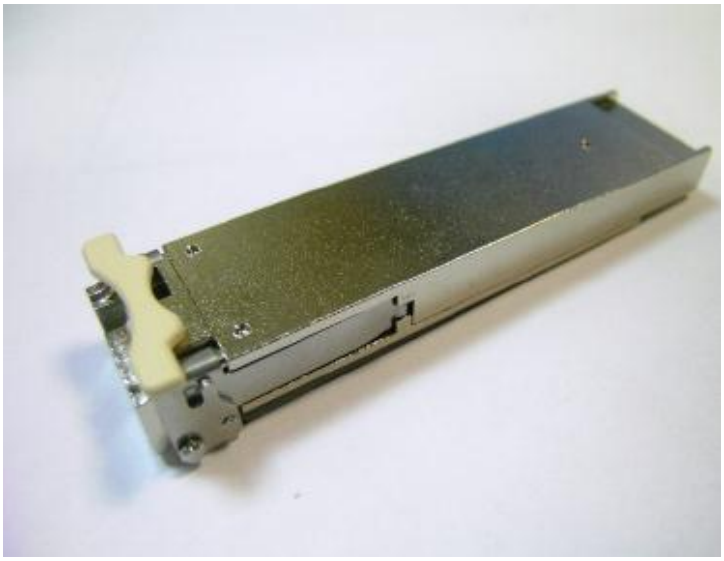
**RoHS compliant**
**1270/1330 nm BIDI XFP Transceiver up to 20KM link length**
**10GBASE-BX ( Ethernet)/ Fiber channel/ SONET OC192 IR2/ SONET OC192/IR-3/SDH STM-64.2b/ SDH STM S-64.3b/ ITU-T G709**



## Features

- RoHS compliant
- Compliant with IEEE802.3ae 10GBASE-BX
- Ethernet standard
- Bi-Direction link distance up to 20km
- Simplex LC connector
- Power consumption<1.5W
- Compliant with XFP MSA INF-8077i
- Differential LVPECL inputs and CML outputs
- Single power supply 3.3V
- TTL signal detect indicator
- Hot Pluggable
- Class 1 laser product complies with EN 60825-1

## Ordering Information

| PART NUMBER | INPUT/OUTPUT | MONITOR | VOLTAGE | TEMPERATURE |
|---|---|---|---|---|
| CL-XFP-20-2733 | AC/AC | Yes | 3.3V | 0°C to 70 °C |
| CL-XFP-20-2733 I | AC/AC | Yes | 3.3V | -25°C to 85 °C |

## Absolute Maximum Ratings

| PARAMETER | SYMBOL | MIN | MAX | UNITS | NOTE |
|---|---|---|---|---|---|
| Storage Temperature | $T_S$ | –40 | 85 | °C | |
| Supply Voltage 1 | *Vcc3* | –0.5 | 4.0 | V | |
| Supply Voltage 2 | *Vcc5* | –0.5 | 6.0 | V | |



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## Recommended Operating Conditions

| PARAMETER | SYMBOL | MIN | MAX | UNITS | NOTE |
|---|---|---|---|---|---|
| Case operating Temperature | *Tc* | 0 | 70 | ℃ | I for -25~85 ℃ |
| Supply Voltage | *Vcc3* | 3.1 | 3.5 | V | |
| Supply Current | *Icc3* | --- | 600 | mA | |

## Transmitter Electro-optical Characteristics

***Vcc* = 3.1 V to 3.5 $T_C$ = -0 °C to 70 °C (–25 °C to 85 °C)**

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNITS | NOTE |
|---|---|---|---|---|---|---|
| Operating Data Rate | | 9.95 | | 11.3 | Gbps | |
| Input Reference Clock Rate | | | | | | |
| Output power | $P_{OUT}$ | -2 | | +3 | dBm | |
| Extinction Ratio | *bR* | 3.5 | | | dB | |
| Center Wavelength | $\lambda_C$ | 1260 | | 1280 | nm | |
| Sidemode Supression ratio | $SSR_{min}$ | 30 | | | | |
| Relative Intensity Noise | *RIN* | --- | | -128 | dB/Hz | |
| Output Eye | | | | | | |
| Differential Input Voltage | $V_{DIFF}$ | 0.25 | | 1.0 | | |
| Transmit Fault Output-Low | $TX\_FAULT_L$ | 0.0 | | 0.5 | | |
| Transmit Fault Output-High | *TX_FAULT* | 2.4 | | | | |



