# 北亿纤通科技有限公司

F-TONE GROUP 集团旗下

## Optical characteristics

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

| | Unit | Values |
|---|---|---|
| **Operating Reach** | **m** | **20K** |
| **Transmit** | | |
| Center wavelength (range) | nm | 1260 -1355 |
| Side Mode Suppression Ratio (min) | dB | 30 |
| Launched power | | |
| – maximum | dBm | +1 |
| – minimum | dBm | -5 Notes1 |
| – OMA | dBm | -5.2 |
| – OMA-TDP (min) | dBm | -6.2 |
| Transmitter and dispersion penalty | dB | 0 Notes4 |
| Average launch power of OFF transmitter (max) | dBm | -30 |
| Extinction ratio (min) | dB | 3.5 Notes2 |
| RIN12 OMA (max) | dB/Hz | -128 |
| Optical Return Loss Tolerance (min) | dB | 12 |
| **Receiver** | | |
| Center wavelength (range) | nm | 1260-1355 |
| Receive overload (max) in average power[1] | dBm | 0.5 |
| Receive sensitivity (min) in average power[1] | dBm | -14.4 Notes3 |
| Receiver sensitivity (max) in OMA (footnote 2) | dBm | -12.6 Notes3 |
| Receiver Reflectance (max) | dB | -12 |
| Stressed receiver sensitivity (max) in OMA[2] | dBm | -10.3 |
| Vertical eye closure penalty (min)[3] | dB | 2.2 |
| Stressed eye jitter (min)[2] | UIp-p | 0.7 |
| Receive electrical 3dB upper cutoff frequency (max) | GHz | 12.3 |
| Receiver power (damage, Max) | dBm | 1.5 |

**Notes:**

1. The optical power is launched into SMF
2. Measured with a PRBS $2^{31}$-1 test pattern@10.3125Gbps
3. Measured with a PRBS $2^{31}$-1 test pattern@10.3125Gbps BER$\leqslant 10^{-12}$
4. In G.652 and G.655(NDSF)

## Electrical characteristics

The following electrical characteristics are defined over the Recommended Operating Environment

unless otherwise specified.

| Parameter | Symbol | Min. | Typical | Max | Unit | Notes |
|---|---|---|---|---|---|---|
| Data Rate | | - | 10.3125 | - | Gbps | |
| Power Consumption | | - | 1200 | 1500 | mW | |
| **Transmitter** | | | | | | |
| Single Ended Output Voltage Tolerance | | -0.3 | - | 4.0 | V | |
| C common mode voltage tolerance | | 15 | - | - | mV | |
| Tx Input Diff Voltage | VI | 400 | | 1600 | mV | |
| Tx Fault | VoL | -0.3 | | 0.4 | V | At 0.7mA |
| Data Dependent Input Jitter | DDJ | | | 0.10 | UI | |
| Data Input Total Jitter | TJ | | | 0.28 | UI | |
| **Receiver** | | | | | | |
| Single Ended Output Voltage Tolerance | | -0.3 | - | 4.0 | V | |
| Rx Output Diff | | | | | | |

