

PRODUCT SPECIFICATION

| | | |
|---------------------|--|------------------------------------|
| Part No.: | AC-XPBL-23G10-40/AC-XPBL-32G10-40 | |
| Description: | 10G SFP+ Transceiver, BIDI TX1270nm/RX1330nm 40km 10G SFP+ Transceiver, BIDI TX1330nm/RX1270nm 40km | |
| Release Date | Rev. | Revision Change Description |
| 2017/06/07 | A0 | New Release |
| 2020/12/28 | A1 | Template Update |

Features

- ✧ Supports up to 11.3Gbps bit rates
- ✧ Hot-pluggable SFP+ footprint
- ✧ 1270nm DFB laser and PIN receiver for AC-XPBL-23G10-40
- ✧ 1330nm DFB laser and PIN receiver for AC-XPBL-32G10-40
- ✧ Up to 40km for SMF transmission
- ✧ Compliant with SFP+ MSA and SFF-8472 with single LC receptacle
- ✧ Compatible with RoHS
- ✧ Single +3.3V power supply
- ✧ Power dissipation<1.0W
- ✧ 2-wire interface with integrated Digital Diagnostic monitoring
- ✧ EEPROM with Serial ID Functionality
- ✧ Operating case temperature:
- ✧ Standard: 0 to +70°C
- ✧ Industrial: -40 to +85°C

Application

- ✧ 10GBASE-BX & 10GBASE-ER/EW
- ✧ 10G SONET/SDH, OTU2/2e

Standard

- ✧ Compliant with SFF-8472
- ✧ Compliant to SFF-8431

Specification

Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit |
|----------------------|-----------------|----------------------|----------------------|------|
| Supply Voltage | V _{cc} | 0 | 4 | V |
| Storage Temperature | T _s | -40 | +85 | °C |
| Operating Humidity | - | 5 | 95 | % |
| Signal Input Voltage | | V _{cc} -0.3 | V _{cc} +0.3 | V |

Recommended Operating Conditions

| Parameter | Symbol | Min | Typical | Max | Unit |
|-------------------------------|-----------------|-------|---------|-------|------|
| Operating Case Temperature | Standard | 0 | | +70 | °C |
| | Industrial | -40 | | +85 | °C |
| Power Supply Voltage | V _{cc} | 3.135 | 3.30 | 3.465 | V |
| Power Supply Current | I _{cc} | | | 300 | mA |
| Data Rate | | | 10.3 | 11.3 | Gbps |
| Fiber Length 9/125μm core SMF | | - | 40 | - | km |

Optical and Electrical Characteristics

| Parameter | Symbol | Min | Typical | Max | Unit | Notes |
|-------------------------------|------------------|------|---------|-----------------|------|------------------|
| Transmitter | | | | | | |
| Centre Wavelength | λ _c | 1260 | 1270 | 1280 | nm | AC-XPBL-23G10-40 |
| | | 1320 | 1330 | 1340 | nm | AC-XPBL-32G10-40 |
| Spectral Width (-20dB) | Δλ | | | 1 | nm | |
| Side-Mode Suppression Ratio | SMSR | 30 | - | | dB | |
| Average Output Power | P _{out} | 0 | | 5 | dBm | 1 |
| Extinction Ratio | ER | 3.5 | | | dB | |
| Data Input Swing Differential | V _{IN} | 180 | | 700 | mV | 2 |
| Input Differential Impedance | Z _{IN} | 85 | 100 | 115 | Ω | |
| TX Disable | Disable | 2.4 | | V _{cc} | V | |
| | Enable | -0.3 | | 0.8 | V | |
| TX Fault | Fault | 2.0 | | V _{cc} | V | |
| | Normal | -0.3 | | 0.8 | V | |
| Receiver | | | | | | |

Add: 2-4# Building, Tongfuyu Industrial Zone, Ai qun Road, Shiyan street, Baoan District, Shen zhen, China.