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## Receiver Electro-optical Characteristics

***Vcc3* = 3.1 V to 3.5 V, V,$T_A$ = 0°C to 70 °C**

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNITS | NOTE |
|---|---|---|---|---|---|---|
| Receiver Overload | $P_{IN}$ | -0.5 | | | | BER < $10^{-12}$ |
| Receiver Sensitivity | $P_{IN}$ | | | -14 | dBm | BER < $10^{-12}$ |
| Operating Center Wavelength | $\lambda_C$ | 1320 | | 1340 | nm | |
| Receiver Ruturn loss | *ORL* | 14 | | | dB | |
| Loss of Signal-Asserted | $P_A$ | | | -30 | dBm | |
| Loss of Signal-Deasserted | $P_D$ | -18 | | | dBm | |
| Differential Output Voltage | $V_{DIFF}$ | 0.5 | 0.65 | 0.8 | | |
| TTL Input High Voltage | | 2 | | Vcc | | |
| TTL Input Low Voltage | | 0 | | 0.8 | | |
| TTL Output High Voltage | | 2.4 | | Vcc | | |
| TTL Output Low Voltage | | 0 | | 0.4 | | |
| Receiver Loss of Signal Assert Time (off to on) | $t_{A,RX\_LOS}$ | | | 100 | | |
| Receiver Loss of Signal Assert Time (on to off) | $t_{D,RX\_LOS}$ | | | 100 | | |



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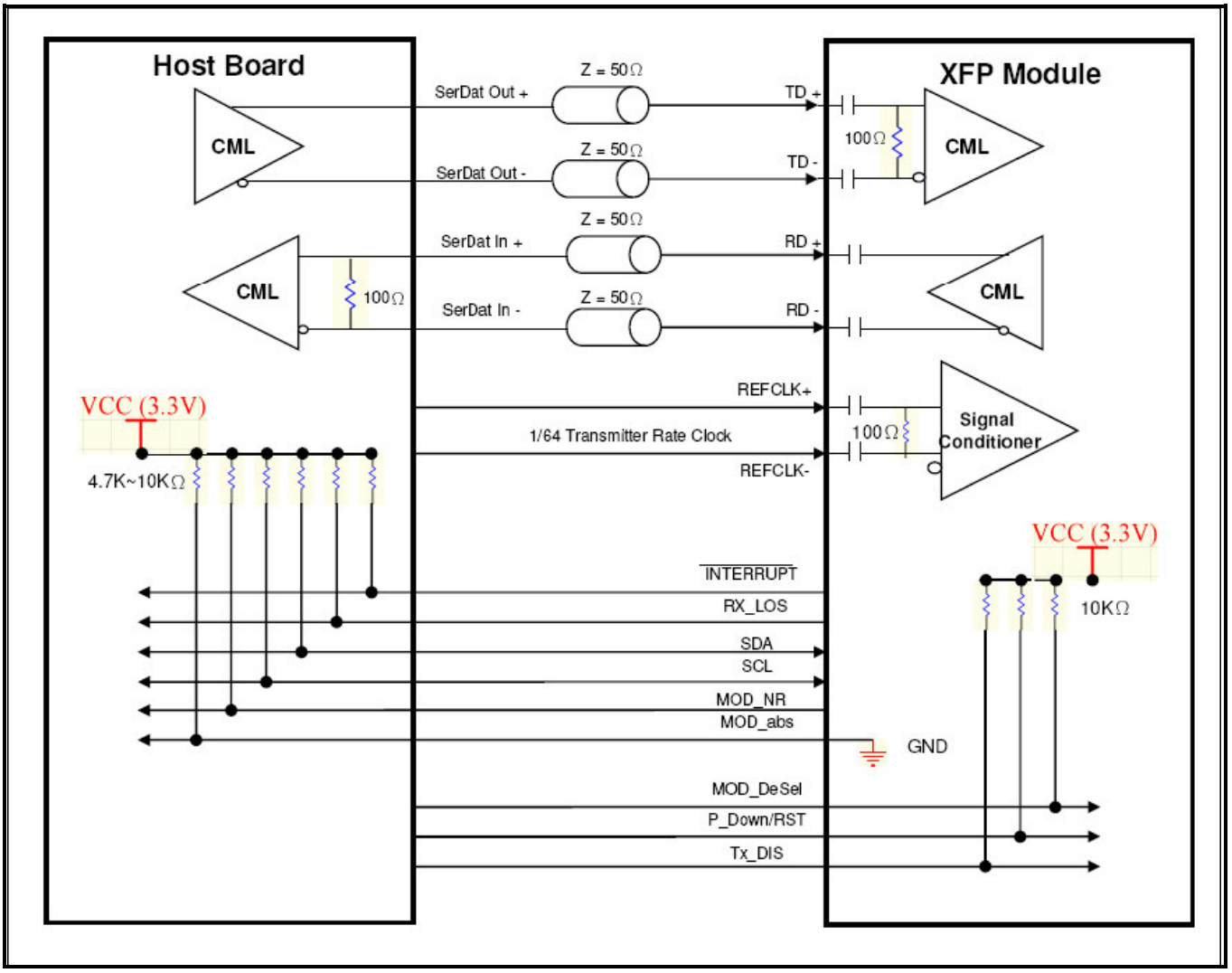
## Block Diagram of Transceiver




