

XPS-6345W-DXXXG

(RoHS Compliant)

14.025Gbps / 40 km / DWDM XFP Single-Mode Optical Transceiver for 16G FC Applications

FEATURES

- Up to 14.025 Gbps Bi-directional Data Links
- Complaint with XFP MSA
- Compliant with XFI 10G Serial Electrical Interface
- Compliance with Fibre Channel 1600-SM-LL-L
- **Maximum Link Length of 40 km**
- **Temperature-stabilized DWDM EML Transmitter**
- **14 dB Power Budget at Least**
- **50 GHz ITU Grid, C Band**
- 2-Wire Interface for Integrated Digital Diagnostic Monitoring
- **Lineside Loopback Mode Supported**
- XFI Loopback Mode Supported
- No reference Clock required
- Power Dissipation < 3.5 W
- Dual 5V and +3.3 V Power Supply
- RoHS Compliant
- 0 to 70°C Case Operating Temperature
- Duplex LC Connector

APPLICATIONS

- Multi-rate 16G / 8G / 4G Fibre Channel
- 10G FCoE

LASER SAFETY

This single-mode transceiver is a Class 1 laser product. It complies with IEC-60825 and FDA 21 CFR 1040.10 and 1040.11. The transceiver must be operated within the specified temperature and voltage limits. The optical ports of the module shall be terminated with an optical connector or with a dust plug.

DESCRIPTION

XPS-6345W-DXXXG series DWDM transceivers are designed for single-mode fibre serial optical data communications such as 16G/8G/4G Fibre Channel.

This module is designed for single mode fiber and operates at a nominal wavelength of 50GHz ITU Grid, C Band DWDM wavelength. A guaranteed minimum optical link budget of 14 dB is offered. The transmitter section consists of a temperature-stabilized DWDM electrical-modulated laser (EML), driver and signal conditioner. The receiver section incorporates a PIN photodiode integrated with a trans-impedance preamplifier (TIA) and signal conditioner.

The module is with the XFP 30-pin connector to allow hot plug capability. Integrated Tx and Rx signal conditioners provide high jitter-tolerance for full XFI compliance and no external reference clock required. The internally ac coupled high speed serial I/O simplifies interfacing to external circuitry. Dual 5V and 3.3V power supply are used. The optical output can be disabled by LVTTTL logic high-level input of TX_DIS. Loss of signal (RX_LOS) output is provided to indicate the loss of an input optical signal of receiver.

A serial EEPROM in the transceiver allows the user to access transceiver digital diagnostic monitoring and configuration data via the 2-wire XFP Management Interface. This interface uses a single address, A0h, with a memory map divided into a lower and upper area. Basic digital diagnostic data is held in the lower area while specific data is held in a series of tables in the high memory area.

ORDER INFORMATION

| P/No. | Bit Rate (Gb/s) | FC | Distance (km) | Wavelength (nm) | Package | Case Temp (°C) | RoHS Compliant |
|-----------------|-----------------|-----------|---------------|-----------------|--------------|----------------|----------------|
| XPS-6345W-DXXXG | 14.025 | 16G/8G/4G | 40 | DWDM* | XFP with DMI | 0 to 70 | Yes |

*XXX: 50GHz ITU Grid wavelength (Please see below)

