



Features

- Supports 10GBE Application at the Data-Rate of 9.953Gbps to 10.3125Gbps
- Maximum link length of 70km with SMF
- 1550nm cooled EML laser and PIN photodiode
- XFP MSA package with duplex LC connector
- XFI High Speed Electrical Interface
- +5V, +3.3V power supply
- Power dissipation <3.5W
- 2-wire interface for management and diagnostic monitor
- Compatible with RoHS
- Compatible with IEEE 802.3ae 10 Gigabit Ethernet
- Compatible with Sonet OC-192/SDH STM-64

XXS55A-70LY

10Gbps XFP Optical Transceiver, 70km Reach

Applications

- SONET(OC-192)/SDH(STM64) line card
- 10GE Ethernet switches and routers
- 10GE Core-routers
- 10GE Storage
- Inter Rack Connection
- Other high speed data connections

Description

Xenya's 70km XFP XXS55A-70LY transceiver comply with XFP MSA, and can support diverse applications for SDH/Sonet equipment including FEC (9.95Gb/s to 10.7Gb/s), as well as Ethernet LAN(10.325Gb/s) and WAN(9.95Gb/s) applications. The high performance cooled 1550nm cooled EML transmitter and high sensitivity PIN receiver provide superior performance for SONET /SDH and Ethernet applications at up to 70km links. Digital diagnostics functions are available via a 2-wire serial interface, as specified in the XFP MSA.

Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit | Ref. |
|-----------------------------------|--------|------|-----|------|------|
| Storage Ambient Temperature Range | | -40 | +85 | °C | |
| Powered case Temperature Range | | -5 | +70 | °C | |
| Operating Relative Humidity | RH | | 80 | % | |
| Supply Voltage Range @ 5V | Vcc5 | -0.5 | 6.0 | V | |
| Supply Voltage Range @ 3.3V | Vcc3 | -0.5 | 4.0 | V | |

Any stress beyond the maximum ratings can result in permanent damage. The device specifications are guaranteed only under the recommended operating conditions.

Recommended Operating Conditions

| Parameter | Symbol | Min | Typical | Max | Unit |
|----------------------------|--------|------|---------|------|------|
| Operating Case Temperature | Tc | 0 | | +70 | °C |
| Power Supply Voltage | Vcc5 | 4.75 | 5.0 | 5.25 | V |
| | Vcc3 | 3.13 | 3.3 | 3.47 | |
| Power Dissipation | PD | | | 3.5 | W |

Transmitter E/O Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note | |
|---------------------------------|-----------|------------------------------|------|------|-------|------|---|
| Operating Data Rate | | 9.95 | | 11.1 | Gb/s | | |
| Ave. Output Power | Po | -1 | | 2 | dBm | 1 | |
| Output Centre Wavelength | λ | 1530 | 1550 | 1565 | nm | | |
| Disable Power | Poff | | | -30 | dBm | | |
| Extinction Ratio | ER | 8.2 | | | dB | 1 | |
| Sidemode Supression Ratio | | 30 | | | dB | | |
| Rise/Fall Time (20%~80%) | Tr/Tf | | | 38 | PS | | |
| Dispersion penalty | | | | 2 | dB | 1 | |
| Generation Jitter1(20KHZ-80MHZ) | | | | 0.3 | Ulp-p | 1 | |
| Generation Jitter 2(4MHZ-80MHZ) | | | | 0.1 | Ulp-p | 1 | |
| Optical Eye Mask 1 | | GR-253-CORE/ITU-T G.691 1 | | | | | 1 |
| Optical Eye Mask 2 | | IEEE802.3ae | | | | | 2 |

Receiver E/O Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|-----------------------------|-----------|-------------------------|------|-------|------|------|
| Operating Data Rate | | 9.95 | | 11.1 | Gb/s | |
| Overload | Po | 0.5 | | | dBm | |
| Input Centre Wavelength | λ | 1270 | | 1600 | nm | |
| Minimum Sensitivity | Pmin | | | -16 | dBm | 1 |
| Stressed Sensitivity in OMA | | | | -14.1 | dBm | 2 |
| LOS Assert | LosA | -30 | | | nm | |
| LOS De-assert | LosD | | | -16 | dBm | |
| LOS Hysteresis | | 0.5 | | | dBm | |
| Optical Return Loss | | 27 | | | dB | |
| Jitter Tolerance | | GR-253-CORE/ITU-T G.783 | | | | 1 |

