



## Features

- 6~11.3Gbps bi-directional fiber link
- Compliant with IEEE802.3ae 10GBase-SR/SW Ethernet
- Compliant with 1200-Mx-SN-I 1 10G Fibre Channel
- Compatible with CPRI and OBSAI wireless standard
- Compliant with SFP+ MSA SFF-8431
- Compliant with SFF8472 diagnostic monitoring interface for Optical Transceivers (DOM)
- 850nm VCSEL transmitter
- MMF OM3 300m point-to-point transmission
- Support Hot Pluggable
- Duplex LC receptacle connector
- 2-wire I2C interface for management and diagnostic monitor
- RoHS Compliant

## Application

- 10GBase-SR/SW
- 8x & 10x Fibre Channel
- CPRI & OBSAI Wireless Application
- SONET OC-192 & SDH STM-64

## Ordering Information

| PART NO.       | TX     | RX    | DISTANCE     | DOM     | TEMPERATURE |
|----------------|--------|-------|--------------|---------|-------------|
| GL10G-SFP-SR   | 850 nm | 850nm | MMF OM3 300m | Support | 0~70°C      |
| GL10G-SFP-SR-E | 850 nm | 850nm | MMF OM2 82m  | Support | -5~85°C     |
| GL10G-SFP-SR-I | 850 nm | 850nm | MMF OM1 33m  | Support | -40~85°C    |

## Absolute Maximum Ratings

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# 10GBase-SR/SW SFP+ Optical Transceiver Multi-Mode 850nm, OM3 300m, DOM



| 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    | GL10G-SFP-SR   |
|                            |                   | -5   | ---  | 85   | °C    | GL10G-SFP-SR-E |
|                            |                   | -40  | ---  | 85   | °C    | GL10G-SFP-SR-I |
| Supply Voltage             | $V_{cc}$          | 3.13 | 3.3  | 3.47 | V     |                |
| Supply Current             | $I_{TX} + I_{RX}$ | ---  |      | 200  | mA    |                |
| Power Consumption          | $P$               |      |      | 0.66 | W     |                |

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## Transmitter Electro-optical Interface

| PARAMETER                        | SYMBOL                 | MIN                        | TYP.    | MAX             | UNITS | NOTE |
|----------------------------------|------------------------|----------------------------|---------|-----------------|-------|------|
| Data Rate                        | DR                     | 6                          | 10.3125 | 11.3            | Gbps  |      |
| Optical Output Power             | P <sub>O</sub>         | -6.5                       |         | -1.0            | dBm   | 1    |
| Optical Modulation Amplitude     | P <sub>OMA</sub>       | -4.3                       |         | -2.8            | dBm   |      |
| Optical Extinction Ratio         | ER                     | 3.5                        |         |                 | dB    |      |
| Center Wavelength                | λ <sub>C</sub>         | 840                        | 850     | 860             | nm    |      |
| Spectral Width (RMS)             | Δλ                     |                            |         | 0.45            | nm    |      |
| Output Eye                       |                        | Compliant with IEEE802.3ae |         |                 |       |      |
| Output Power @Tx_Dis Asserted    | P <sub>OFF</sub>       |                            |         | -30             | dBm   |      |
| Differential Input Voltage Swing | V <sub>DIFF</sub>      | 150                        |         | 1600            | mV    |      |
| Differential Input Impedance     | Z <sub>d</sub>         | 90                         | 100     | 110             | Ω     |      |
| Tx_Fault – High (Tx Fault)       | V <sub>Fault_H</sub>   | 2.0                        |         | V <sub>cc</sub> | V     |      |
| Tx_Fault – Low (Tx Normal)       | V <sub>Fault_L</sub>   | V <sub>ee</sub>            |         | 0.8             | V     |      |
| Tx_Disable – High (Tx Off)       | V <sub>Disable_H</sub> | 2.0                        |         | V <sub>cc</sub> | V     |      |
| Tx_Disable – Low (Tx On)         | V <sub>Disable_L</sub> | V <sub>ee</sub>            |         | 0.5             | V     |      |

Note 1: Coupling into a 50/125μm multi-mode fiber.

