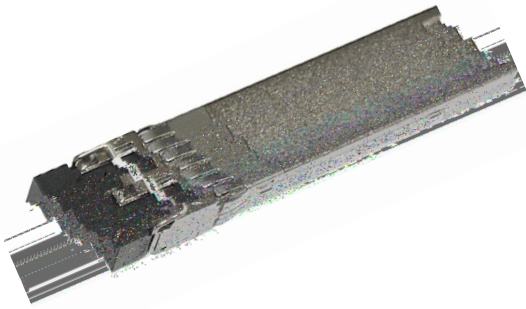




The 1550nm cooled EML laser based 10Gigabit SFP+ Transceiver is designed to transmit and receive serial optical data over single mode optical fiber with 80Km.

They are compliant with SFF-8431,SFF-8432, 10GFC Rev 4.0, and 10GBASE-ZR. The transmitter converts serial CML electrical data into serial optical data compliant with the IEEE 802.3ae standard. The receiver converts serial optical data into serial CML electrical data. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

## Features

- Compliant to SFP+ MSA
- Fully RoHS Compliant
- All metal housing for superior EMI performance
- Operating data rate up to 11.3Gbps
- Cooled EML DFB Laser
- High sensitivity APD photodiode and TIA
- LC duplex connector
- Hot pluggable 20pin connector
- Low power consumption <1.8 W
- -5°C to 70°C operating wide temperature range
- Single +3.3V±5% power supply
- Digital Monitoring SFF-8472 Rev 10.2 compliant
- Real time monitoring of:  
Transmitted optical power  
Received optical power  
Laser bias current

## Specifications

(Tc=-5 °C to 70 °C and Vcc= 3.14 to 3.46V)

| Transmitter                                     |                 |       |      |  |      |     |
|-------------------------------------------------|-----------------|-------|------|--|------|-----|
| Nominal Wavelength                              | $\lambda$       | nm    | 1530 |  | 1565 |     |
| Side Mode Suppression Ratio                     | SMSR            | dB    | 30   |  |      |     |
| Spectral Width(-20dB)                           | $\Delta\lambda$ | nm    |      |  | 0.3  |     |
| Optical Output Power                            | Pav             | dBm   | 0    |  | 4    |     |
| Extinction Ratio                                | ER              | dB    | 8.2  |  |      |     |
| Average Launch Power of OFF Transmitter         | POFF            | dBm   |      |  | -30  |     |
| Relative Intensity Noise                        | RIN             | dB/Hz |      |  | -128 |     |
| Receiver                                        |                 |       |      |  |      |     |
| Center Wavelength                               | $\lambda_C$     | nm    | 1260 |  | 1620 |     |
| Receiver Sensitivity@10.3125Gb/s                | RSENSE          | dBm   |      |  | -24  | 1   |
| Receiver Sensitivity at 1600ps/nm @ 10.3125Gb/s | RSENSE          | dBm   |      |  | -22  | 1.2 |
| Overload                                        |                 | dBm   | -7   |  |      |     |
| Optical Return Loss                             |                 | dB    | 27   |  | -    |     |
| LOS Assert                                      | LOSA            | dBm   | -36  |  |      |     |
| LOS De-Assert LOS                               | LOSD            | dBm   |      |  | -27  |     |
| LOS Hysteresis                                  |                 | dB    | 0.5  |  | 6    |     |

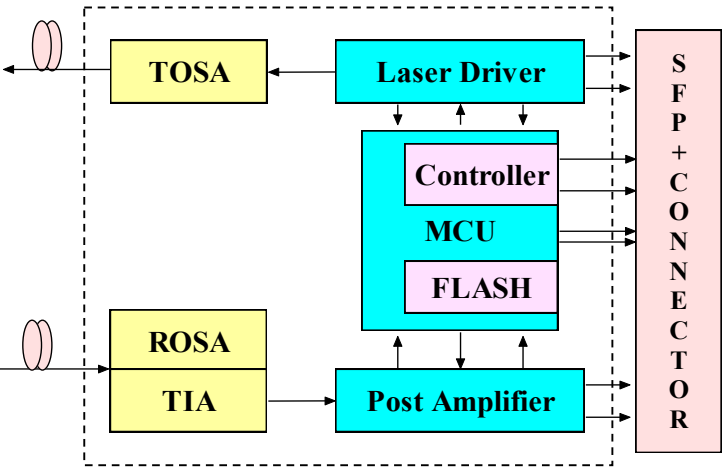
## Applications

- 10GBASE-ZR
- 10G Fiber Channel

**Note** Measured at 1528-1600nm, ER>8.2dBm, PRBS 2<sup>31</sup>-1 and BER better than or equal to 10E-12;  
2: loopback using 80km fiber (SMF-28).

| Part No. | Specifications | Application |
|----------|----------------|-------------|
|          |                |             |
|          | °C             |             |

Block diagram

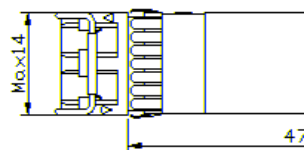
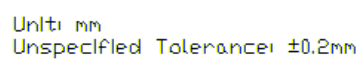
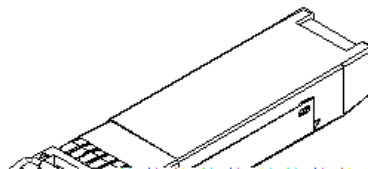


| Parameter             | Symbol          | Unit | Min | Max |
|-----------------------|-----------------|------|-----|-----|
| Operating Temperature | T <sub>OP</sub> | °C   | -40 | 85  |
| Humidity              | HRH             | %    | 0   | 95  |

| Parameter             | Symbol          | Unit | Min  | Typ | Max               |
|-----------------------|-----------------|------|------|-----|-------------------|
| Operating Temperature | T <sub>OP</sub> | °C   | -5   |     | 70                |
| Power Consumption     | P               |      | 3.14 | 3.3 | 3.46              |
| Bit Error Rate        | BER             | G /  |      |     | 11.3              |
| Bit Error Rate        | BER             |      |      |     | 10 <sup>-12</sup> |
| Modulation            | L L             | L K  |      |     | 80                |

| Parameter   | Symbol | Unit | Min | Typ | Max | Note |
|-------------|--------|------|-----|-----|-----|------|
|             |        |      |     |     |     |      |
| Transmitter |        |      |     |     |     |      |
|             |        |      |     |     |     |      |
|             |        |      |     |     |     |      |
|             |        |      |     |     |     |      |
|             |        |      |     |     |     |      |





| F   | M               | P          |
|-----|-----------------|------------|
| ( ) | - - 3<br>3015.7 | 1 ( 1500 ) |
| ( ) | 61000-4-2       | 15         |