

GPR-8524L-S5CD 1.25Gbps SFP Optical Receiver , 550m Reach

Features

- Uni-direction SFP receiver
- Up to 1.25Gbps receiver data links
- Compliant with SFP MSA and SFF-8472 with LC receptacle Digital
- Diagnostic Monitoring:
Internal Calibration or External Calibration 550m transmission with
- 50/125 μ m MMF Compatible with RoHS
- +3.3V single power supply Operating case temperature:
- Standard : 0 to +70 $^{\circ}$ C



Applications

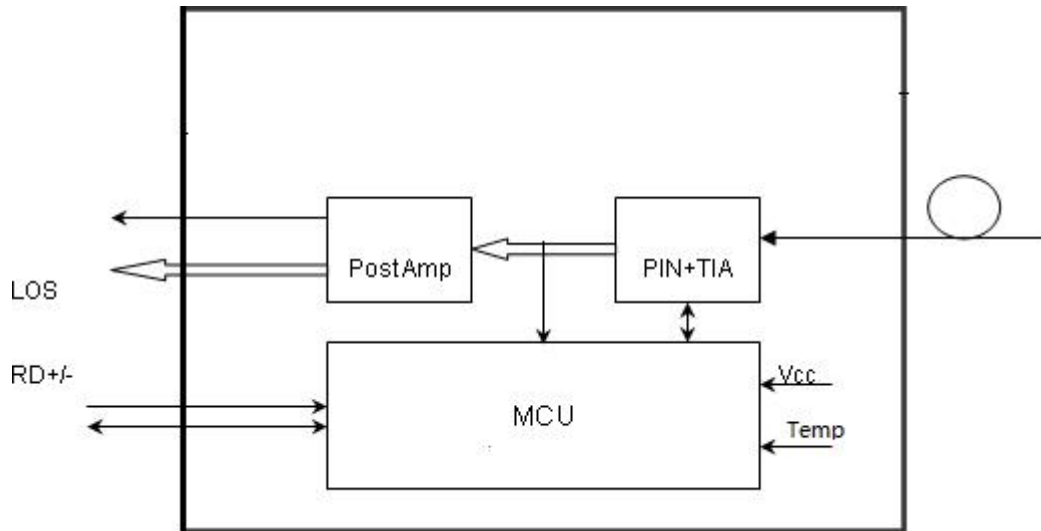
- Uni-directional data diode

Description

The SFP receiver are high performance, cost effective modules supporting data-rate of 1.25Gbps.

The receiver consists of three sections: a PIN photodiode integrated with a trans-impedance preamplifier (TIA) and MCU control unit.

The Receiver are compatible with SFP Multi-Source Agreement (MSA) and SFF-8472. For further information, please refer to SFP MSA.



Absolute Maximum Ratings

Table 1 - Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit |
|---------------------|--------|------|-----|------|
| Supply Voltage | Vcc | -0.5 | 4.5 | V |
| Storage Temperature | Ts | -40 | +85 | °C |
| Operating Humidity | - | 5 | 85 | % |

Recommended Operating Conditions

Table 2 - Recommended Operating Conditions

| Parameter | Symbol | Min | Typical | Max | Unit |
|----------------------------|--------|----------|---------|------|------|
| Operating Case Temperature | Tc | 0 | | +70 | °C |
| Power Supply Voltage | Vcc | 3.1 3 | 3.3 | 3.47 | V |
| Power Supply Current | Icc | | | 300 | mA |

| | | | | | |
|-----------|--|--|------|--|------|
| Data Rate | | | 1.25 | | Gbps |
|-----------|--|--|------|--|------|

Optical and Electrical Characteristics

GPR-8524L-S5CD: (PIN-TIA, 850nm, 550m Reach)

Table 3 - Optical and Electrical Characteristics

| Parameter | Symbol | Min | Typical | Max | Unit | Notes |
|--------------------------------|-------------|-----|---------|----------|------|-------|
| Receiver | | | | | | |
| Centre Wavelength | λ_c | 770 | | 860 | nm | |
| Receiver Sensitivity | | | | -18 | dBm | 1 |
| Receiver Overload | | -3 | | | dBm | 1 |
| LOS De-Assert | LOS D | | | -20 | dBm | |
| LOS Assert | LOS A | -35 | | | dBm | |
| LOS Hysteresis | | 1 | | 4 | dB | |
| Data Output Swing Differential | Vout | 370 | | 180 0 | mV | 2 |
| LOS | High | 2.0 | | Vcc | V | |
| | Low | | | 0.8 | V | |

Notes:

1. Measured with a PRBS 2²³-1 test pattern @1250Mbps, BER $\leq 1 \times 10^{-12}$.

2. Internally AC-coupled.

Timing and Electrical

Table 4 - Timing and Electrical

| Parameter | Symbol | Min | Typical | Max | Unit |
|----------------------|----------------|-----|---------|-----|------|
| LOS Assert Time | t_loss_on | | | 100 | μs |
| LOS De-assert Time | t_loss_off | | | 100 | μs |
| Serial ID Clock Rate | f_serial_clock | | | 400 | KHz |
| MOD_DEF (0:2)-High | VH | 2 | | Vcc | V |
| MOD_DEF (0:2)-Low | VL | | | 0.8 | V |