| Channel # | Product code | Frequency (THz) | Center Wavelength (nm) | Label |
|-----------|-----------------|-----------------|------------------------|-------|
| 200 | XPS-6345W-D200G | 192.00 | 1561.42 | 200 |
| 205 | XPS-6345W-D205G | 192.05 | 1561.01 | 205 |
| 210 | XPS-6345W-D210G | 192.10 | 1560.61 | 210 |
| 215 | XPS-6345W-D215G | 192.15 | 1560.20 | 215 |
| 220 | XPS-6345W-D220G | 192.20 | 1559.79 | 220 |
| 225 | XPS-6345W-D225G | 192.25 | 1559.39 | 225 |
| 230 | XPS-6345W-D230G | 192.30 | 1558.98 | 230 |
| 235 | XPS-6345W-D235G | 192.35 | 1558.58 | 235 |
| 240 | XPS-6345W-D240G | 192.40 | 1558.17 | 240 |
| 245 | XPS-6345W-D245G | 192.45 | 1557.77 | 245 |
| 250 | XPS-6345W-D250G | 192.50 | 1557.36 | 250 |
| 255 | XPS-6345W-D255G | 192.55 | 1556.96 | 255 |
| 260 | XPS-6345W-D260G | 192.60 | 1556.55 | 260 |
| 265 | XPS-6345W-D265G | 192.65 | 1556.15 | 265 |
| 270 | XPS-6345W-D270G | 192.70 | 1555.75 | 270 |
| 275 | XPS-6345W-D275G | 192.75 | 1555.34 | 275 |
| 280 | XPS-6345W-D280G | 192.80 | 1554.94 | 280 |
| 285 | XPS-6345W-D285G | 192.85 | 1554.54 | 285 |
| 290 | XPS-6345W-D290G | 192.90 | 1554.13 | 290 |
| 295 | XPS-6345W-D295G | 192.95 | 1553.73 | 295 |
| 300 | XPS-6345W-D300G | 193.00 | 1553.33 | 300 |
| 305 | XPS-6345W-D305G | 193.05 | 1552.93 | 305 |
| 310 | XPS-6345W-D310G | 193.10 | 1552.52 | 310 |
| 315 | XPS-6345W-D315G | 193.15 | 1552.12 | 315 |
| 320 | XPS-6345W-D320G | 193.20 | 1551.72 | 320 |
| 325 | XPS-6345W-D325G | 193.25 | 1551.32 | 325 |
| 330 | XPS-6345W-D330G | 193.30 | 1550.92 | 330 |
| 335 | XPS-6345W-D335G | 193.35 | 1550.52 | 335 |
| 340 | XPS-6345W-D340G | 193.40 | 1550.12 | 340 |
| 345 | XPS-6345W-D345G | 193.45 | 1549.72 | 345 |
| 350 | XPS-6345W-D350G | 193.50 | 1549.32 | 350 |
| 355 | XPS-6345W-D355G | 193.55 | 1548.91 | 355 |
| 360 | XPS-6345W-D360G | 193.60 | 1548.51 | 360 |
| 365 | XPS-6345W-D365G | 193.65 | 1548.11 | 365 |
| 370 | XPS-6345W-D370G | 193.70 | 1547.72 | 370 |
| 375 | XPS-6345W-D375G | 193.75 | 1547.32 | 375 |
| 380 | XPS-6345W-D380G | 193.80 | 1546.92 | 380 |
| 385 | XPS-6345W-D385G | 193.85 | 1546.52 | 385 |
| 390 | XPS-6345W-D390G | 193.90 | 1546.12 | 390 |
| 395 | XPS-6345W-D395G | 193.95 | 1545.72 | 395 |
| 400 | XPS-6345W-D400G | 194.00 | 1545.32 | 400 |
| 405 | XPS-6345W-D405G | 194.05 | 1544.92 | 405 |
| 410 | XPS-6345W-D410G | 194.10 | 1544.53 | 410 |
| 415 | XPS-6345W-D415G | 194.15 | 1544.13 | 415 |
| 420 | XPS-6345W-D420G | 194.20 | 1543.73 | 420 |
| 425 | XPS-6345W-D425G | 194.25 | 1543.33 | 425 |
| 430 | XPS-6345W-D430G | 194.30 | 1542.94 | 430 |
| 435 | XPS-6345W-D435G | 194.35 | 1542.54 | 435 |
| 440 | XPS-6345W-D440G | 194.40 | 1542.14 | 440 |
| 445 | XPS-6345W-D445G | 194.45 | 1541.75 | 445 |

| Channel # | Product code | Frequency (THz) | Center Wavelength (nm) | Label |
|-----------|-----------------|-----------------|------------------------|-------|
| 450 | XPS-6345W-D450G | 194.50 | 1541.35 | 450 |
| 455 | XPS-6345W-D455G | 194.55 | 1540.95 | 455 |
| 460 | XPS-6345W-D460G | 194.60 | 1540.56 | 460 |
| 465 | XPS-6345W-D465G | 194.65 | 1540.16 | 465 |
| 470 | XPS-6345W-D470G | 194.70 | 1539.77 | 470 |
| 475 | XPS-6345W-D475G | 194.75 | 1539.37 | 475 |
| 480 | XPS-6345W-D480G | 194.80 | 1538.98 | 480 |
| 485 | XPS-6345W-D485G | 194.85 | 1538.58 | 485 |
| 490 | XPS-6345W-D490G | 194.90 | 1538.19 | 490 |
| 495 | XPS-6345W-D495G | 194.95 | 1537.79 | 495 |
| 500 | XPS-6345W-D500G | 195.00 | 1537.40 | 500 |
| 505 | XPS-6345W-D505G | 195.05 | 1537.00 | 505 |
| 510 | XPS-6345W-D510G | 195.10 | 1536.61 | 510 |
| 515 | XPS-6345W-D515G | 195.15 | 1536.22 | 515 |
| 520 | XPS-6345W-D520G | 195.20 | 1535.82 | 520 |
| 525 | XPS-6345W-D525G | 195.25 | 1535.43 | 525 |
| 530 | XPS-6345W-D530G | 195.30 | 1535.04 | 530 |
| 535 | XPS-6345W-D535G | 195.35 | 1534.64 | 535 |
| 540 | XPS-6345W-D540G | 195.40 | 1534.25 | 540 |
| 545 | XPS-6345W-D545G | 195.45 | 1533.86 | 545 |
| 550 | XPS-6345W-D550G | 195.50 | 1533.47 | 550 |
| 555 | XPS-6345W-D555G | 195.55 | 1533.07 | 555 |
| 560 | XPS-6345W-D560G | 195.60 | 1532.68 | 560 |
| 565 | XPS-6345W-D565G | 195.65 | 1532.29 | 565 |
| 570 | XPS-6345W-D570G | 195.70 | 1531.90 | 570 |
| 575 | XPS-6345W-D575G | 195.75 | 1531.51 | 575 |
| 580 | XPS-6345W-D580G | 195.80 | 1531.12 | 580 |
| 585 | XPS-6345W-D585G | 195.85 | 1530.72 | 585 |
| 590 | XPS-6345W-D590G | 195.90 | 1530.33 | 590 |
| 595 | XPS-6345W-D595G | 195.95 | 1529.94 | 595 |
| 600 | XPS-6345W-D600G | 196.00 | 1529.55 | 600 |

