

**UXFP-40-U / UXFP-40-D**  
**1 pair XFP 1270/1330nm TX and 1330/1270nm RX,**  
**Bi-directional, 40km 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 40km 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 |
|-----------------------------|---------|------------------|--------------|------|-------------------|-------|
| Transmitter Section         |         |                  |              |      |                   |       |
| 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               | 0            |      | +4                | dBm   |
|                             | Tx 1330 |                  | 0            |      | +4                |       |
| 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 |      |                   |       |
| Receiver Section            |         |                  |              |      |                   |       |
| Center Wavelength           | Rx 1330 | $\lambda_o$      | 1330 ± 1     |      |                   | nm    |
|                             | Rx 1270 |                  | 1270 ± 1     |      |                   |       |
| Receiver Sensitivity        |         | Rsen             |              |      | -15               | dBm   |
| Receiver Overload           |         | Rov              | -3           |      |                   | dBm   |
| Return Loss                 |         |                  | 12           |      |                   | dB    |
| LOS Assert                  |         | LOS <sub>A</sub> | -28          |      |                   | dBm   |

|                |                  |     |  |     |     |
|----------------|------------------|-----|--|-----|-----|
| LOS Dessert    | LOS <sub>D</sub> |     |  | -16 | dBm |
| LOS Hysteresis |                  | 0.5 |  | 4   |     |

## 7. Electrical Characteristics

(Ambient Operating Temperature 0°C to +70°C, V<sub>cc</sub> = 3.3 V)

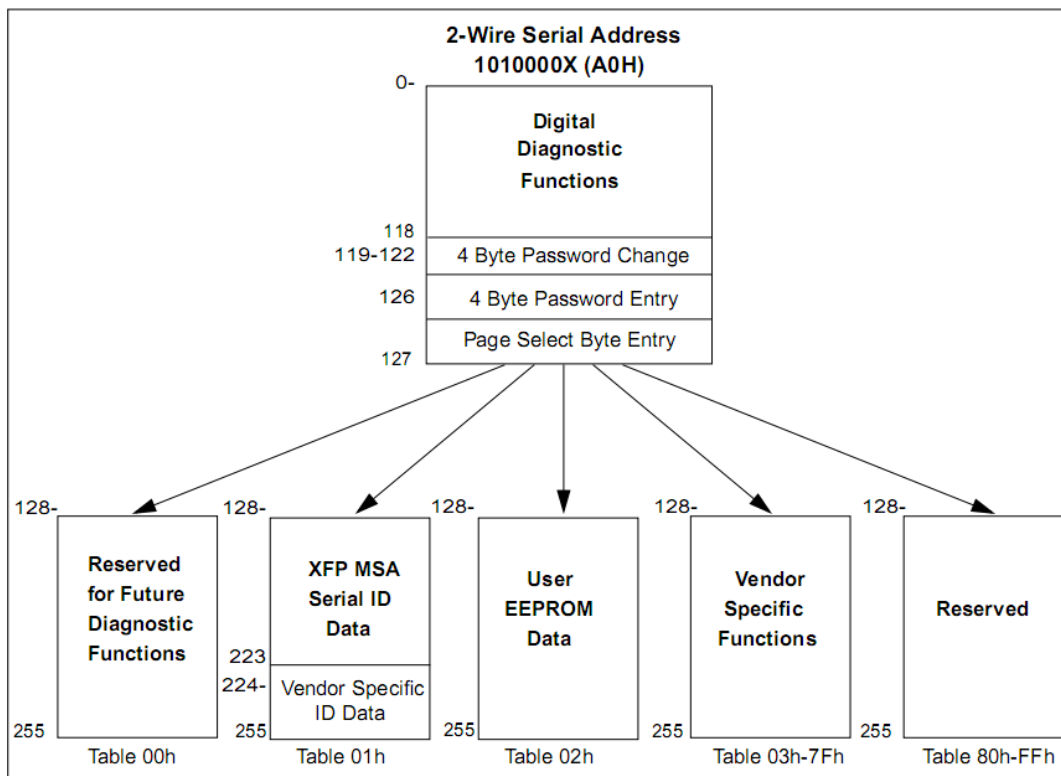
| Parameter                      |          | Symbol           | Min. | Typ. | Max.            | unit |
|--------------------------------|----------|------------------|------|------|-----------------|------|
| Transmitter Section            |          |                  |      |      |                 |      |
| Input Differential Impedence   |          | Z <sub>in</sub>  | 90   | 100  | 110             | Ohm  |
| Data Input Swing Differential  |          | V <sub>in</sub>  | 120  |      | 850             | mV   |
| TX Disable                     | Disable  |                  | 2.0  |      | V <sub>cc</sub> | V    |
|                                | Enable   |                  | 0    |      | 0.8             | V    |
| TX Fault                       | Assert   |                  | 2.0  |      | V <sub>cc</sub> | V    |
|                                | Deassert |                  | 0    |      | 0.8             | V    |
| Receiver Section               |          |                  |      |      |                 |      |
| Output differential impedence  |          | Z <sub>out</sub> |      | 100  |                 | Ohm  |
| Data output Swing Differential |          | V <sub>out</sub> | 340  | 650  | 850             | mV   |
| Rx_LOS                         | Assert   |                  | 2.0  |      | V <sub>cc</sub> | 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     | -5 ~ +5  | ±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   | $\overline{\text{Interrupt}}$ | 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.

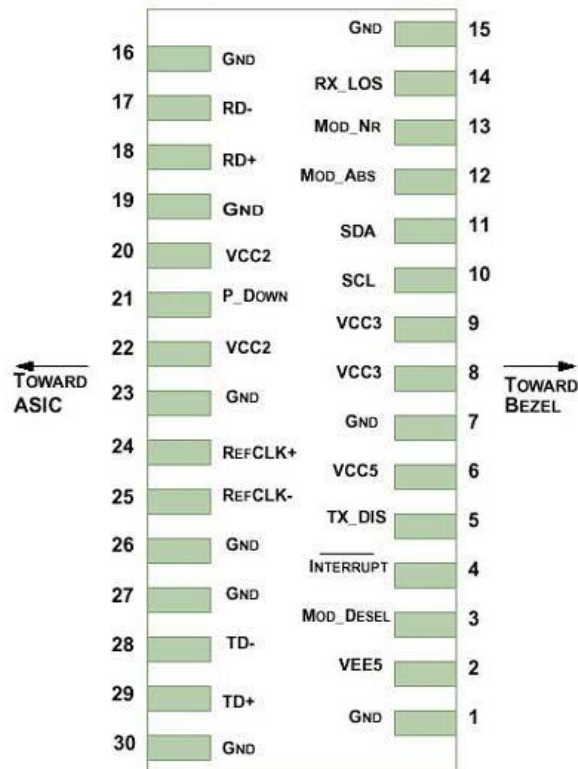


Diagram of Host Board Connector Block Pin Numbers and Name

## 10.Outline drawing (mm):