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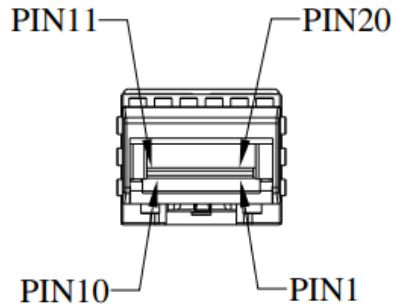
**Receiver Electro-optical Interface**

| PARAMETER                           | SYMBOL            | MIN             | TYP.    | MAX             | UNITS | NOTE |
|-------------------------------------|-------------------|-----------------|---------|-----------------|-------|------|
| Data Rate                           | DR                | 6               | 10.3125 | 11.3            | Gbps  |      |
| Optical Input Power-maximum         | P <sub>IN</sub>   |                 |         | -1.0            | dBm   |      |
| Receiver Sensitivity                | P <sub>IN</sub>   |                 |         | -9.9            | dBm   | 1    |
| Receiver Sensitivity (OMA)          | P <sub>IN</sub>   |                 |         | -11.1           | dBm   | 1    |
| Stressed Receiver Sensitivity (OMA) | P <sub>IN</sub>   |                 |         | -7.5            | dBm   | 1    |
| Operating Center Wavelength         | λ <sub>c</sub>    | 840             | 850     | 860             | nm    |      |
| Optical Return Loss                 | ORL               | 12              |         |                 | dB    |      |
| Loss of Signal (LOS) - Asserted     | P <sub>A</sub>    | -30             |         |                 | dBm   |      |
| Loss of Signal (LOS) - De-asserted  | P <sub>D</sub>    |                 |         | -13             | dBm   |      |
| Differential Output Voltage Swing   | V <sub>DIFF</sub> | 300             |         | 1000            | mV    |      |
| Differential Input Impedance        | Z <sub>d</sub>    | 90              | 100     | 110             | Ω     |      |
| LOS Signal Output Voltage - Low     | LOS <sub>VL</sub> | V <sub>ee</sub> |         | 0.5             | V     |      |
| LOS Signal Output Voltage - High    | LOS <sub>VH</sub> | 2.4             |         | V <sub>cc</sub> | V     |      |

Note 1: With BER better than or equal to  $1 \times 10^{-12}$ , measured in the center of the eye opening with 10.3125Gbps, PRBS 2<sup>31</sup> -1



## 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 <sub>CC</sub> R | Receiver Power                           |                |
| 16      | V <sub>CC</sub> 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                       |                |

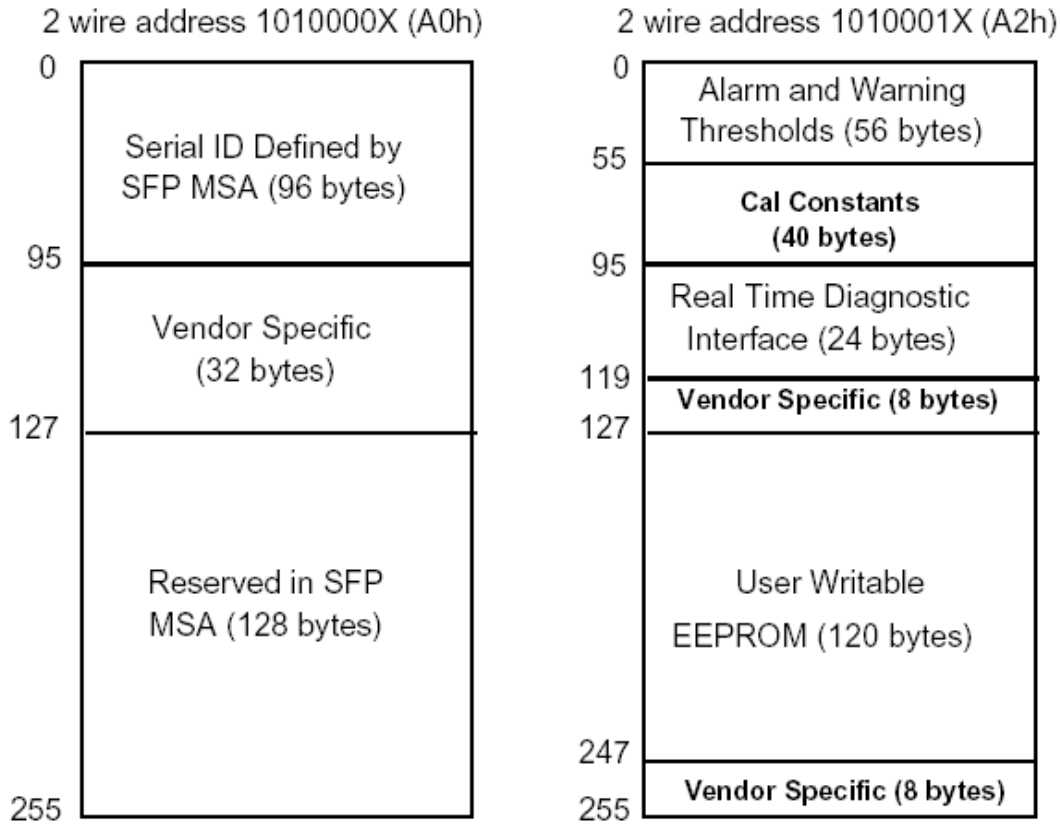
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## Digital Diagnostic Memory Map