| Absolute Maximum Ratings | | | | | |
|------------------------------|--------|------|-----|-------|------------------------|
| Parameter | Symbol | Min | Max | Units | Notes |
| Storage Temperature | Tstg | -40 | 85 | °C | |
| Operating Case Temperature | Topr | 0 | 70 | °C | |
| Relative Humidity | RH | 0 | 85 | % | Non condensing |
| Power Supply Voltage (5V) | Vcc5 | -0.5 | 6.0 | V | |
| Power Supply Voltage (3.3V) | Vcc3 | -0.5 | 3.6 | V | |
| Receiver Input Optical Power | Mip | | 4 | dBm | Received average power |

| Recommended Operating Conditions | | | | | |
|----------------------------------|--------|------|--------|------|---------------|
| Parameter | Symbol | Min | Typ | Max | Units / Notes |
| Power Supply Voltage (5V) | Vcc5 | 4.75 | 5 | 5.25 | V |
| Power Supply Voltage (3.3V) | Vcc3 | 3.13 | 3.3 | 3.47 | V |
| Power Supply Current (@5V) | Icc5 | | | 300 | mA / 1 |
| Power Supply Current (@3.3V) | Icc3 | | | 750 | mA / 1 |
| Power Dissipation | Pd | | | 3.5 | W |
| Operating Case Temperature | Topr | 0 | | 70 | °C |
| Data Rate | | 4.25 | 14.025 | | Gb/s |

1. Including in rush current. Maximum module current ramp rate is 100 mA/μs.

| Transmitter Optical Specifications (Topr= 0 to 70°C, Vcc5=5V±5%, Vcc3 = 3.3V ±5%) | | | | | | |
|---|---------------------|---------|-----|------|-------|--------------|
| Parameter | Symbol | Min | Typ | Max | Units | Notes |
| Average Launch Power | P _{O, Avg} | 0 | | +4 | dBm | 2 |
| Extinction Ratio | ER | 8.2 | | | dB | |
| Center Wavelength Spacing | | | 50 | | GHz | 3 |
| Transmitter Center Wavelength -- begin of life | λ _c | X-25 | X | X+25 | pm | 4 |
| Transmitter Center Wavelength -- over life time | λ _c | X-60 | X | X+60 | pm | 4 |
| Output Spectrum Width | σ _λ | | | 1 | nm | -20 dB width |
| Side Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Transmitter and Dispersion Penalty @ 800 ps/nm | TDP | | | 2 | dB | |
| Relative Intensity Noise | RIN | | | -130 | dB/Hz | |
| Eye Mask | | FC-PI-5 | | | | |
| Average Launch Power of OFF Transmitter | | | | -35 | dBm | |

2. Output power is power coupled into a 9/125 μm single-mode fiber.

3. Corresponds to approximately 0.4 nm.

4. X = specified ITU Grid wavelength. Wavelength stability is achieved within 60 seconds of power up.

| Receiver Optical Specifications (Topr= 0 to 70°C, Vcc5=5V±5%, Vcc3 = 3.3V ±5%) | | | | | | |
|--|------------------|------|-----|------|-------|-------------------------|
| Parameter | Symbol | Min | Typ | Max | Units | Notes |
| Sensitivity | Sen1 | | | -14 | dBm | 5 |
| Receiver Overload | P _{MAX} | 0 | --- | | dBm | |
| LOS -- Deasserted | LOS _D | --- | --- | -16 | dBm | Transition: low to high |
| LOS -- Asserted | LOS _A | -26 | --- | --- | dBm | Transition: high to low |
| LOS -- Hysteresis | | 0.5 | --- | | dB | |
| Wavelength of Operation | λ _c | 1260 | | 1620 | nm | |
| Optical Return Loss | ORL | | | -27 | dB | |

5. Measured with worst ER; BER < 10⁻¹² and PRBS 2³¹-1. Equivalent to -14.3 dBm OMA at ER=8.2 dB.

| Electrical Characteristics | | | | | | |
|--|------------------|------|--------|-----------------|------------------|--------------------------|
| Parameter | Symbol | Min | Typ | Max | Units | Notes |
| High-Speed Signal (CML) Interface Specification | | | | | | |
| Input Data Rate | | 4.25 | 14.025 | | Gb/s | |
| Differential Input Impedance | R _{in} | | 100 | | Ω | |
| Differential Data Input Amplitude | | 120 | | 820 | mV _{pp} | 6, Internally AC coupled |
| Output Data Rate | | 4.25 | 14.025 | | Gb/s | |
| Differential Output Impedance | R _{out} | | 100 | | Ω | |
| Differential Data Output Amplitude | | 340 | 650 | 850 | mV _{pp} | 6, Internally AC coupled |
| Low-Speed Signal (LVTTTL) Interface Specification | | | | | | |
| Input High Voltage | | 2.0 | | V _{cc} | V | |
| Input Low Voltage | | GND | | 0.8 | V | |
| Output High Voltage | | 2.4 | | V _{cc} | V | |
| Output Low Voltage | | GND | | 0.5 | V | |
| Reference Clock (LVPECL) Interface Specification | | | | | | |
| No reference clock required. | | | | | | |

