



# 10.3Gb/s XFP BIDI Transceiver

APXBxxB30xDL10



# 10.3Gb/s XFP BIDI Transceiver

## APXBxxB30xDL10

ATOP's APXBxxB30xDL10 Small Form Factor 10Gb/s XFP transceivers are compatible with XFP MSA Specification. It is designed for use in 10G-Gigabit links up to 10km of G.652. Digital diagnostics functions are available via a 2-wire serial interface, as specified in the XFP MSA.

### Product Features

- ✓ Duplex LC connector
- ✓ Hot-pluggable XFP footprint
- ✓ DFB Transmitter laser
- ✓ RoHS compliant and Lead Free
- ✓ Up to 10KM for single mode fiber
- ✓ Metal enclosure for lower EMI
- ✓ +3.3V power supply and power dissipation <1.5W
- ✓ XFP MSA INF-80771 Compliant
- ✓ Compliant with IEEE 802.3ae

### Applications

- ✓ 10GBASE-LR/LW
- ✓ 10G Fibre Channel



## Product Selection

Part Number	Wavelength	Operating Case temperature
APXB23B30CDL10	Tx-1270 / Rx-1330	Commercial
APXB32B30CDL10	Tx-1330 / Rx-1270	Commercial
APXB23B30IDL10	Tx-1270 / Rx-1330	Industrial
APXB32B30IDL10	Tx-1330 / Rx-1270	Industrial

## Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883 Method 3015
- ESD to the Duplex LC Receptacle: compatible with IEC 61000-4-2
- Immunity compatible with IEC 61000-4-3
- EMI compatible with FCC Part 15 Class B EN55022 Class B (CISPR 22B)  
VCCI Class B
- Laser Eye Safety compatible with FDA 21CFR 1040.10 and 1040.11 EN60950,  
EN (IEC) 60825-1,2
- RoHS compliant with RoHS 2 (2011/65/EU)

## Pin Descriptions

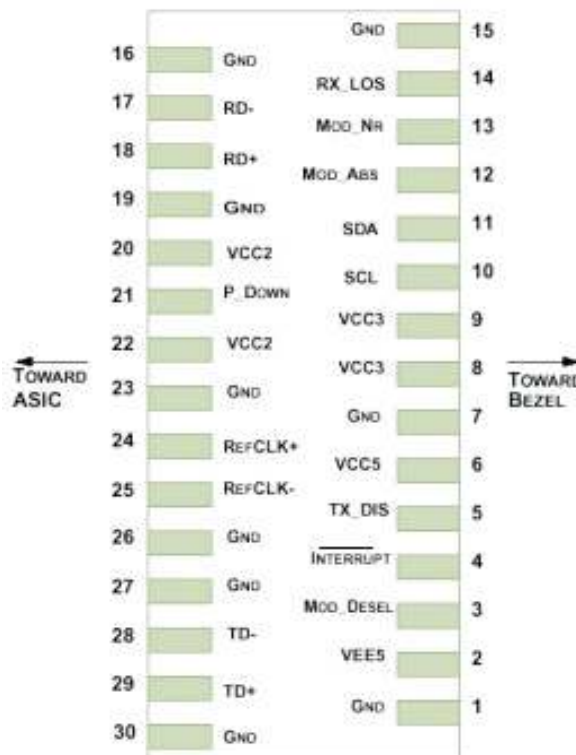
Pin	Symbol	Name	Ref.
1	GND	Module Ground	
2	VEE5	Optional-5.2 Power Supply-not required	
3	MOD_DESEL	Module De-select; When held low allows the module to respond to 2-wire serial interface. LVTTTL-I	
4	/INTERRUPT	Interrupt; Indicates presence of an important condition which can be read via the 2-wire serial interface. LVTTTL-O	2
5	TX_DIS	Transmitter Disable. Logic 1 indicates laser output disabled, LVTTTL-I	
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. LVTTTL-I	2
11	SDA	2-Wire Serial Interface Data Line. LVTTTL-I/O	2
12	MOD_Abs	Indicates Module is not present. Grounded in the Module. LVTTTL-O	2
13	MOD_NR	Module Not Ready; Indicating Module Operational Fault. Open-collector. LVTTTL-O	2
14	RX_LOS	Loss of Signal indication. Logic 1 indicates loss of Signal. Open-collector. LVTTTL-O	2
15	GND	Module Ground	1
16	GND	Module Ground	1
17	RD-	Receiver Inverted Data Output. CML-O	
18	RD+	Receiver Non-Inverted Data Output. CML-O	
19	GND	Module Ground	1
20	VCC2	+1.8V Power Supply (Not required).	3
21	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. LVTTTL-I Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle. LVTTTL-I	

22	VCC2	+1.8V Power Supply (Not required)	3
23	GND	Module Ground	1
24	REFCLK+	Reference Clock (Not required)	
25	REFCLK-	Reference Clock (Not required)	
26	GND	Module Ground	1
27	GND	Module Ground	1
28	TD-	Transmitter Inverted Data Input. CML-I	
29	TD+	Transmitter Non-Inverted Data Input. CML-I	
30	GND	Module Ground	1