### MOD_NR

The Mod_NR is an output pin that when High, indicates that the module has detected a condition that renders transmitter and or receiver data invalid, shall consist of logical OR of the following signals:

- Transmit Signal Conditioner Loss of Lock
- Transmitter Laser Fault
- Receiver Signal Conditioner Loss of Lock



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### MOD_DESEL

The Mod_DeSel is an input pin. When held Low by the host, the module responds to 2-wire serial communication commands. The Mod_DeSel allows the use of multiple XFP modules on a single 2-wire interface bus.
When the Mod_DeSel pin is "High", the module shall not respond to or acknowledge any 2-wire interface communication from the host.

### INTERRUPT

Interrupt is an output pin. When "Low", indicates possible module operational fault or a status critical to the host system.

### TX_DIS

TX_DIS is an input pin. When TX_DIS is asserted High, the XFP module transmitter output must be turned off.

### MOD_ABS

Mod_ABS is pulled up to Host_Vcc on the host board and grounded in the XFP module. Mod_ABS is then asserted "High" when the XFP module is physically absent from a host slot.

### RX_LOS

The RX_LOS when High indicates insufficient optical power for reliable signal reception.

### P_DOWN/RST

This is a multifunction pin for module Power Down and Reset. The P_Down/RST pin must be pulled up to VCC3 in the XFP module.

### POWER DOWN FUNCTION

The P_Down pin, when held High by the host, places the module in the standby (Low Power) mode with a maximum power dissipation of 1.5W. This protects hosts which are not capable of cooling higher power modules which may be accidentally inserted.



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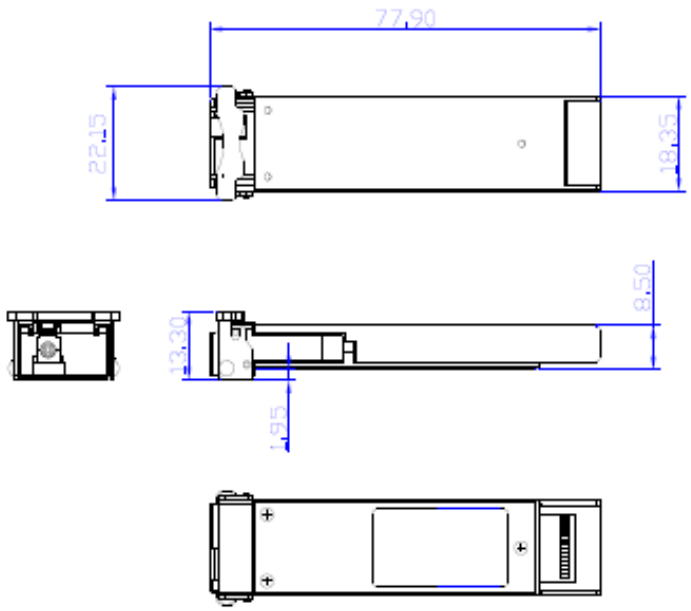
## Dimensions




DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED

Unit: mm



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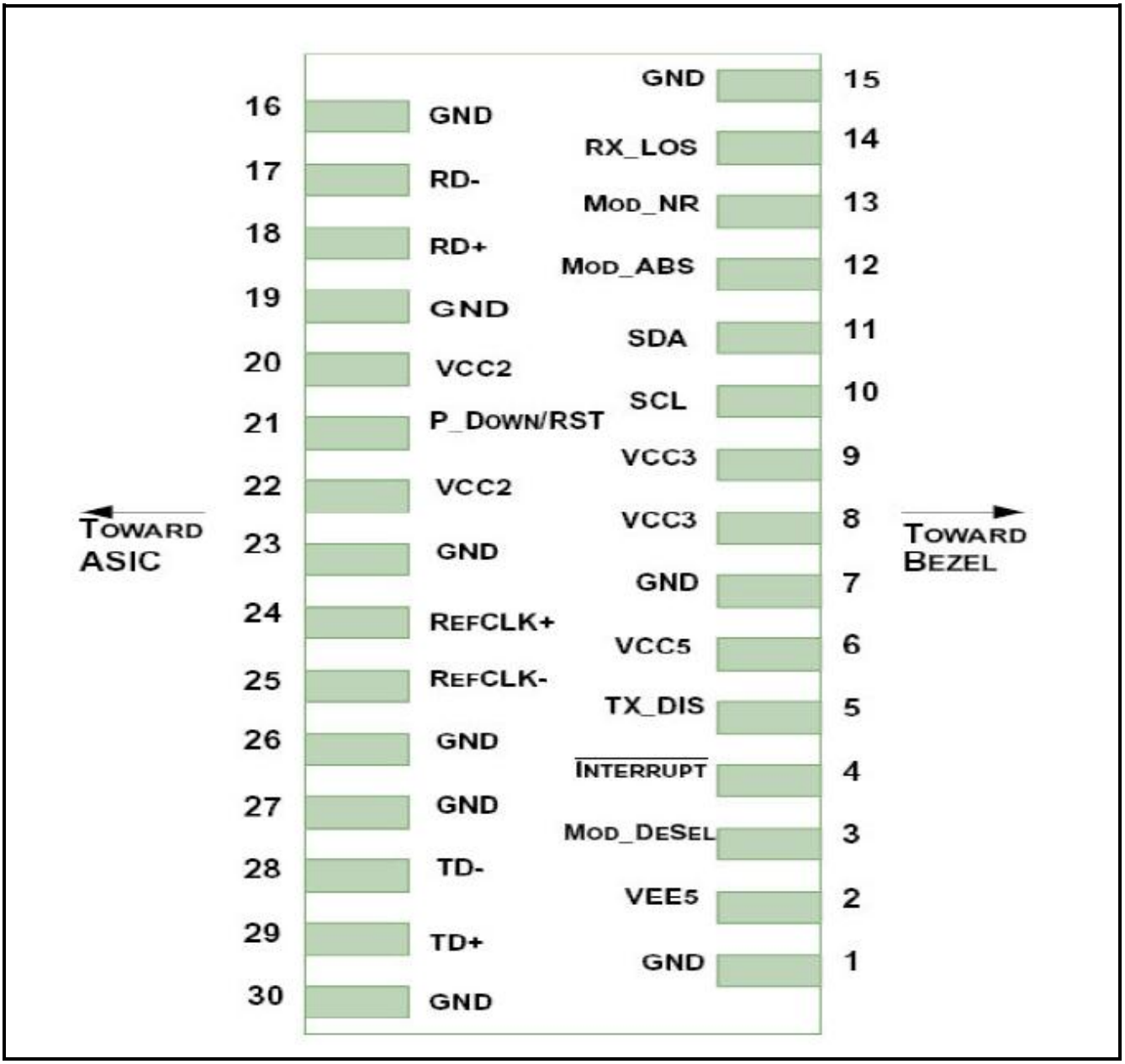
## Pin Assignment



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## Eye Safety Mark

| | |
|---|---|
| The XFP series multimode transceiver is a class 1 laser product. It complies with EN 60825-1 and FDA 21 CFR 1040.10 and 1040.11. In order to meet laser safety requirements the transceiver shall be operated within the Absolute Maximum Ratings.<br><br>***Caution***<br>**All adjustments have been done at the factory before the shipment of the devices. No maintenance and user serviceable part is required. Tampering with and modifying the performance of the device will result in voided product warranty.** | **Required Mark**<br><br>**Class 1 Laser Product**<br>**Complies with**<br>**21 CFR 1040.10 and 1040.11** |

Note : All information contained in this document is subject to change without notice.



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