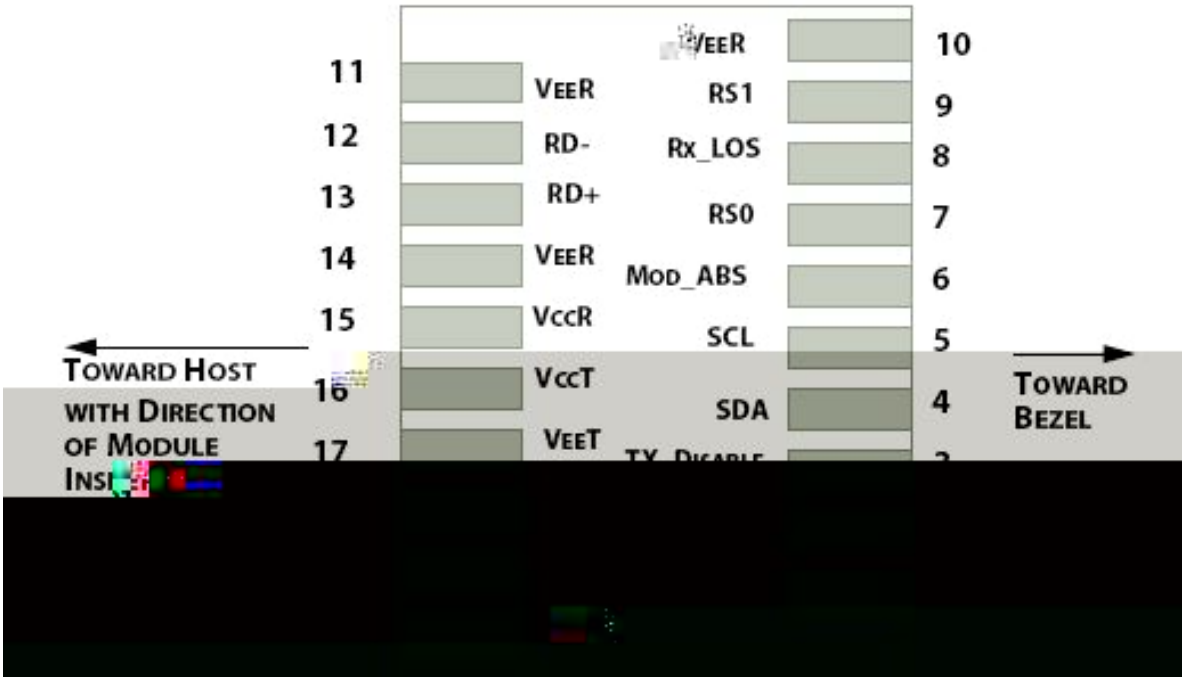


**Figure 1: Interface to Host PCB**

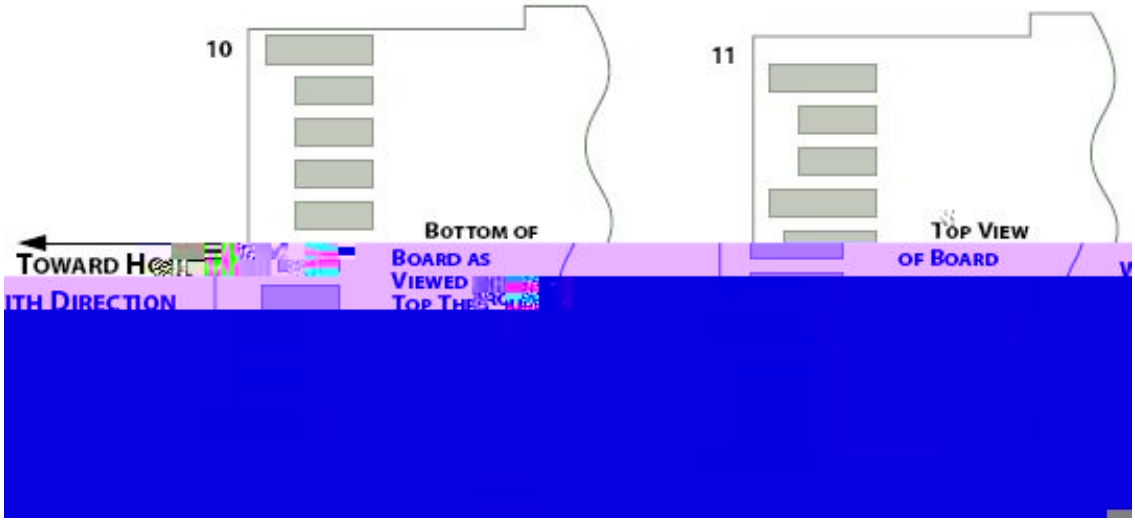


**Figure 2: Module Contact Assignment**

**Pin definition**

| Pin | Symbol | Name/Description |
|---|---|---|
| 1 | VEET [1] | Transmitter Ground |

