



Features

- 1.25G~6.144Gbps multi-rate bi-directional fiber link
- Compatible with Wireless OBSAI @6.144G/ 3.072G/ 1.536Gbps
- Compatible with Wireless CPRI @6.144G/ 4.9125G/ 3.072G/ 2.4576G/ 1.288Gbps
- Compliant with SFP+ MSA SFF-8431
- Compliant with SFF8472 diagnostic monitoring interface for Optical Transceivers (DOM)
- 1310nm FP transmitter
- SMF 2km point-to-point transmission
- Support Hot Pluggable
- Duplex LC receptacle connector
- 2-wire I2C interface for management and diagnostic monitor
- RoHS Compliant

Application

- CPRI & OBSAI Wireless Application
- 4G LTE BBU, RRU
- Gigabit Ethernet
- 1x, 2x Fiber Channel
- 2.488Gbps SONET/SDH

Ordering Information

| PART NO. | TX | RX | DISTANCE | DOM | TEMPERATURE |
|-------------------|---------|--------|----------|---------|-------------|
| GL6G-SFP-LRL-MR | 1310 nm | 1310nm | SMF 2km | Support | 0~70°C |
| GL6G-SFP-LRL-MR-E | 1310 nm | 1310nm | SMF 2km | Support | -5~85°C |
| GL6G-SFP-LRL-MR-I | 1310 nm | 1310nm | SMF 2km | Support | -40~85°C |

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Absolute Maximum Ratings

| PARAMETER | SYMBOL | MIN | MAX | UNITS | NOTE |
|---------------------------|----------|------|-----|-------|------|
| Storage Temperature | T_s | -40 | +85 | °C | |
| Supply Voltage | V_{cc} | -0.5 | 4.0 | V | |
| Storage Relative Humidity | RH | 5 | 95 | % | |

Recommended Operating Conditions

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNITS | NOTE |
|----------------------------|-------------------|------|------|------|-------|-------------------|
| Case Operating Temperature | T_C | 0 | --- | 70 | °C | GL6G-SFP-LRL-MR |
| | | -5 | --- | 85 | °C | GL6G-SFP-LRL-MR-E |
| | | -40 | --- | 85 | °C | GL6G-SFP-LRL-MR-I |
| Supply Voltage | V_{cc} | 3.13 | 3.3 | 3.47 | V | |
| Supply Current | $I_{TX} + I_{RX}$ | --- | | 300 | mA | |
| Power Consumption | P | | | 1.0 | W | |

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Transmitter Electro-optical Interface

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNITS | NOTE |
|----------------------------------|------------------------|----------------------------|-------|-----------------|----------|------|
| Data Rate | DR | 1.25 | 6.144 | | Gbps | |
| Optical Output Power | P _O | -8.4 | | +0.5 | dBm | 1 |
| Optical Extinction Ratio | ER | 4 | | | dB | |
| Center Wavelength | λ_c | 1270 | 1310 | 1350 | nm | |
| Spectral Width (RMS) | $\Delta\lambda$ | | | 3 | nm | |
| Relative Intensity Noise | RIN | | | -128 | dB/Hz | |
| Output Eye | | Compliant with IEEE802.3ae | | | | |
| Output Power @Tx_Dis Asserted | P _{OFF} | | | -35 | dBm | |
| Differential Input Voltage Swing | V _{DIFF} | 180 | | 850 | mV | |
| Differential Input Impedance | Z _d | 90 | 100 | 110 | Ω | |
| Tx_Fault – High (Tx Fault) | V _{Fault_H} | 2.0 | | V _{cc} | V | |
| Tx_Fault – Low (Tx Normal) | V _{Fault_L} | V _{ee} | | 0.8 | V | |
| Tx_Disable – High (Tx Off) | V _{Disable_H} | 2.0 | | V _{cc} | V | |
| Tx_Disable – Low (Tx On) | V _{Disable_L} | V _{ee} | | 0.5 | V | |

Note 1: Coupling into a 9/125 μ m single-mode fiber.