### Note

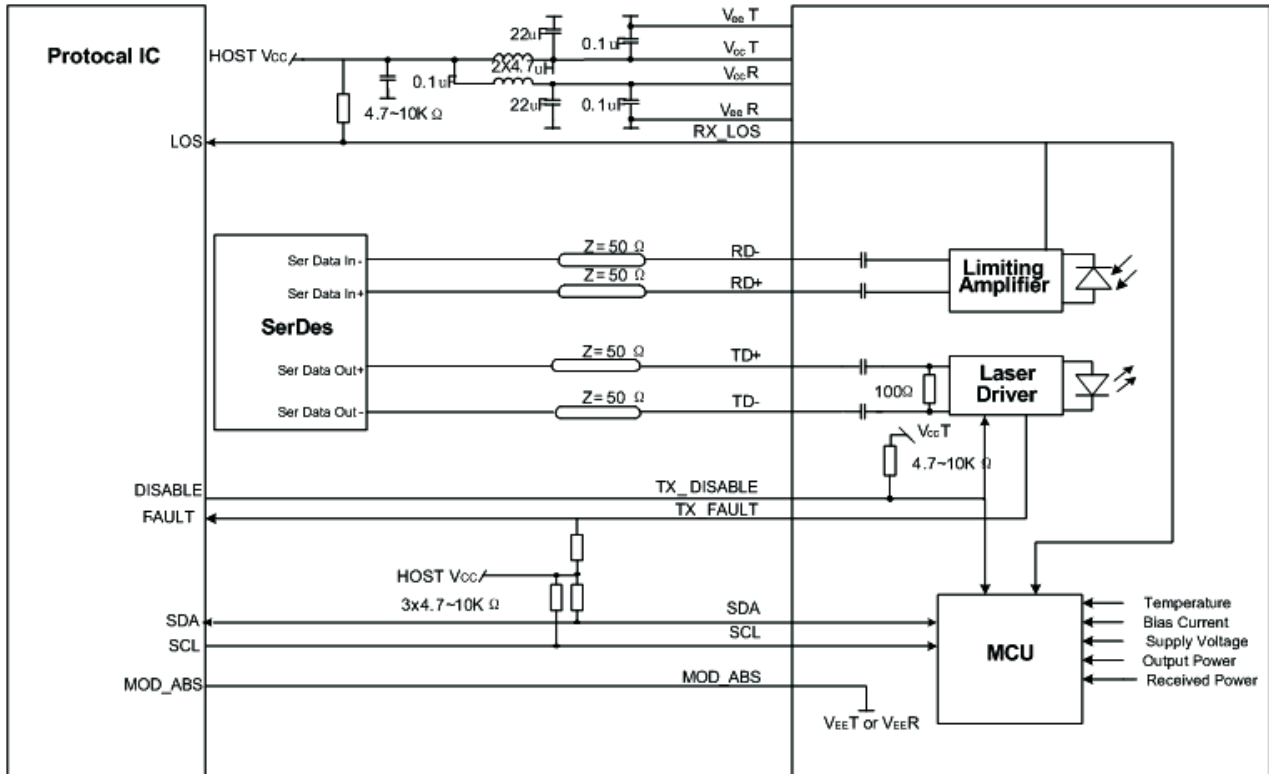
1. Module ground pins GND are isolated from the module case and chassis ground within the module.
2. Open collector, Should be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.6V on the host board.
3. The pins are open within module.

### Pin-out Connector Block on Host Board



Pin-out of Connector Block on Host Board

## Recommend Circuit Schematic



## Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc3	-0.5		+4.0	V	
Storage Temperature	TS	-40		+85	°C	
Operating Humidity	RH	0		85	%	

## Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Power Supply Voltage	Vcc3	3.13	3.30	3.47	V	
Power Supply Current	Icc3			450	mA	
Case Operating Temperature	Tc	0		+70	°C	Commercial
	Tl	-40		+85	°C	Industrial
Bit Rate	BR		10.3		Gbps	
9/125um G.652 SMF	Lmax			10	km	

## Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
<b>Transmitter</b>						
Input differential impedance	Rin	80	100	120	Ω	1
Differential data input swing	Vin, pp	120		850	mV	
TX Disable-High		Vcc - 0.8		Vcc	V	
TX Disable-Low		Vee		Vee+ 0.8	V	
TX Fault-High		Vcc-0.8		Vcc	V	
TX Fault-Low		Vee		Vee+0.8	V	
<b>Receiver</b>						
Differential data output swing	Vout, pp	300		850	mV	2
Data output rise time	Tr	30			ps	3
Data output fall time	Tf	30			ps	3
LOS-High		Vcc - 0.8		Vcc	V	
LOS-Low		Vee		Vee+0.8	V	