6. Clock tolerance for 14.025 Gb/s, 8.5Gb/s and 4.25 Gb/s.

| Transceiver Timing Characteristics | | | | | | |
|------------------------------------|---------------------------|-----|-----|-----|-------|-------|
| Parameter | Symbol | Min | Typ | Max | Units | Notes |
| TX_DIS Assert Time | t _{off} | | | 10 | μs | |
| TX_DIS 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 | μs | |
| P_Down/PST Assert Delay | P_Down/RST _{on} | | | 100 | μs | |
| P_Down Negate Delay | P_Down/RST _{off} | | | 300 | ms | |
| Mod_NR Assert Delay | Mod_nr _{on} | | | 1 | ms | |
| Mod_NR Negate Delay | Mod_nr _{off} | | | 1 | ms | |
| Mod_Desel Assert Time | T_Mod_Desel | | | 2 | ms | |
| Mod_Desel De-Assert Time | T_Mod_Sel | | | 2 | ms | |
| P_Down Reset Time | T _{reset} | 10 | | | μs | |
| RX_LOS Assert Delay | T_Los _{on} | | | 100 | μs | |
| RX_LOS Negate Delay | T_Los _{off} | | | 100 | μs | |
| Serial ID Clock Rate | f _{SCL} | 0 | | 400 | kHz | |

MANAGEMENT INTERFACE

The structure of the memory map is shown in Figure 1, which is accessible over a 2-wire serial interface at the 8-bit address 1010000X (A0h). The normal 256 byte I2C address space is divided into low and upper blocks of 128 Bytes. The lower block of 128 Bytes is always directly available and is used for the diagnostics and control function. Multiple blocks of memories are available in the upper 128 Bytes of the address space. These are individually addressed through a table select Byte which the user enters into a location in the lower address space. Thus, there is a total available address space of 128*256 = 32 Kbytes in this upper memory space. The contents of Table 01h are listed in Table 1 below. Please refer SFF INF-8077i (Revision 4.5) for detailed information.

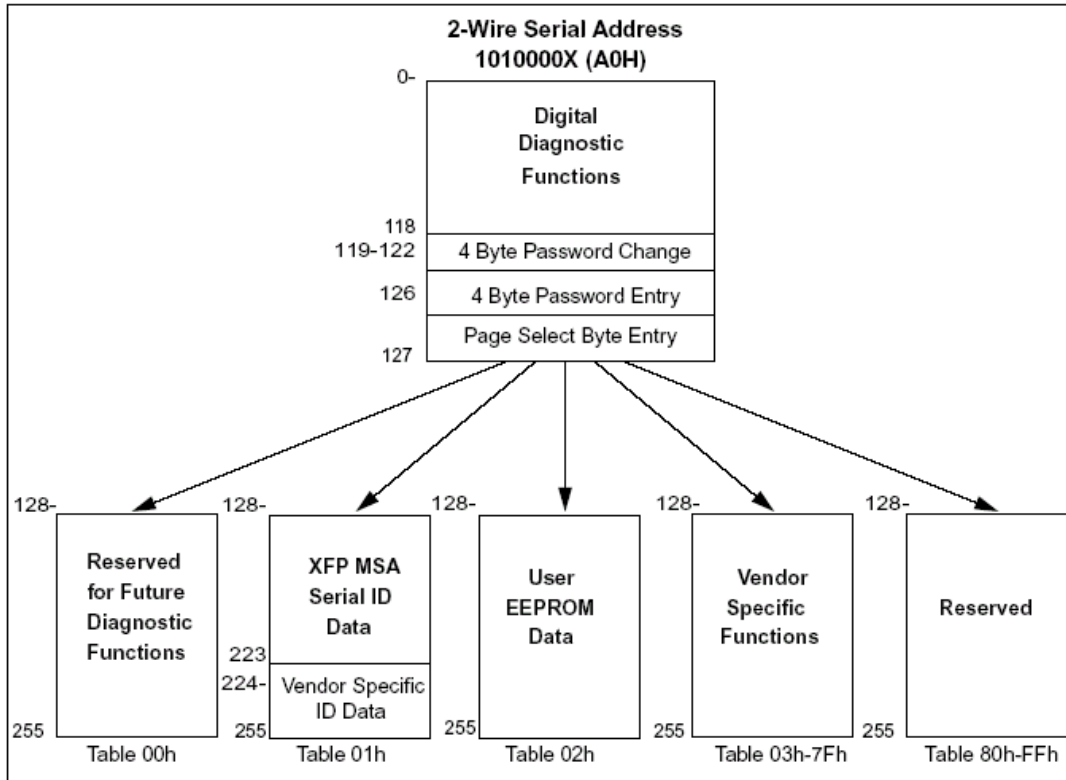


Figure 1. 2-wire Serial Digital Diagnostic Memory Map

Table 1 Monitoring Specification

| Data Address | Parameter | Accuracy |
|--------------|-------------|----------|
| 96 ~ 97 | Temperature | ± 3°C |
| 98 ~ 99 | Reserved | |
| 100 ~ 101 | Tx Bias | ± 10% |
| 102 ~ 103 | Tx Power | ± 2dB |
| 104 ~ 105 | Rx Power | ± 2dB |
| 106 ~ 107 | Vcc3 | ± 3% |