Note : 1. Measured at 9.95328Gb/s,Framed PRBS2^31-1,NRZ

2. Measured at 10.3125Gb/s,Non-framed PRBS2^31-1,NRZ

Pin Descriptions

| Pin | Logic | Symbol | Name/Description | Note |
|-----|-----------|-----------|---|------|
| 1 | | GND | Module Ground | 1 |
| 2 | | VEE5 | Optional -5.2V Power Supply (Not required) | |
| 3 | LVTTL-I | MOD_DESEL | Module De-select; When held low allows the module to respond to 2-wire serial interface | |
| 4 | LVTTL-O | INTb | Interrupt; Indicates presence of an important condition which can be read via the 2-wire serial interface | 2 |
| 5 | LVTTL-I | TX_DIS | Transmitter Disable; Turns off transmitter laser output | |
| 6 | | VCC5 | +5V Power Supply | |
| 7 | | GND | Module Ground | 1 |
| 8 | | VCC3 | +3.3V Power Supply | |
| 9 | | VCC3 | +3.3V Power Supply | |
| 10 | LVTTL-I/O | SCL | 2-Wire Serial Interface Clock | 2 |
| 11 | LVTTL-I/O | SDA | 2-Wire Serial 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 | RDN | Receiver Inverted Data Output | |
| 18 | CML-O | RDP | Receiver Non-Inverted Data Output | |
| 19 | | GND | Module Ground | 1 |

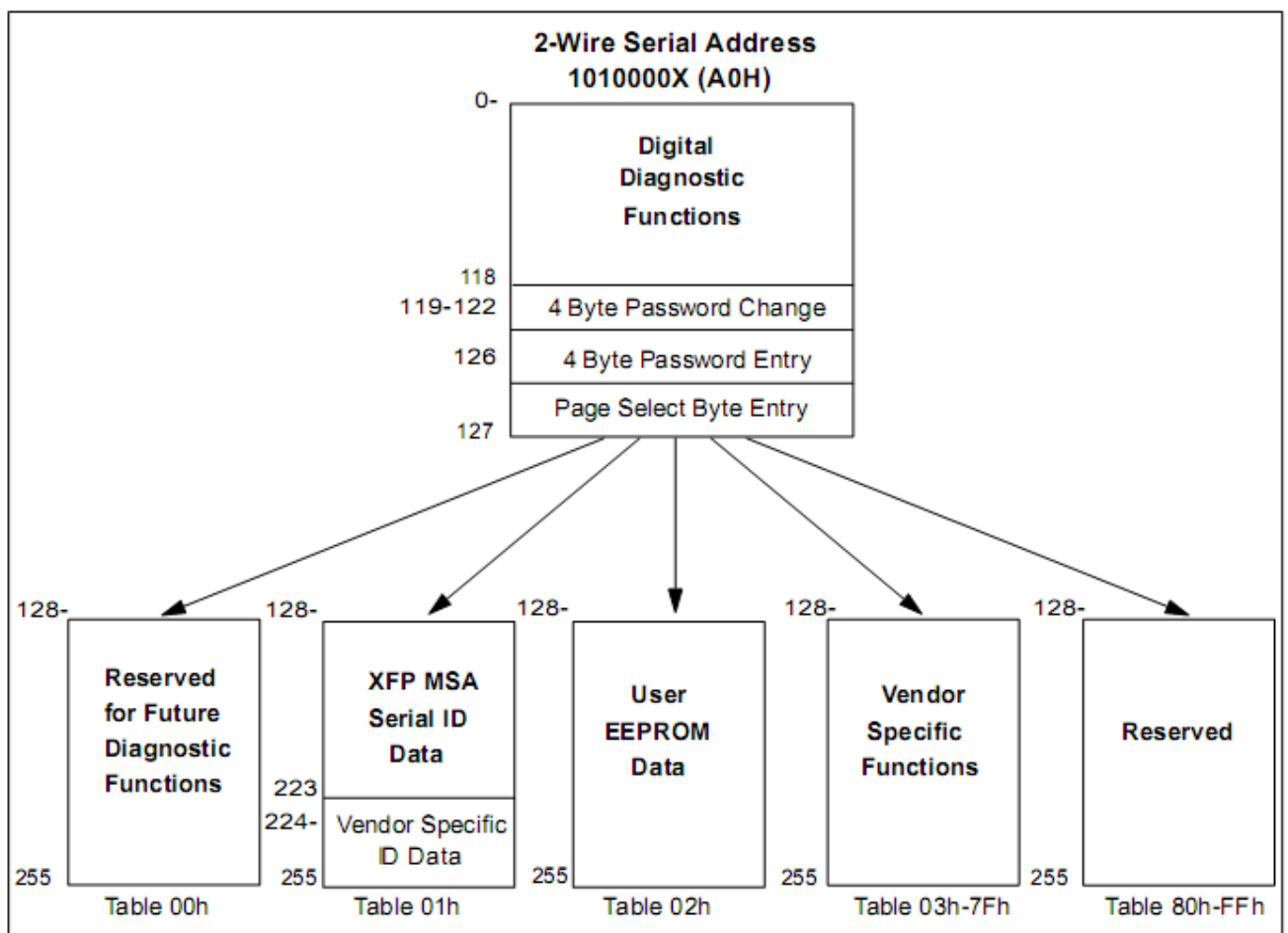
| | | | | |
|--|----------|------------------|---|---|
| 20 | | VCC2 | +1.8V Power Supply (Not required). | 3 |
| 21 | LVTTTL-I | P_DOWN/RST | Power down; When high, requires the module to limit power consumption to 1.5W or below. 2-Wire serial interface must be functional in the low power mode. | |
| | | | Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle. | |
| 22 | | V _{CC2} | +1.8V Power Supply (Not required) | 3 |
| 23 | | GND | Module Ground | 1 |
| 24 | PECL-I | REFCLKP | Not used, internally terminated to 50ohm (100ohm diff). | 4 |
| 25 | PECL-I | REFCLKN | Not used, internally terminated to 50ohm (100ohm diff). | 4 |
| 26 | | GND | Module Ground | 1 |
| 27 | | GND | Module Ground | 1 |
| 28 | CML-I | TDN | Transmitter Inverted Data Input | |
| 29 | CML-I | TDP | Transmitter Non-Inverted Data Input | |
| 30 | | GND | Module Ground | 1 |
| <p>1. Module ground pins GND are isolated from the module case and chassis ground within the module.</p> <p>2. Open collector; Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.6V on the host board.</p> <p>3. The pins are open within module.</p> <p>4. Reference Clock is not required.</p> | | | | |