**Notes:**

1. AC coupled.
2. Into 100 ohm differential termination.
3. 20 - 80 %

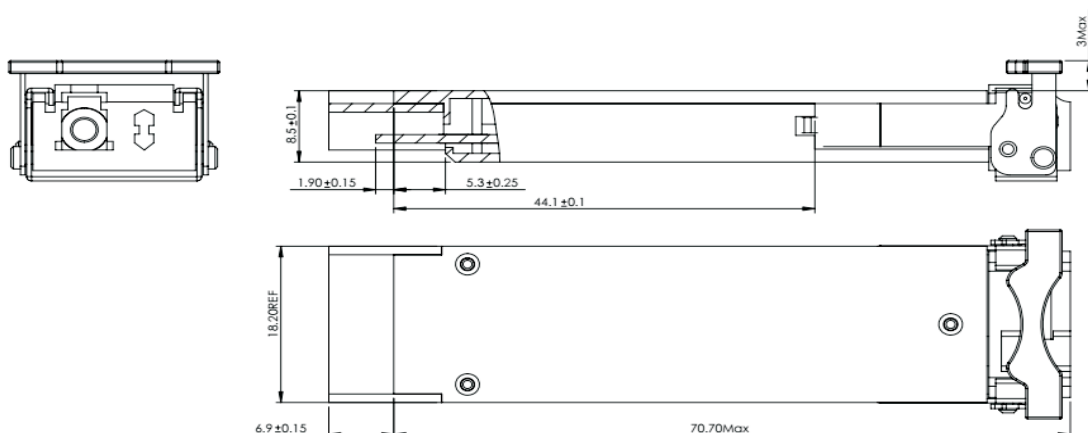
## Optical Characteristics (TOP=25°C, Vcc=3.3 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
<b>Transmitter</b>						
Output Opt. Power	PO	-5		+0.5	dBm	
Optical Wavelength	$\lambda$	1260	1270	1280	nm	
	$\lambda$	1320	1330	1340	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Spectral Width(-20dB)	$\Delta\lambda$			1	nm	
Optical Extinction Ratio	ER	3.5			dB	
Average Launch power of OFF TX	Poff			-40	dBm	
<b>Receiver</b>						
RX Sensitivity @10.3Gb/s	SENS			-13	dBm	1,2
Receiver Overload		0.5			dBm	
Optical Center Wavelength	$\lambda_C$	1320	1330	1340	nm	
		1260	1270	1280	nm	
LOS De-Assert	LOSD			-15	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5			dB	

### Notes:

- 1.Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
- 2.Measured with PRBS 2<sup>31</sup>-1 at 10<sup>-12</sup> BER.

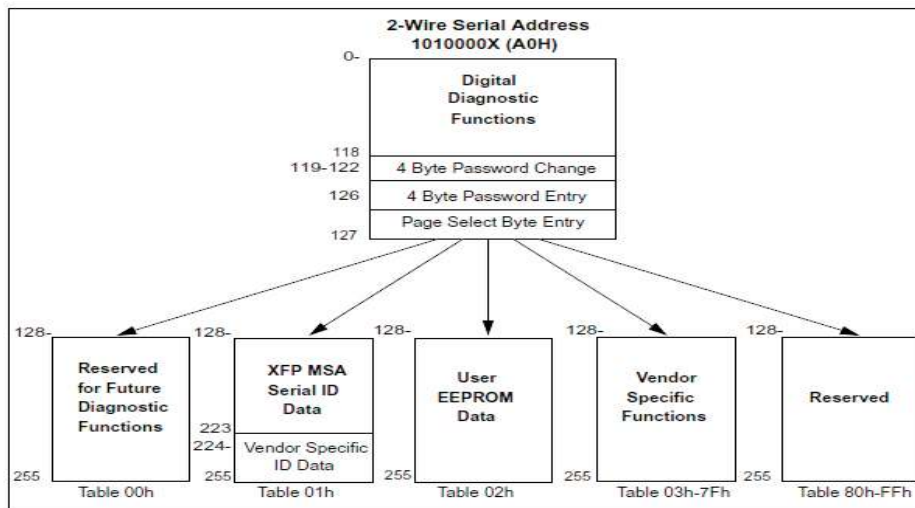
## Mechanical Specifications



APXBxxB30xDL10(dimensions are in mm)

## EEPROM Information

- EEPROM memory map specific data field description is as below:



## Digital Diagnostic Monitoring Interface

Parameter	Range	Accuracy	Calibration
Temperature	0 to +70°C (C)	±3°C	Internal
	-40 to +85°C (I)		
Voltage	2.97 to 3.63V	±3%	Internal
Bias Current	0 to 100mA	±10%	Internal
TX Power	-5 to +0.5 dBm	±3dB	Internal
RX Power	-13 to 0.5dBm	±3dB	Internal

Five transceiver parameter values are monitored. The following table defines the monitored parameter's accuracy.

## Revision History

Revision	Initiated	Reviewed	Approved	DCN	Release Date
Version1.0	yangpeiyun	Sunbin	Dingzheng	New Released.	July 28, 2016





let's make it personal

[atoptechnology.com](https://atoptechnology.com)