CONNECTION DIAGRAM

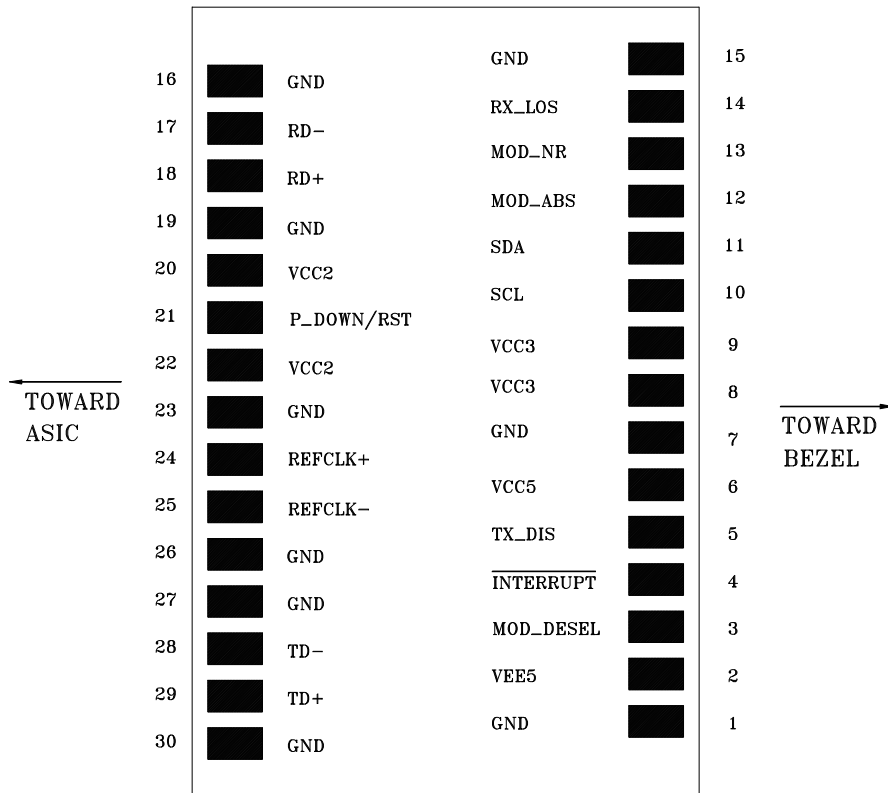


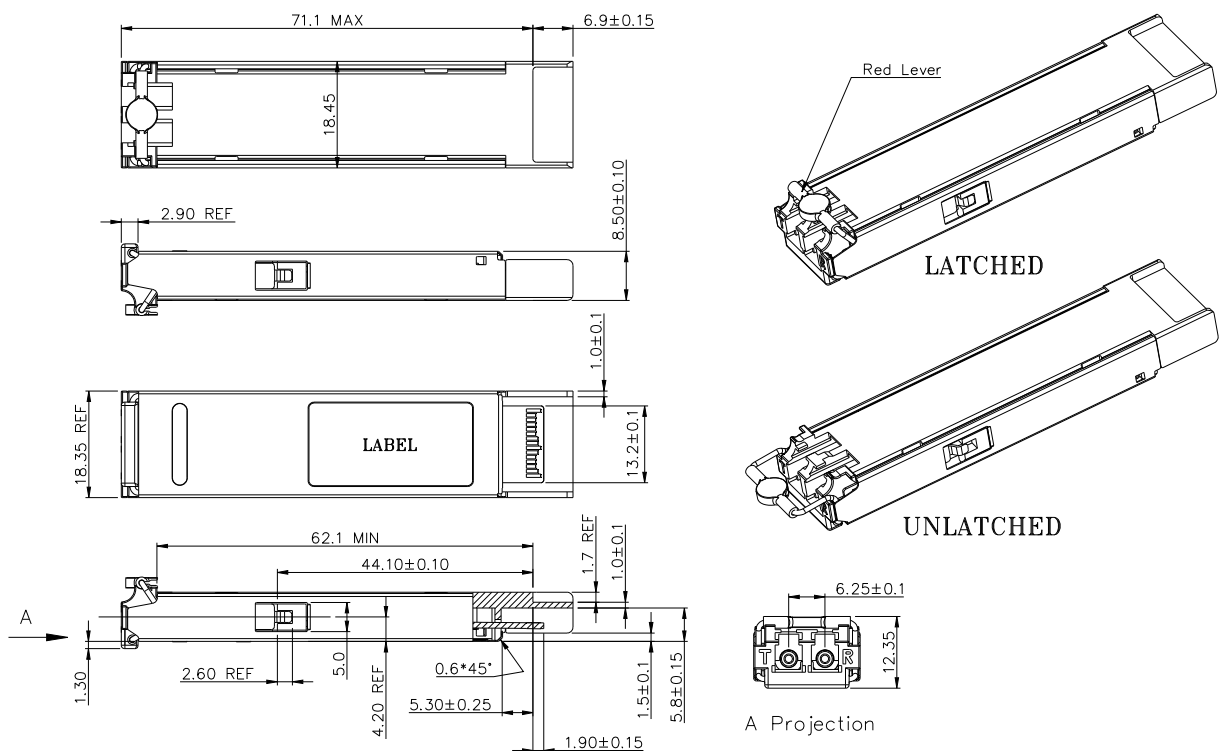
Table 2 PIN Description

| PIN | Logic | Signal Name | Description | Note |
|-----|-----------|------------------|---|------|
| 1 | | GND | Module Ground | 1 |
| 2 | | VEE5 | -5.2V Power Supply (Not required) | 3 |
| 3 | LVTTL-I | Mod Desel | Module De-select; When held low allows module to respond to 2-wire serial interface | |
| 4 | LVTTL-O | <u>Interrupt</u> | Interrupt; Indicates presence of an important condition which can be read over the 2wire serial interface | 2 |
| 5 | LVTTL-I | TX_DIS | Transmitter Disable; Turns off transmitter laser output | |
| 6 | | VCC5 | +5V Power Supply | 3 |
| 7 | | GND | Module Ground | 1 |
| 8 | | VCC3 | +3.3V Power Supply | |
| 9 | | VCC3 | +3.3V Power Supply | |
| 10 | LVTTL-I/O | SCL | Serial 2-wire interface clock | 2 |
| 11 | LVTTL-I/O | SDA | Serial 2-wire interface data line | 2 |
| 12 | LVTTL-O | Mod Abs | Indicates Module is not present. Grounded in the Module | 2 |
