

**UXFP-20-U / UXFP-20-D**  
**1 pair XFP 1270/1330nm TX and 1330/1270nm RX,**  
**Bi-directional, 20km reach, single LC module**



**1.Feature**

- Supports 9.95Gb/s to 11.3Gb/s bit rates
- Hot Pluggable XFP Footprint
- 1270/1330nm DFB Laser and PIN photo detector
- Single LC connector have trap
- Up to 20km transmission on SMF
- Power dissipation < 2W
- Single Power Supply: 3.3V
- No Reference Clock Required
- Compatible with RoHS, IEEE 802.3ae
- Built-in Digital Diagnostic Functions
- XFP shielding metal with electromagnetic Interference (EMI) low

**2.Application**

- 10GBASE-LR/LW Ethernet
- SONET OC-192
- SDH STM I-64.1
- 1200-SM-LL-L 10G Fiber Channel
- 10GBASE-LR with XFP MSA

**3.Compatible brand list:**

Huawei, Juniper, Cisco, HP, Siena, Ericsson, Nokia...or customized

**4.Absolute Maximum Ratings**

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	Tst	-40	+85	°C
Supply Voltage	Vcc	0	+3.6	V
Operating Relative Humidity	RH	0	85	%

## 5. Operation Environment

Parameter		Symbol	Min	Typical	Max	Units
Supply Voltage		Vcc	3.15		3.45	V
Operating Case Temperature	Commercial	Tc	0		+70	°C
Power Dissipation					2	W
Data Rate			9.95		11.3	Gbps

## 6. Optical Characteristics

(Ambient Operating Temperature 0°C to +70°C, Vcc = 3.3 V)

Parameter		Symbol	Min.	Typ.	Max.	Units
<b>Transmitter Section</b>						
Center Wavelength	Tx 1270	$\lambda_o$	1270 ± 1			nm
	Tx 1330		1330 ± 1			
Spectral Width(-20dB)	Tx 1270	$\Delta\lambda$			1	nm
	Tx 1330				1	
Output Power	Tx 1270	Po	-5		0	dBm
	Tx 1330		-5		0	
Bit Error Rate		Ber			10 <sup>-12</sup>	
Extinction Ratio		Er	3.5			dB
Side-Mode Suppression Ratio		SMSR	35			dB
Total jitter		Tj	IEEE 802.3ae			
<b>Receiver Section</b>						
Center Wavelength	Rx 1330	$\lambda_o$	1330 ± 1			nm
	Rx 1270		1270 ± 1			
Receiver Sensitivity		Rsen			-13.5	dBm
Receiver Overload		Rov	-3			dBm
Return Loss			12			dB
LOS Assert		LOS <sub>A</sub>	-25			dBm

LOS Dessert	LOS <sub>D</sub>			-14	dBm
LOS Hysteresis		0.5		4	
<b>Parameter</b>	<b>Symbol</b>	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	<b>Units</b>
<b>Transmitter Section</b>					
Center Wavelength	$\lambda_o$	1290	1310	1330	nm
Side-Mode Suppression Ratio	SMSR	35	-	-	dB
Output Power	P <sub>out</sub>	-5	-	0	dBm
Extinction Ratio	E <sub>r</sub>	4	-	-	dB
Jitter(p-p)				0.1	UI
Relative Intensity Noise	RIN <sub>12</sub> OMA			-130	dB/Hz
<b>Receiver Section</b>					
Center Wavelength	$\lambda_o$		1310		nm
Receiver Sensitivity	R <sub>sen</sub>			-13.5	dBm
Stressed Sensitivity	R <sub>sen</sub>			-13.5	dBm
Receiver Overload	R <sub>ov</sub>	0			dBm
Return Loss		12			dB
LOS Assert	LOS <sub>A</sub>	-28			dBm
LOS Dessert	LOS <sub>D</sub>			-15	dBm
LOS Hysteresis		0.5		4	

## 7. Electrical Characteristics

(Ambient Operating Temperature 0°C to +70°C, Vcc = 3.3 V)