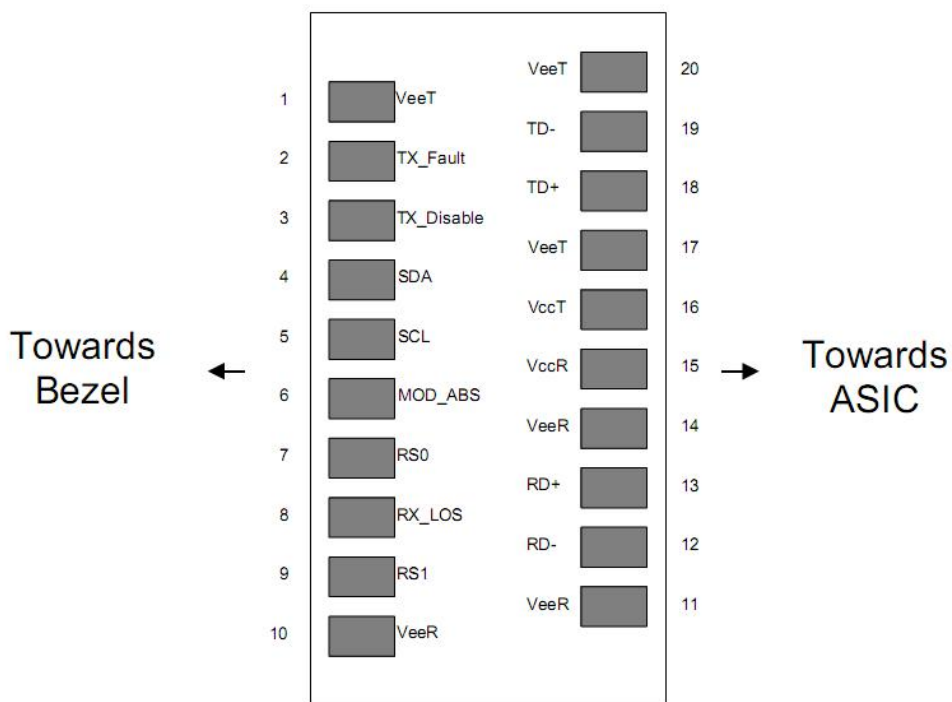
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| | | | | | | |
|--------------------------------|------------------|----------------------|------|----------------------------------|-----|------------------|
| Centre Wavelength | λ_c | 1320 | 1330 | 1340 | nm | AC-XPBL-23G10-40 |
| | | 1260 | 1270 | 1280 | nm | AC-XPBL-32G10-40 |
| Receiver Sensitivity | | | | -15 | dBm | 3 |
| Receiver Overload | | 0.5 | | | dBm | 3 |
| LOS De-Assert | LOS _D | | | -17 | dBm | |
| LOS Assert | LOS _A | -30 | | | dBm | |
| LOS Hysteresis | | 0.5 | | 5 | dB | |
| Data Output Swing Differential | V _{out} | 300 | | 850 | mV | 4 |
| LOS | Fault | V _{cc} -1.3 | | V _{cc} H _{ost} | V | |
| | Norm | V _{ee} | | V _{ee} +0.8 | V | |

Notes:

1. The optical power is launched into SMF.
2. PECL input, internally AC-coupled and terminated.
3. Measured with a PRBS2³¹-1 test pattern @10312Mbps, BER $\leq 1 \times 10^{-12}$.
4. Internally AC-coupled.