| 13 | LVTTL-O | Mod_NR | Module Not Ready; Indicating Module Operational Fault | 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 (Not required) | 3 |

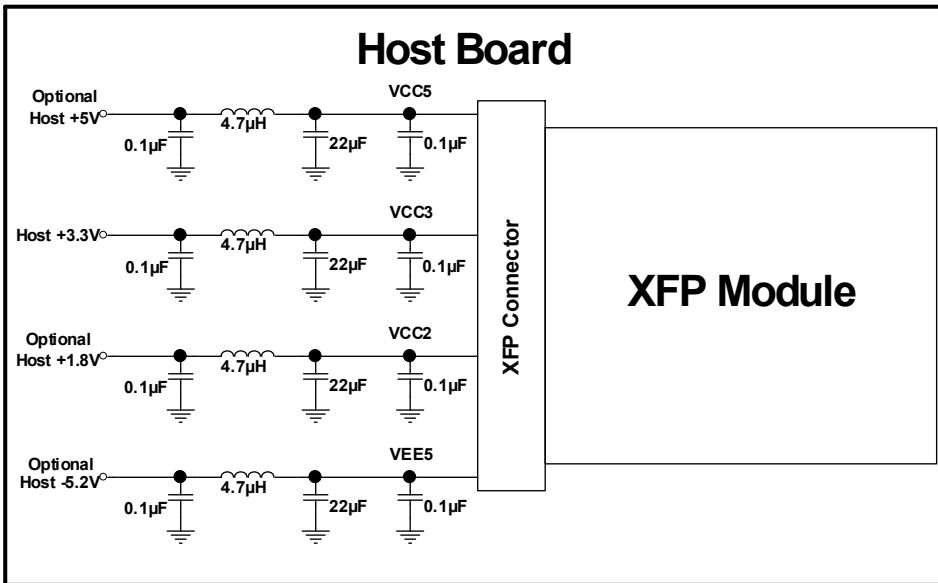
| | | | | |
|----|----------|------------|---|---|
| 21 | LVTTTL-I | P_Down/RST | Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode. Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle. | |
| 22 | | VCC2 | +1.8V Power Supply (Not required) | 3 |
| 23 | | GND | Module Ground | 1 |
| 24 | PECL-I | RefCLK+ | Reference Clock Non-Inverted Input, AC coupled on the host board. (Not used. Internally terminated to 50 ohm (100 ohm diff.)) | 4 |
| 25 | PECL-I | RefCLK- | Reference Clock Inverted Input, AC coupled on the host board. (Not used. Internally terminated to 50 ohm (100 ohm diff.)) | 4 |
| 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 |

1. Module ground pins GND are isolated from the module case and chassis ground within the module.
2. Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.
3. These PINs are open within module.
4. A Reference Clock input is not required. If present, it will be ignored.