Management Interface

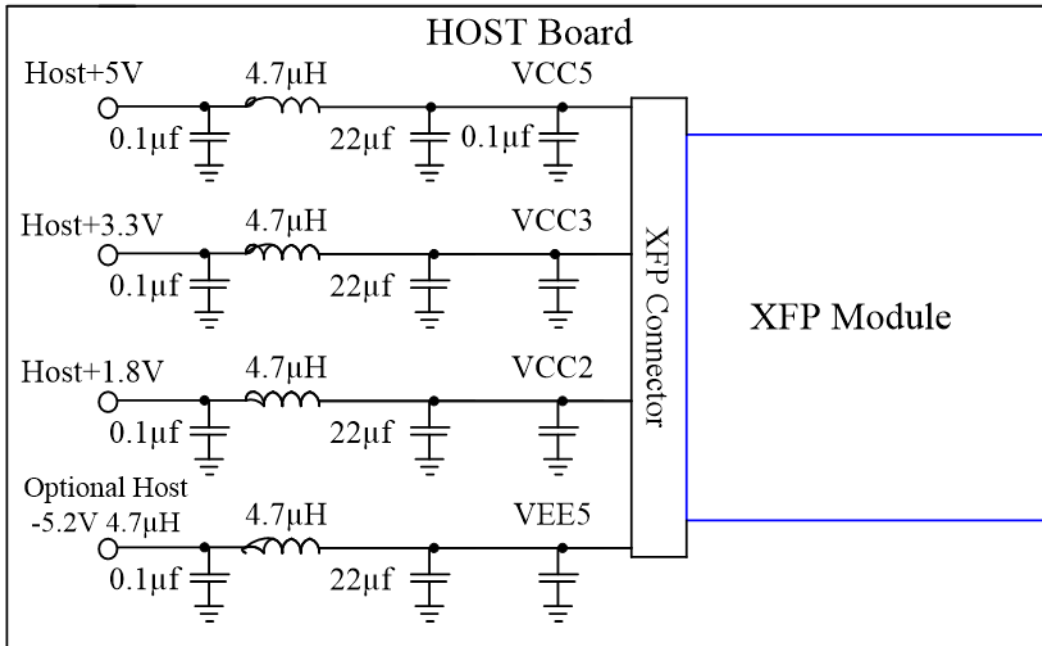
The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA).

