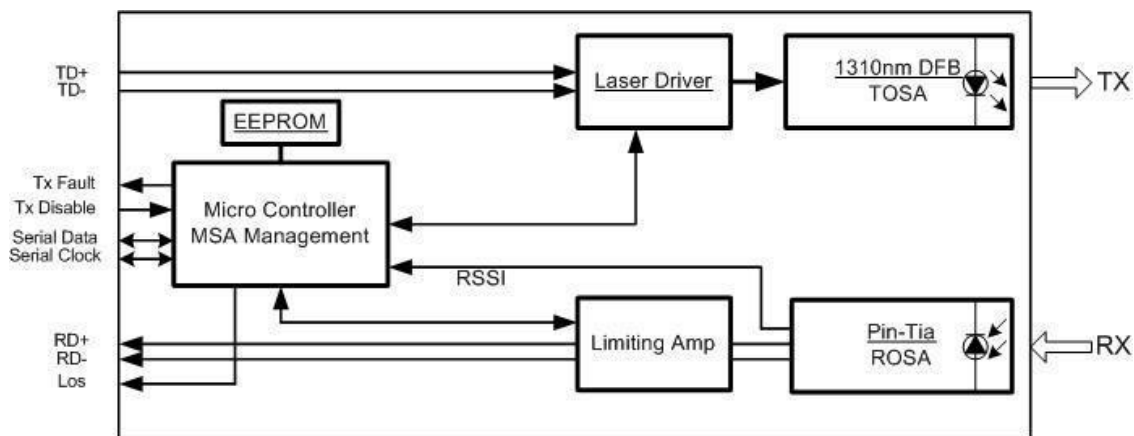
RX_LOS negate delay	t_loss_off			100	μ s
---------------------	------------	--	--	-----	---------

Note 1: Average optical power shall be measured using the methods specified in TIA/EIA-455-95

Receiver Electro-optical Characteristics

Parameter	Symbol	Min.	Type	Max.	Units	Note
Optical Input Power-maximum	P_{IN}	-7	---	---	dBm	BER < 10 ⁻¹²
Receiver Sensitivity	P_{IN}	---	---	-24	dBm	BER < 10 ⁻¹²
Receiver Sensitivity (OMA)	P_{IN}	---	---	-22.1	dBm	BER < 10 ⁻¹²
Operating Center Wavelength	λ_C	1270	---	1600	nm	
Receiver Reflectance	R_{rx}	27	---	---	dB	
Dispersion Penalty				3	dB	Up to 80 km
Loss of Signal-Asserted	P_A	---	---	-30	dBm	
Loss of Signal-Deasserted	P_D	-22	---	---	dBm	
Differential Output Voltage	V_{DIFF}	0.6		0.8	V	
TTL Input High Voltage		2		Vcc	V	
TTL Input Low Voltage		0		0.8	V	
TTL output High Voltage		2.4	---	Vcc	V	
TTL output Low Voltage		0	---	0.4	V	
Receiver Loss of Signal Assert Time	t_{A,RX_LOS}	---	---	100	μ s	
Recover Loss of Signal Assert Time	t_{D,RX_LOS}	---	---	100	μ s	

Block Diagram of Transceiver



+

MOD_NR

The Mod_NR is an output pin that when High, indicates that the module has detected a condition that renderstransmitter and or receiver data invalid, shall consist of logical OR of the following signals:

- Transmit Signal Conditioner Loss of Lock
- Transmitter Laser Fault
- Receiver Signal Conditioner Loss of Lock

MOD_DESEL

The Mod_DeSel is an input pin. When held Low by the host, the module responds to 2-wire serial communication commands. The Mod_DeSel allows the use of multiple XFP modules on a single 2-wire interface bus. When the Mod_DesSel pin is “High”, the module shall not respond to or acknowledge any 2-wire interface communication fromthe host.

INTERRUPT

Interrupt is an output pin. When “Low”, indicates possible module operational fault or a status critical to the hostsystem.

TX_DIS

TX_DIS is an input pin. When TX_DIS is asserted High, the XFP module transmitter output must be turned off.

MOD_ABS

Mod_ABS is pulled up to Host_Vcc on the host board and grounded in the XFP module. Mod_ABS is then asserted“High” when the XFP module is physically absent from a host slot.

RX_LOS

The RX_LOS when High indicates insufficient optical power for reliable signal reception.