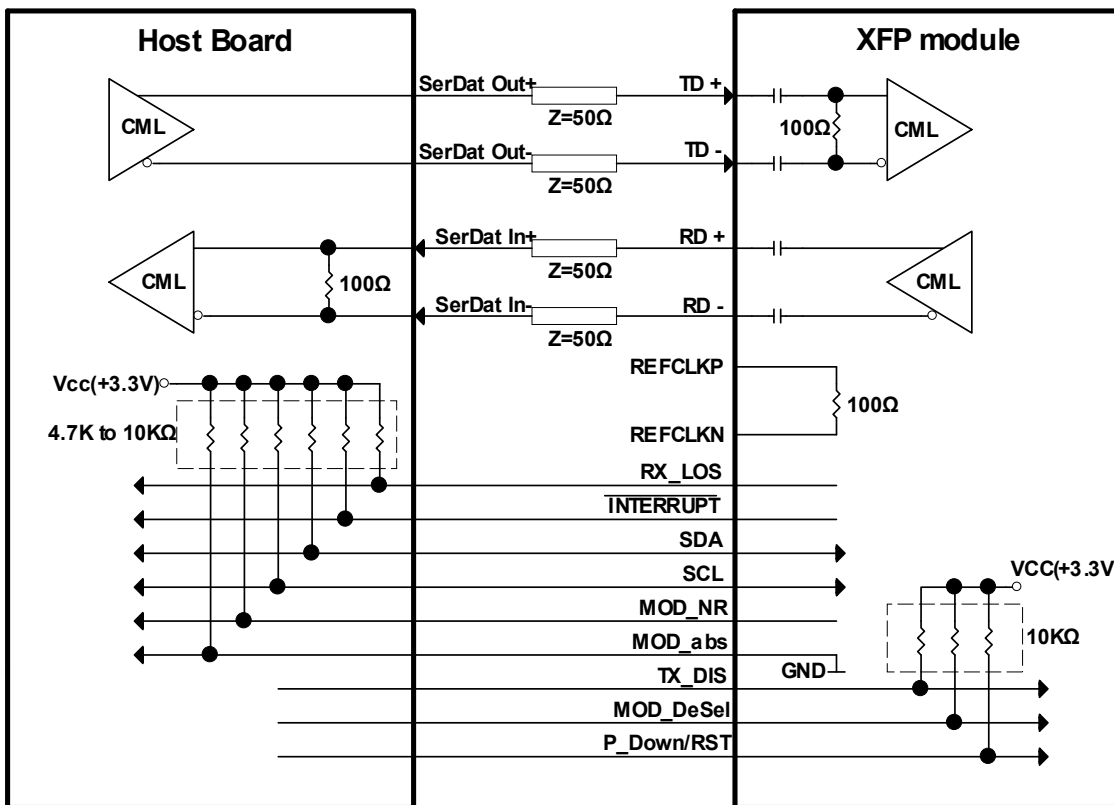
MECHANICAL SPECIFICATION (UNITS IN MM)



RECOMMENDED POWER CIRCUIT SCHEMATIC



RECOMMENDED INTERFACE CIRCUIT

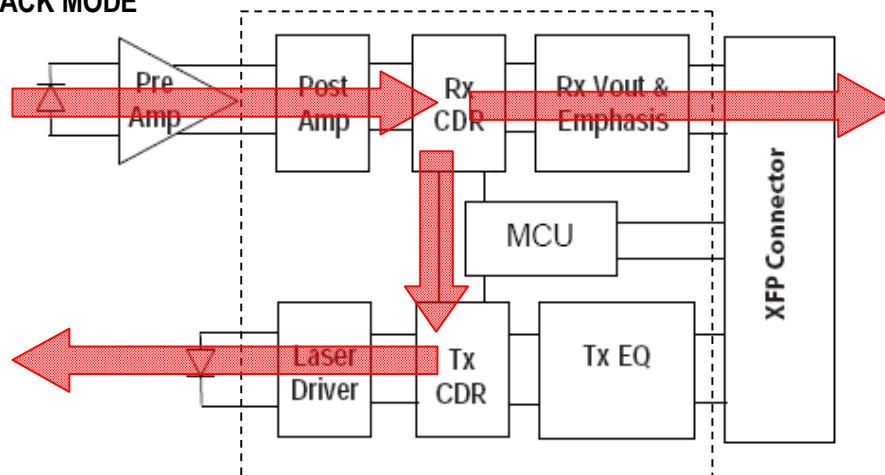


LOOPBACK FUNCTION (I2C CONTROLLED)

| Byte | Bit | Name | Description |
|------|-----|----------------------------|---|
| 1 | 4-7 | Data Rate Control | Ignored. |
| | 3 | Reserved | Reserved. |
| | 2 | Lineside Loopback | Power up to 0b. When Lineside Loopback is enabled, Lineside Loopback routes incoming XFP Rx optical data to both Tx optical output and Rx electrical output. (Loopback Module Optical Input to Optical and Electrical Output when enabled.) |
| | 1 | XFI Loopback | Power up to 0b. When XFI Loopback is enabled, XFI Loopback routes incoming XFP Tx electrical data to both Rx electrical output and Tx optical output. (Loopback Module XFI Input to Electrical and Optical Output when enabled.) |
| | 0 | Signal Conditioner Control | Ignored. (Normal REFCLK mode only supported.) |

| Bit | Value (binary) | Mode | Path |
|-----|----------------|-------------------|--|
| 2:1 | 00 | Normal | Normal Operation |
| | 01 or 11 | XFI Loopback | Tx EQ => Tx CDR => Rx CDR and Laser Driver => Rx Vout & Emphasis |
| | 10 | Lineside Loopback | Pre Amp => Post Amp => Rx CDR => Tx CDR and Rx Vout & Emphasis => Laser Driver |