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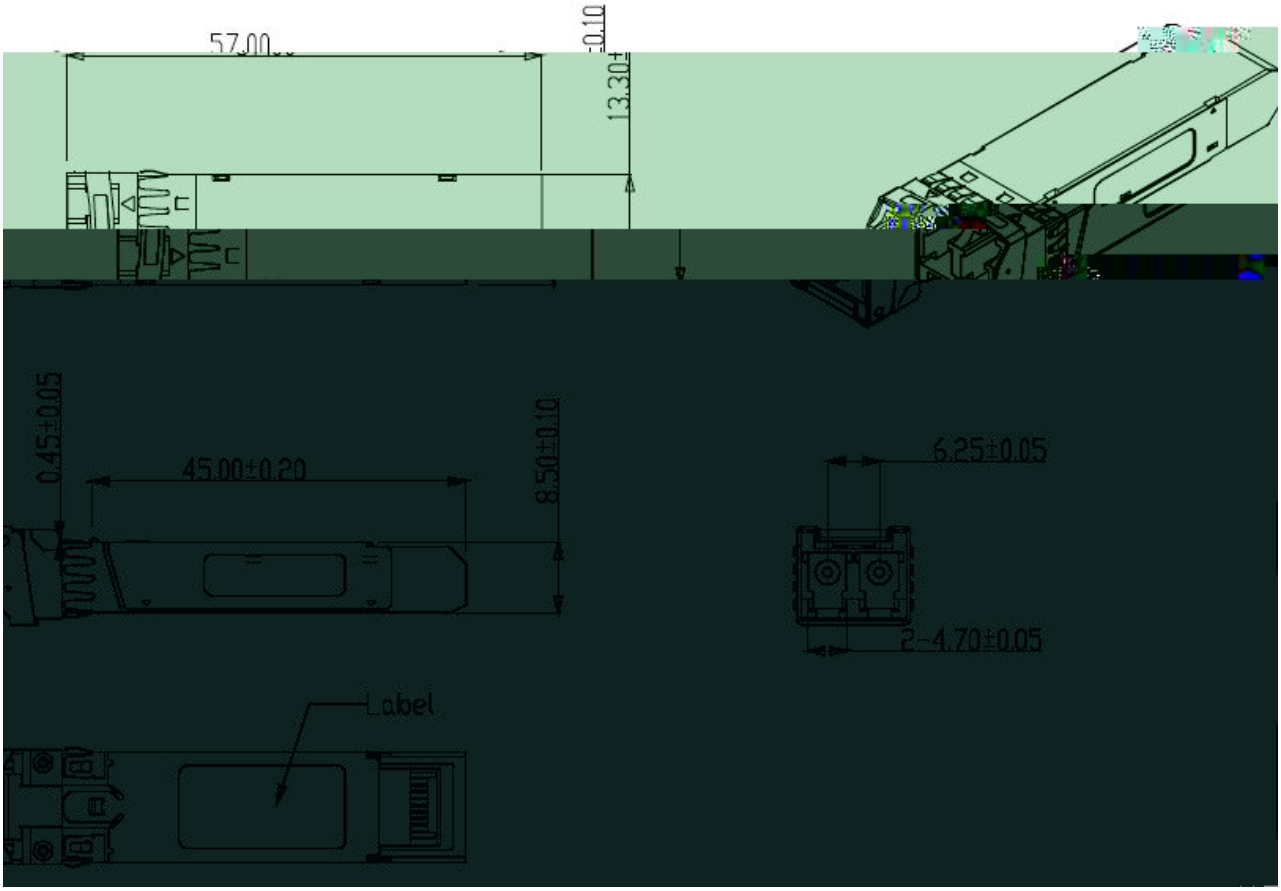


**Figure5. Mechanical Specifications**

## Regulatory Compliance

F-tone Networks SFP+ transceiver is designed to be Class I Laser safety compliant and is certified per the following standards:

| Feature | Agency | Standard |
|---|---|---|
| Laser Safety | FDA | CDRH 21 CFR 1040 annd Laser Notice No. 50 |
| Product Safety | UL | UL and CUL EN60950-2:2007 |
| Environmental protection | SGS | RoHS Directive 2002/95/EC |
| EMC | WALTEK | EN 55022:2006+A1:2007<br>EN 55024:1998+A1+A2:2003 |

## Ordering information

| Part Number | Product Description |
|---|---|
| FTCS-131X-20D | 1310nm, 10Gbps, SFP+ 20km, 0ºC ~ +70ºC |
| FTCS-131X-20DI | 1310nm, 10Gbps, SFP+ 20km, -40 to +85°C |

## References

1. "Specifications for Enhanced Small Form Factor Pluggable Module SFP+", SFF-8431, Rev 4.1, July 6, 2009.
2. "Improved Pluggable Formfactor",SFF-8432, Rev 4.2,Apr 18,2007
3. IEEE802.3ae – 2002
4. "Diagnostic Monitoring Interface for Optical Transceivers" SFF-8472, Rev 10.3, Dec 1,2007

## Important Notice

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