The Module provides diagnostic information about the present operating conditions. The transceiver generates this diagnostic data by digitization of internal analog signals. Alarm/warning threshold data is written during device manufacture. Received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring all are implemented.

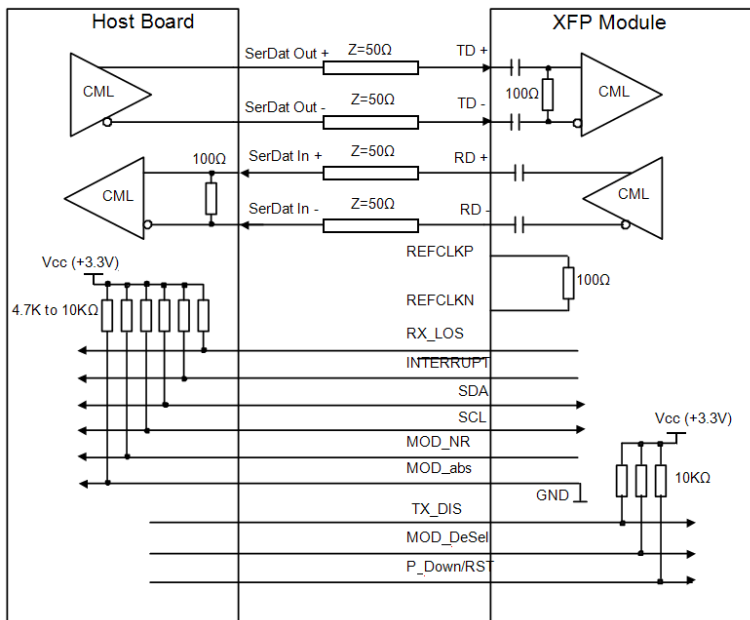
The digital diagnostic memory map specific data field defines as following.



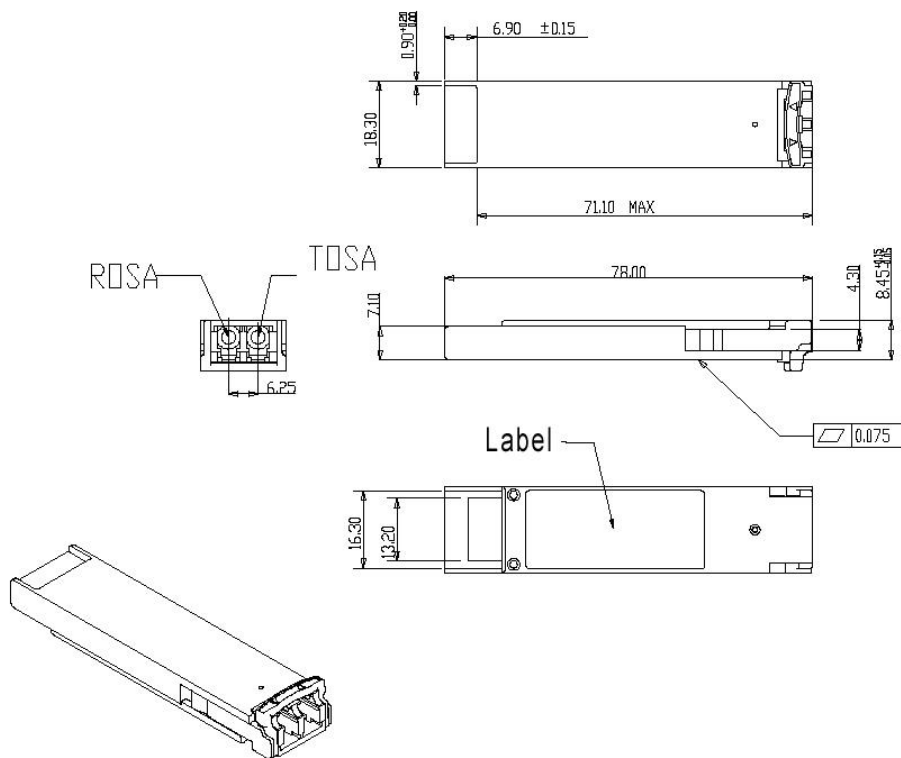
Recommended Host Board Power Supply Circuit



Recommended High-speed Interface Circuit



Package Dimensions



Ordering information

| Part Number | Product Description |
|-------------|--|
| XXS55A-70LY | 1550nm cooled EML, 10Gbps, 70km, 0°C ~ +70°C |

E-mail: info@xenya.si

Web: <http://www.xenya.si>