LINESIDE LOOPBACK MODE



XFI LOOPBACK MODE

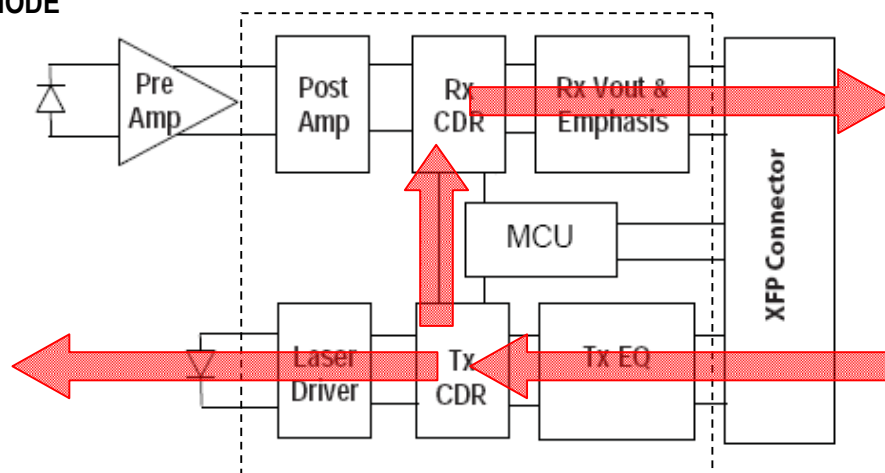


Table 3 Serial ID Memory Contents (Table 01h)

| Address | Field Size (Byte) | Name of Filed | Description | Hex |
|---------|-------------------|----------------------------|---|--|
| 128 | 1 | Identifier | XFP | 06 |
| 129 | 1 | Ext. Identifier | power consumption < 3.5W, no Ref Clock required | 90 |
| 130 | 1 | Connector type | LC connector | 07 |
| 131~138 | 8 | Transceiver | 16G / 8G / 4G FC, 10GBASE-ER/EW, 10GFC 1200-SM-LL-L | 22 40 00 00 00 00 00 00 |
| 139 | 1 | Encoding | 64B/66B, 8B10B, & NRZ | D0 |
| 140 | 1 | BR-Min | 4.25Gbps | 2B |
| 141 | 1 | BR-Max | 14.025Gbps | 8C |
| 142 | 1 | length (SMF)-Km | 40 Km | 28 |
| 143 | 1 | Length (E-50μm) | 0 m | 00 |
| 144 | 1 | Length (50 μm) | 0 m | 00 |
| 145 | 1 | Length (62.5 μm) | 0 m | 00 |
| 146 | 1 | Length (Copper) | 0 m | 00 |
| 147 | 1 | Device Tech | DWDM EML, PIN detector | 74 |
| 148~163 | 16 | Vendor name | OPTOWAY | 4F 50 54 4F 57 41 59 20 20 20 20 20 20 20 20 20 |
| 164 | 1 | CDR Support | CDR supports 9.95G ~ 11.3G & 14.025G, Lineside Loopback, & XFI Loopback | FB |
| 165~167 | 3 | Vendor OUI | | 00 0E FA |
| 168~183 | 16 | Vendor PN | XPS-6345W-DXXXG XX = 200, 205, ..., 600 | 58 50 53 2D 36 33 34 35 57 2D 44 3x 3x 47 20 20 |
| 184~185 | 2 | Vendor rev | ASCII ("31 61" means 1a revision) | xx xx |
| 186~187 | 2 | Wavelength | 1XXX.XXnm | xx xx |
| 188~189 | 2 | Wavelength Tolerance | +/- 0.06nm | 00 0C |
| 190 | 1 | Max Case Temp | 70deg | 46 |
| 191 | 1 | CC_BASE | Check sum of Byte 128 -- 190 | |
| 192~195 | 4 | Power Supply | 3.5 Wmax, 1.5W pd_max , 750mA 3.3V, 500 mA 5V | AF 96 A8 00 |
| 196~211 | 16 | Vendor SN | ASCII | xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx |
| 212~219 | 8 | Date code | ASCII Year (2 Byte), Month (2 Byte), Day (2 Byte) | xx xx xx xx xx xx 20 20 |
| 220 | 1 | Diagnostic Monitoring Type | No BER Support, Average Power | 08 |
| 221 | 1 | Enhanced Options | Optional Soft TX_DISABLE implemented, Optional Soft P_down implemented | 60 |
| 222 | 1 | Aux Monitoring | AUX1 for Vcc3, AUX2 for Vcc5. | 76 |
| 223 | 1 | CC_EXT | Check sum of Byte 192 -- 222 | |
| 224~255 | 32 | Vendor Specific | | Reserved |

Note: Specifications subject to change without notice.

REVISION HISTORY

| Version | Subject | Release Date |
|---------|------------------------|--------------|
| 1.0 | Initial datasheet | 2012/7/1 |
| 2.0 | Revise package diagram | 2017/10/12 |
| | | |
| | | |