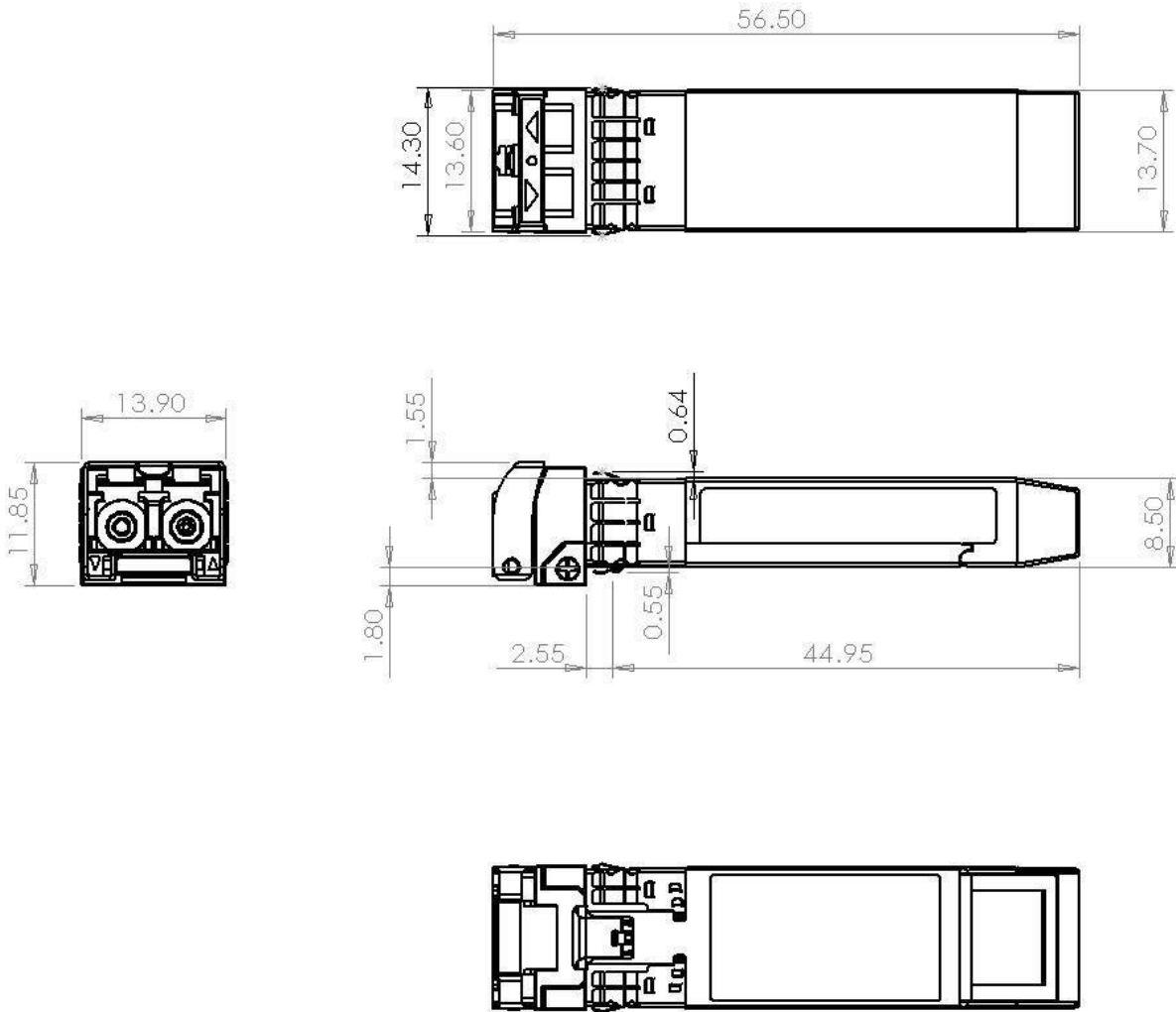
P_DOWN/RST

This is a multifunction pin for module Power Down and Reset. The P_Down/RST pin must be pulled up to VCC3 in theXFP module.

POWER DOWN FUNCTION

The P_Down pin, when held high by the host, places the module in the standby (Low Power) mode with a maximumpower dissipation of 1.5W. This protects hosts which are not capable of cooling higher power modules which may be accidentally inserted.


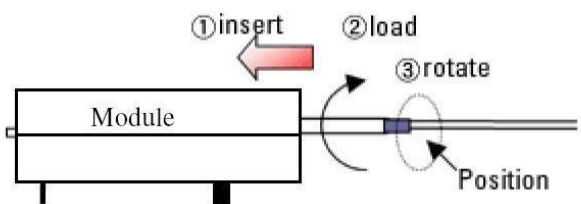
+
Dimensions



+

Optical Receptacle Cleaning Recommendations:

All fiber stubs inside the receptacle portions were cleaned before shipment. In the event of contamination of the optical ports, the recommended cleaning process is the use of forced nitrogen. If contamination is thought to have remained, the optical ports can be cleaned using a NTT international Cletop® stick type and HFE7100 cleaning fluid. Before the mating of patch-cord, the fiber end should be cleaned up by using Cletop® cleaning cassette.

<p>Cleaning of patch-cord</p> 	<p>Cleaning of fiber stub</p>  <ol style="list-style-type: none"> 1. Insert Ensure that stick is held straight when inserting into sleeve. 2. Load Apply sufficient pressure (approx 600-700g) to ensure ferrule a little depressed in sleeve. 3. Rotate Rotate stick clockwise 4-5 times, while ensuring direct contact with ferrule end-face is maintained. <p><i>Notice: Number of possible wipes: Maintenance (repair) ~1 use / piece Equipment construction: 4 uses / piece (max.)</i></p>
---	--

Note: The pictures were extracted from NTT-ME website. And the Cletop® is a trademark registered by NTT-ME

Ordering Information

Model Number	Part Number	Reach	Input/Output	Signal Detect	Voltage	Temperature
AXFP-10G-ZR+	OP7K-SA0-15-C	25dB	AC/AC	TTL	3.3V	-5°C to 70 °C

Note: All information contained in this document is subject to change without notice.

Copyright @ Alpha Bridge Technologies Private Limited

This document is ABTPL Public Information. ABTPL reserves the right to alter, update, and otherwise change the information contained in the document from time to time. www.alphabridge.tech