Receiver Electro-optical Interface

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNITS | NOTE |
|------------------------------------|-------------------|-----------------|-------|-----------------|-------|------|
| Data Rate | DR | 1.25 | 6.144 | | Gbps | |
| Optical Input Power-maximum | P _{IN} | | | +0.5 | dBm | |
| Receiver Sensitivity | P _{IN} | | | -14.4 | dBm | 1 |
| Operating Center Wavelength | λ _c | 1260 | | 1620 | nm | |
| Optical Return Loss | ORL | 12 | | | dB | |
| Loss of Signal (LOS) - Asserted | P _A | -30 | | | dBm | |
| Loss of Signal (LOS) - De-asserted | P _D | | | -15.5 | dBm | |
| Differential Output Voltage Swing | V _{DIFF} | 300 | | 900 | mV | |
| Differential Input Impedance | Z _d | 90 | 100 | 110 | Ω | |
| LOS Signal Output Voltage - Low | LOS _{VL} | V _{ee} | | 0.5 | V | |
| LOS Signal Output Voltage - High | LOS _{VH} | 2.4 | | V _{cc} | V | |

Note 1: With BER better than or equal to 1×10^{-12} , measured in the center of the eye opening with 6.144Gbps, PRBS 2³¹-1

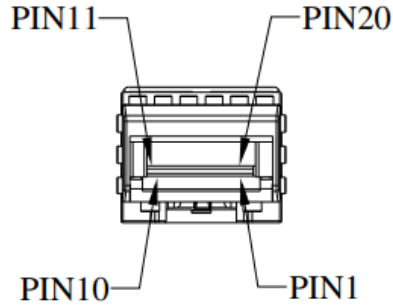
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Pin Assignment



| PIN NO. | PIN NAME | FUNCTION | NOTE |
|---------|-------------------|--|----------------|
| 1 | VeeT | Transmitter Ground | |
| 2 | TX Fault | Transmitter Fault Indication | |
| 3 | TX Disable | Transmitter Disable | |
| 4 | MOD_DEF 2 | Module Definition 2 (Serial Data Signal) | SDA |
| 5 | MOD_DEF 1 | Module Definition 1 (Serial Data Clock) | SCL |
| 6 | MOD_DEF 0 | Module Definition 0 | TTL Low |
| 7 | RS0 | Rx Rate Select | No used |
| 8 | Rx_LOS | Loss of Signal | Open collector |
| 9 | RS1 | Tx Rate Select | No used |
| 10 | VeeR | Receiver Ground | |
| 11 | VeeR | Receiver Ground | |
| 12 | RD- | Inv. Receiver Data Out (AC coupled) | |
| 13 | RD+ | Receiver Data Out (AC coupled) | |
| 14 | VeeR | Receiver Ground | |
| 15 | V _{CC} R | Receiver Power | |
| 16 | V _{CC} T | Transmitter Power | |
| 17 | VeeT | Transmitter Ground | |
| 18 | TD+ | Transmitter Data In (AC coupled) | |
| 19 | TD- | Inv. Transmitter Data In (AC coupled) | |
| 20 | VeeT | Transmitter Ground | |

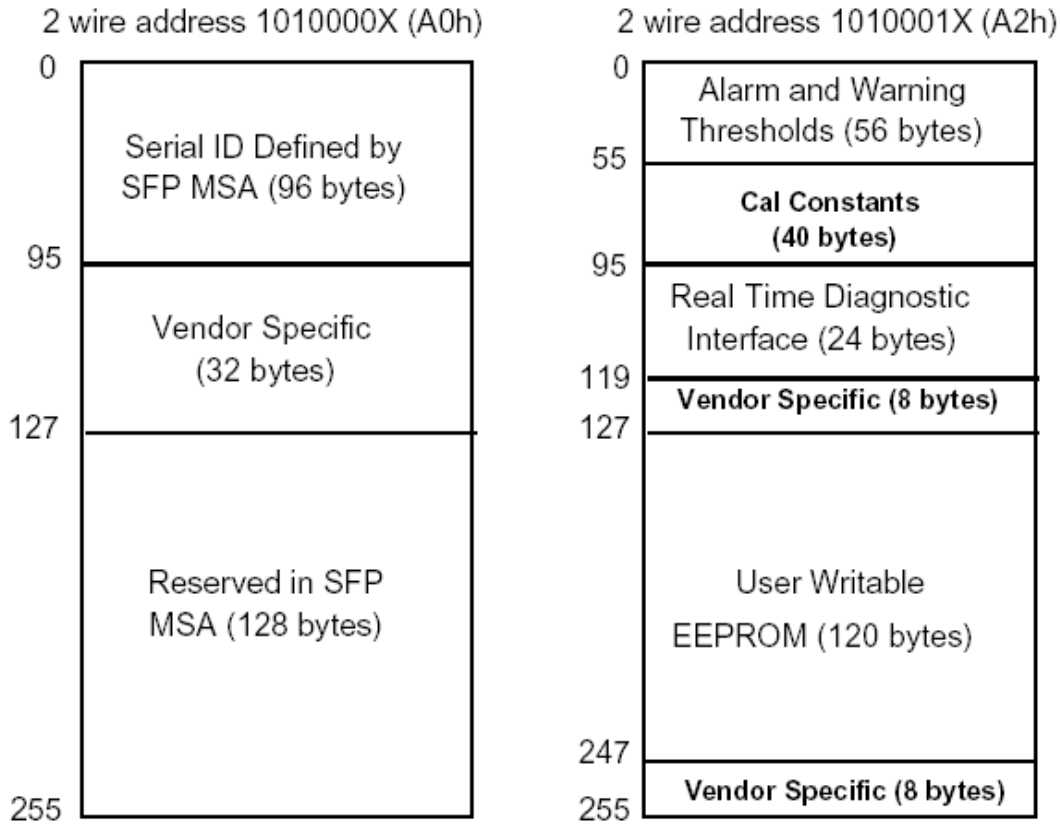
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Digital Diagnostic Memory Map