Pin Descriptions



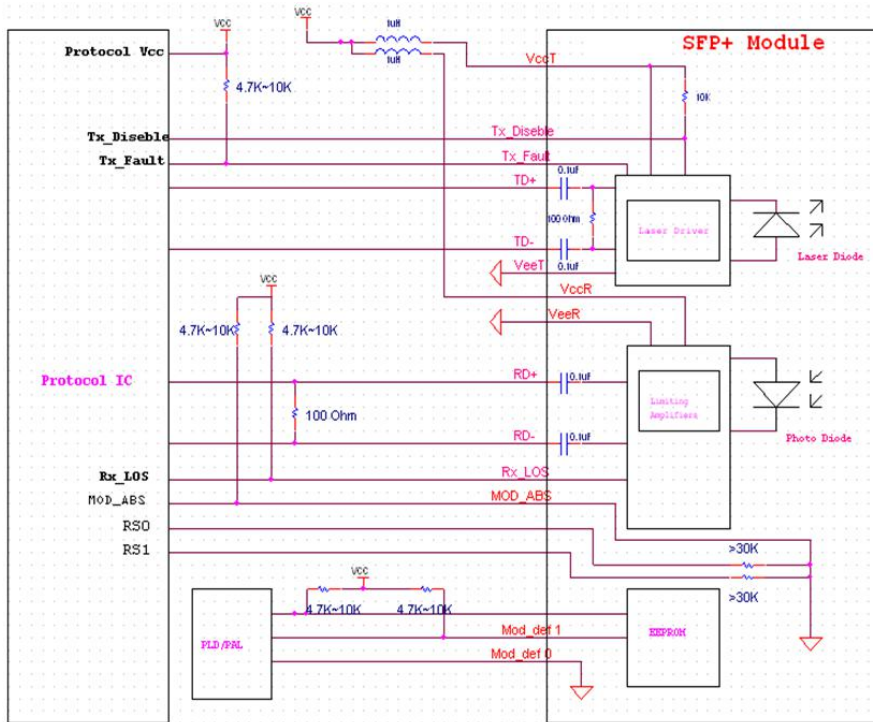
| Pin | Signal Name | Description | Plug Seq. | Notes |
|-----|------------------|---|-----------|--------|
| 1 | V _{EET} | Transmitter Ground | 1 | |
| 2 | TX FAULT | Transmitter Fault Indication | 3 | Note 1 |
| 3 | TX DISABLE | Transmitter Disable | 3 | Note 2 |
| 4 | SDA | SDA Serial Data Signal | 3 | |
| 5 | SCL | SCL Serial Clock Signal | 3 | |
| 6 | MOD_ABS | Module Absent. Grounded within the module | 3 | |
| 7 | RS0 | Not Connected | 3 | |
| 8 | LOS | Loss of Signal | 3 | Note 3 |
| 9 | RS1 | Not Connected | 3 | |
| 10 | V _{EER} | Receiver ground | 1 | |
| 11 | V _{EER} | Receiver ground | 1 | |
| 12 | RD- | Inv. Received Data Out | 3 | Note 4 |
| 13 | RD+ | Received Data Out | 3 | Note 4 |
| 14 | V _{EER} | Receiver ground | 1 | |
| 15 | V _{CCR} | Receiver Power Supply | 2 | |
| 16 | V _{CCT} | Transmitter Power Supply | 2 | |
| 17 | V _{EET} | Transmitter Ground | 1 | |
| 18 | TD+ | Transmit Data In | 3 | Note 5 |
| 19 | TD- | Inv. Transmit Data In | 3 | Note 5 |
| 20 | V _{EET} | Transmitter Ground | 1 | |

