



# 10.3Gb/s XFP Transceiver

APXCxxB30CDL10



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ATOP's APXCxxB30CDL10 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
- ✓ CWDM DFB 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-8077I Compliant
- ✓ Compliant with IEEE 802.3ae

### Applications

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



## Product Selection

Part Number	Operating Case temperature	Tx Wavelength
APXC27B30CDL10	Commercial(0~70°C)	1270nm
APXC29B30CDL10	Commercial(0~70°C)	1290nm
APXC31B30CDL10	Commercial(0~70°C)	1310nm
APXC33B30CDL10	Commercial(0~70°C)	1330nm
APXC35B33CDL10	Commercial(0~70°C)	1350nm
APXC37B33CDL10	Commercial(0~70°C)	1370nm

## Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883 Method 3015
- ESD to the Duplex LC Receptacle: compatible with EN 61000-4-2
- Immunity compatible with EN 61000-4-3
- EMI compatible with FCC Part 15 Class B
- Laser Eye Safety compatible with FDA 21CFR 1040.10 and 1040.11 IEC 60950, IEC 60825-1,2
- RoHS compliant with RoHS 2.0(2015/863/EU)-Amending

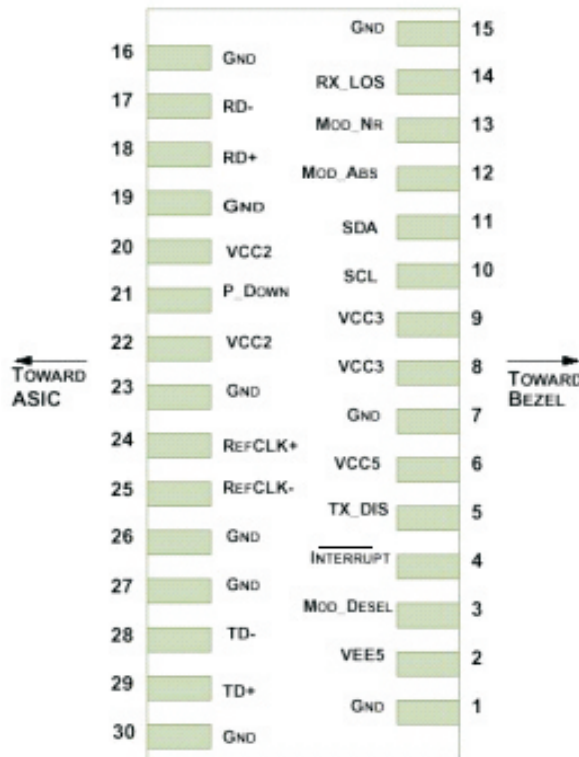
## Pin Descriptions

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. Logic1 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

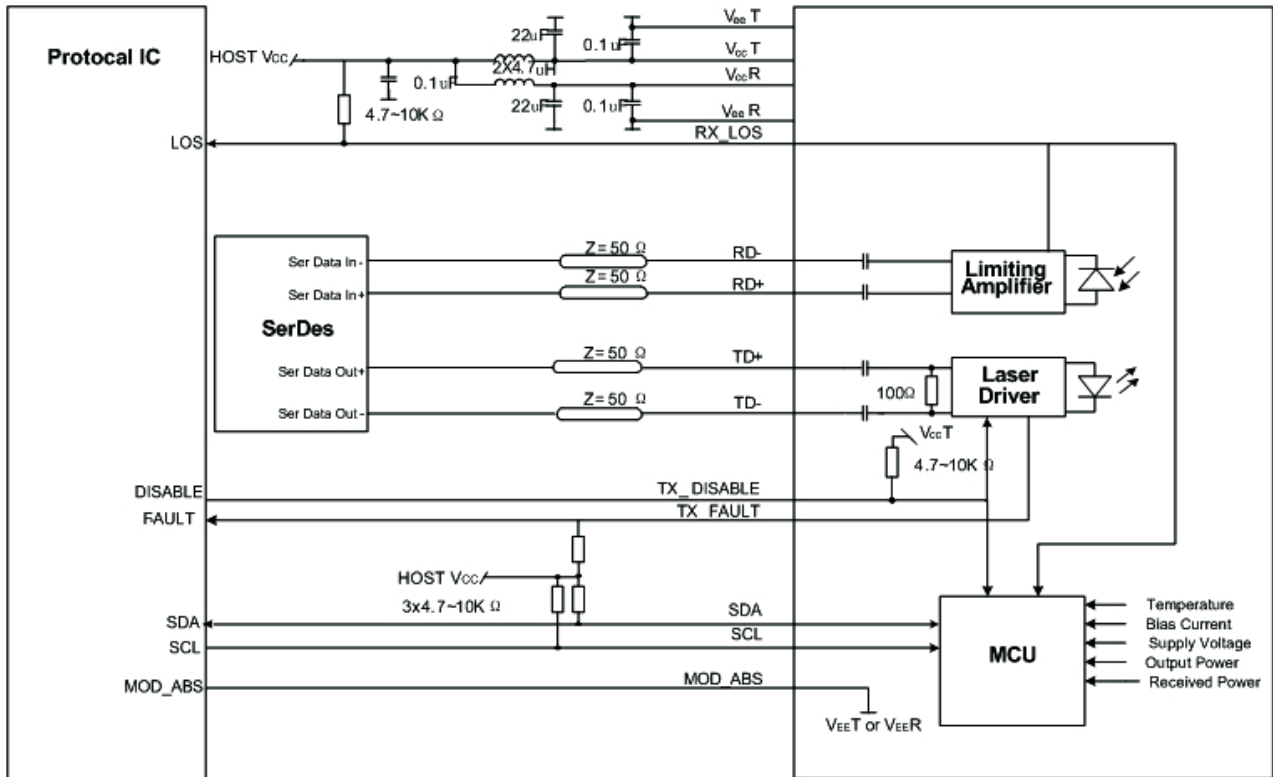
### Note

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 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	
Bit Rate	BR		10.3		Gbps	
9/125um G.652 SMF	Lmax			10	km	

## Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
<b>Transmitter</b>						
Input differential impedance	Rin	80	100	120	$\Omega$	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	28			ps	3
Data output fall time	Tf	28			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 %

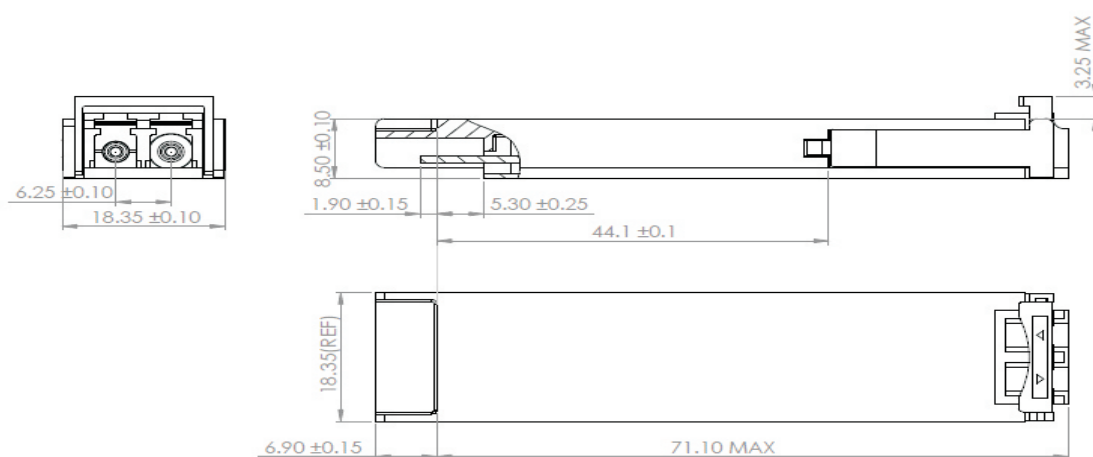
## Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
<b>Transmitter</b>						
Output Opt. Power	PO	-6		-1	dBm	
Optical Wavelength	$\lambda$	x-6.5	x	x+6.5	nm	1
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			-14.4	dBm	2,3
Receiver Overload		0.5			dBm	
Optical Center Wavelength	$\lambda_C$	1260		1610	nm	
LOS De-Assert	LOSD			-15	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5			dB	

### Notes:

- 1.The Transmitter Center Wavelength "x"=1271nm, 1291nm, 1311nm, 1331nm, 1351nm, 1371nm.
- 2.Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
- 3.Measured with PRBS  $2^{31}-1$  at  $10^{-12}$  BER.

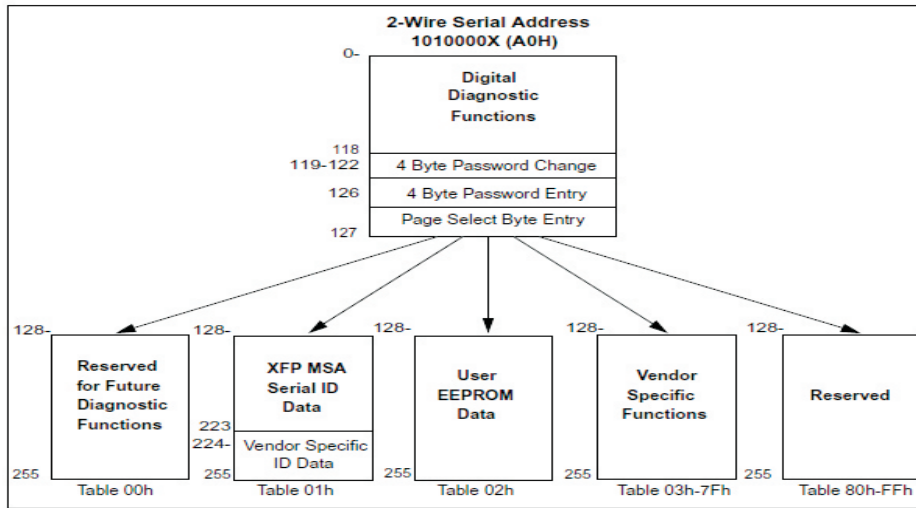
## Mechanical Specifications



APXCxxB30CDL10(dimensions are in mm)

## EEPROM Information

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



## Digital Diagnostic Monitoring Interface

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

Parameter	Range	Accuracy	Calibration
Temperature	0 to +70°C (C)	±3°C	Internal
Voltage	2.97 to 3.63V	±3%	Internal
Bias Current	0 to 100mA	±10%	Internal
TX Power	-6 to -1dBm	±3dB	Internal
RX Power	-14.4 to 0.5dBm	±3dB	Internal

## Revision History

Revision	Initiated	Reviewed	Approved	DCN	Release Date
Version1.0	yangpeiyun	Sunbin	Dingzheng	New Released.	July 28, 2016
Version1.1	Tangzhiqiang	yangpeiyun	Dingzheng	Update the new template	Dec 19, 2019





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