Digital Diagnostic Monitoring Characteristics

| PARAMETER | SYMBOL | ACCURACY | UNIT | NOTE |
|----------------------------|------------|----------|-------------|------|
| Transceiver Temperature | T_{INT} | ± 3 | $^{\circ}C$ | |
| Transceiver Supply Voltage | V_{INT} | ± 3 | % | |
| TX Bias Current | I_{BIAS} | ± 10 | % | |
| TX Output Power | P_{TX} | ± 3 | dB | |
| RX Received Optical Power | P_{RX} | ± 3 | dB | |

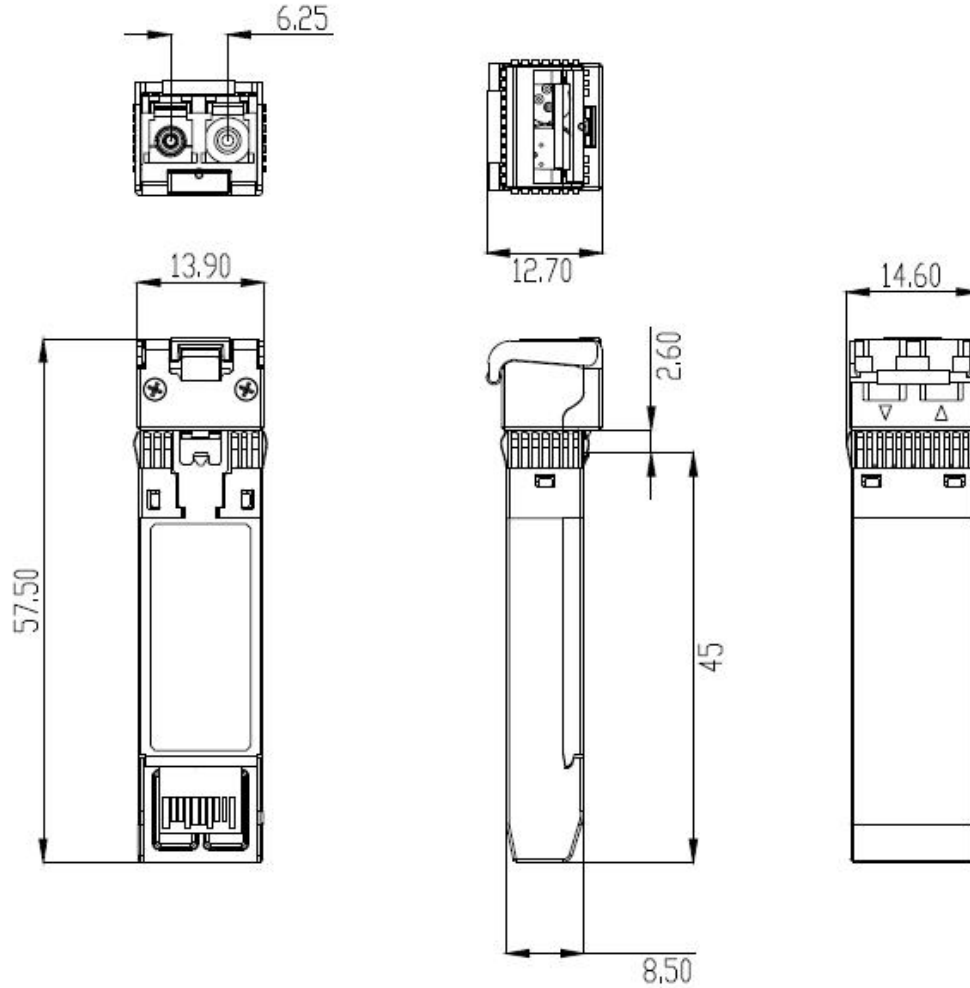
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Mechanical Dimensions (All dimensions are $\pm 0.20\text{mm}$ Unless Otherwise Specified, Unit: mm):



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