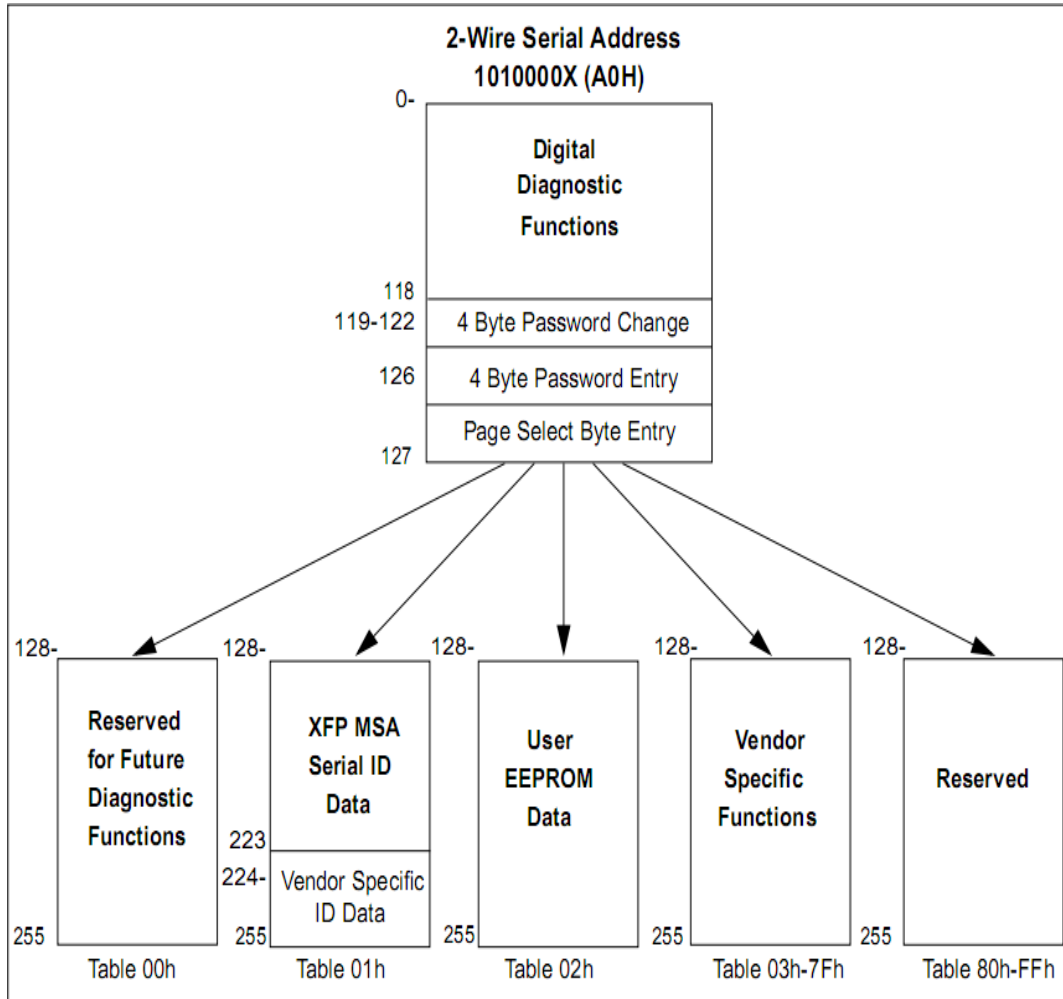
Parameter	Symbol	Min.	Typ.	Max.	unit
<b>Transmitter Section</b>					
Input Differential Impedence	Zin	90	100	110	Ohm
Data Input Swing Differential	Vin	120		850	mV
TX Disable	Disable	2.0		Vcc	V
	Enable	0		0.8	V
TX Fault	Assert	2.0		Vcc	V
	Deassert	0		0.8	V
<b>Receiver Section</b>					
Output differential impedence	Zout		100		Ohm
Data output Swing Differential	Vout	340	650	850	mV
Rx_LOS	Assert	2.0		Vcc	V
	Deassert	0		0.8	V

## 8. Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	-10 ~ 75	±3	°C	Internal
Bias Current	0 ~ 100	0.5	mA	Internal
Tx Power	-8 ~ 1	±1	dBm	Internal
Rx Power	-18 ~ 0	±1	dBm	Internal

For more detailed information including memory map, please see XFP MSA Specification

**9.EEPROM INFORMATION (A0) :**



## 10. Pin Description:

Pin	Logic	Symbol	Name/Description	Ref.
1		GND	Module Ground	1
2		VEE5	Optional -5.2 Power Supply – <b>Not required</b>	
3	LVTTL-I	Mod-Desel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	LVTTL-O	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	LVTTL-I	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6		VCC5	+5 Power Supply– <b>Not required</b>	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTL-I	SCL	Serial 2-wire interface clock	2
11	LVTTL-I/O	SDA	Serial 2-wire interface data line	2
12	LVTTL-O	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
13	LVTTL-O	Mod_NR	Module Not Ready; Finisar defines it as a logical OR between RX_LOS and Loss of Lock in TX/RX.	2
14	LVTTL-O	RX_LOS	Receiver Loss of Signal indicator	2
15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RD-	Receiver inverted data output	
18	CML-O	RD+	Receiver non-inverted data output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply – <b>Not required</b>	
21	LVTTL-I	P_Down/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 – <b>Not required</b>	
23		GND	Module Ground	1
24	PECL-I	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board – <b>Not required</b>	3
25	PECL-I	RefCLK-	Reference Clock inverted input, AC coupled on the host board – <b>Not required</b>	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter inverted data input	
29	CML-I	TD+	Transmitter non-inverted data input	
30		GND	Module Ground	1

### Notes:

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector; should be pulled up with 4.7k – 10kohms on host board to a voltage between 15V and 3.6V
3. A Reference Clock input is not required. If present, it will be ignored.

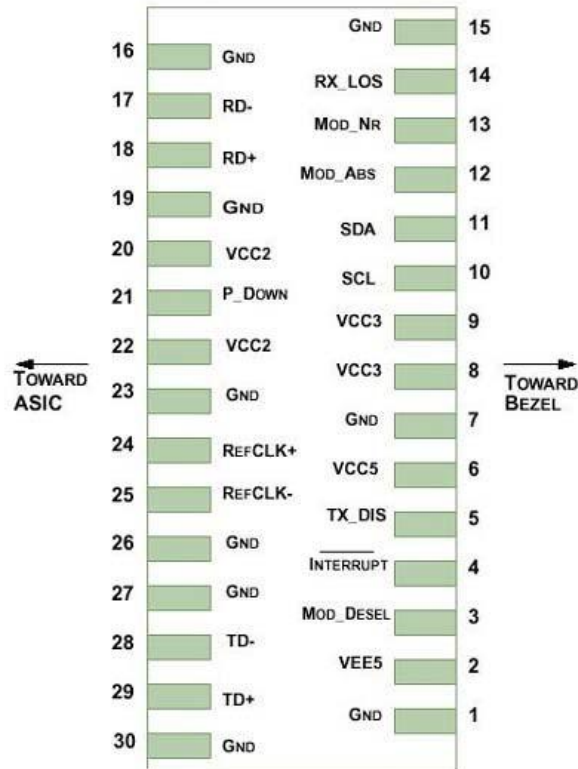


Diagram of Host Board Connector Block Pin Numbers and Name

### 9.Outline drawing (mm):