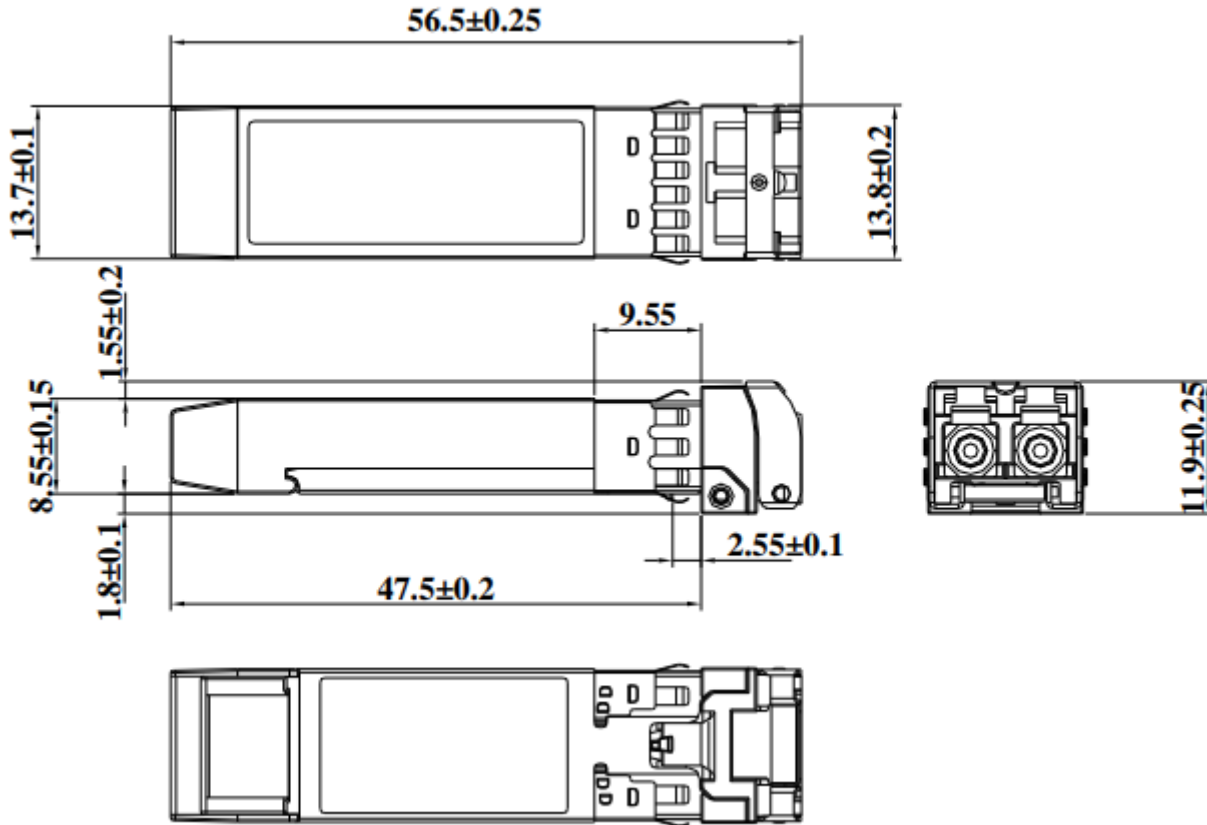


## Digital Diagnostic Monitoring Characteristics

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



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



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