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

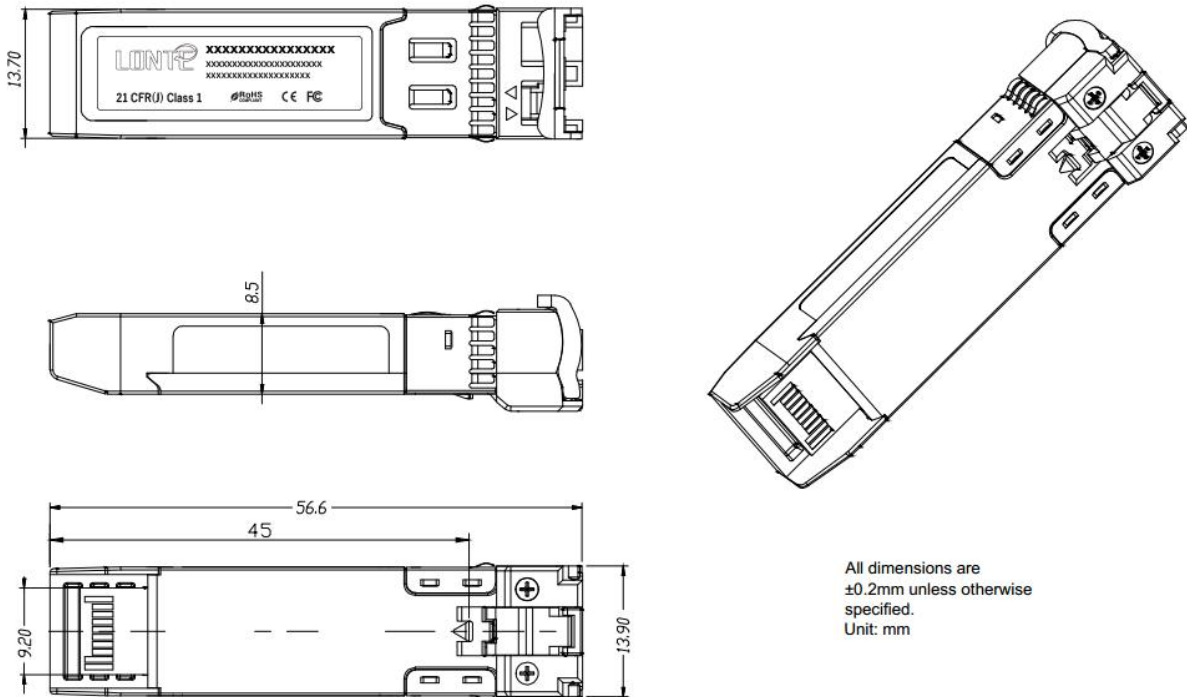
- 1) TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and V_{cc}+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
- 2) Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
- 3) LOS is open collector output Should be pulled up with 4.7k~10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
- 4) RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.
- 5) TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Recommended Interface Circuit



Package Outline

Dimensions are in millimeters. All dimensions are $\pm 0.2\text{mm}$ unless otherwise specified. (Unit: mm)



Regulatory Compliance

| Feature | Test | Method |
|--|---|--|
| Electrostatic Discharge (ESD) to the Electrical Pins | MIL-STD-883E Method 3015.7 | Class 1 (>1.5kV) – Human Body Model |
| Electrostatic Discharge (ESD) Immunity | IEC61000-4-2 | Class 2(>4.0kV) |
| Electromagnetic Interference (EMI) | CISPR22 ITE Class B FCC Class B CENELEC EN55022 VCCI Class 1 | Comply with standard |
| Immunity | IEC61000-4-3 | Comply with standard |
| Eye Safety | FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1,2 | Compatible with Class I laser Product |

Ordering information

| Part. No | Specifications | | | | | | | | |
|-------------------|----------------|-------------|---------|----------|-----|-----------|-----------|------------|-----|
| | Pack | Rate (Gbps) | Tx (nm) | Po (dBm) | RX | Sen (dBm) | Temp (°C) | Reach (km) | DDM |
| AC-XPBL-23G10-40 | SFP+ | 10.3125 | 1270 | 0~5 | PIN | <-15.0 | 0~70 | 40 | Y |
| AC-XPBL-32G10-40 | SFP+ | 10.3125 | 1330 | 0~5 | PIN | <-15.0 | 0~70 | 40 | Y |
| AC-XPBL-23G10-40F | SFP+ | 10.3125 | 1270 | 0~5 | PIN | <-15.0 | -40~85 | 40 | Y |
| AC-XPBL-32G10-40F | SFP+ | 10.3125 | 1330 | 0~5 | PIN | <-15.0 | -40~85 | 40 | Y |