Diagnostics

Table 5 – Diagnostics Specification

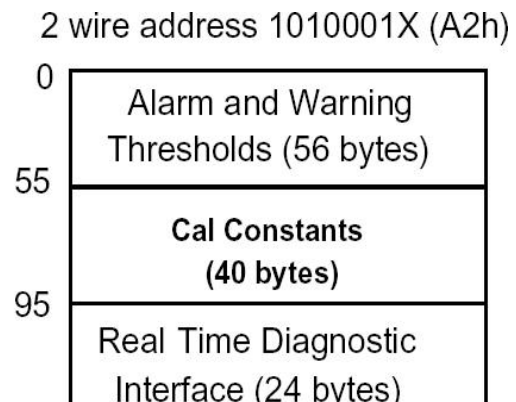
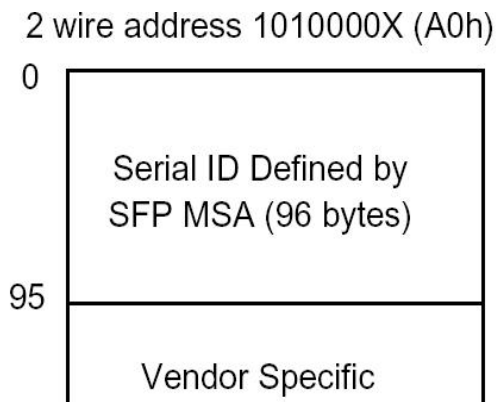
| Parameter | Range | Unit | Accuracy | Calibration |
|--------------|------------|------|----------|---------------------|
| Temperature | 0 to +70 | °C | ±3°C | Internal / External |
| Voltage | 3.0 to 3.6 | V | ±3% | Internal / External |
| Bias Current | 0 to 100 | mA | ±10% | Internal / External |
| RX Power | -22 to -3 | dBm | ±3dB | Internal / External |

Digital Diagnostic Memory Map

The transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA).

The diagnostic information with internal calibration or external calibration all are implemented, including received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring.

The digital diagnostic memory map specific data field defines as following.



Pin Definition

Pin Descriptions

| Pin | Signal Name | Description | Plug Seq. | Notes |
|-----|-------------|-------------------------|-----------|--------|
| 1 | VEET | Not Connected | 1 | |
| 2 | TX FAULT | Not Connected | 3 | |
| 3 | TX DISABLE | Not Connected | 3 | |
| 4 | MOD_DEF(2) | SDA Serial Data Signal | 3 | Note 1 |
| 5 | MOD_DEF(1) | SCL Serial Clock Signal | 3 | Note 1 |
| 6 | MOD_DEF(0) | TTL Low | 3 | Note 1 |
| 7 | Rate Select | Not Connected | 3 | |

| | | | | |
|----|------|------------------------|---|--------|
| 8 | LOS | Loss of Signal | 3 | Note 2 |
| 9 | VEER | Receiver ground | 1 | |
| 10 | VEER | Receiver ground | 1 | |
| 11 | VEER | Receiver ground | 1 | |
| 12 | RD- | Inv. Received Data Out | 3 | Note 3 |
| 13 | RD+ | Received Data Out | 3 | Note 3 |
| 14 | VEER | Receiver ground | 1 | |
| 15 | VCCR | Receiver Power Supply | 2 | |
| 16 | VCCT | Not Connected | 2 | |
| 17 | VEET | Not Connected | 1 | |
| 18 | TD+ | Not Connected | 3 | |
| 19 | TD- | Not Connected | 3 | |
| 20 | VEET | Not Connected | 1 | |

Notes:

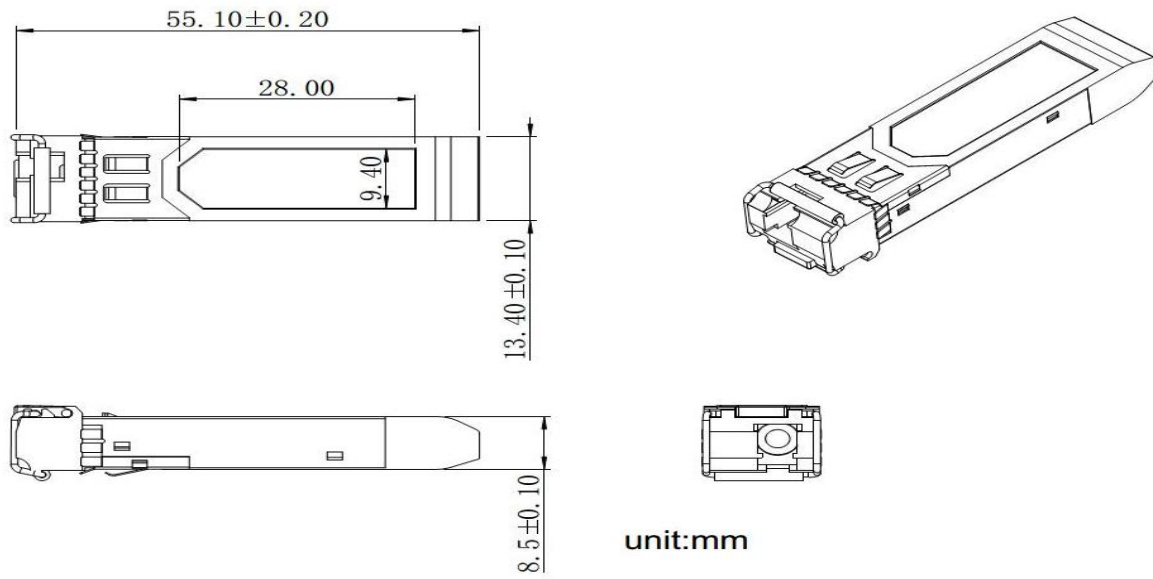
Plug Seq.: Pin engagement sequence during hot plugging.

- 1) Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7k~10kΩ resistor on the host board. The pull-up voltage shall be VccR.

Mod-Def 0 is grounded by the module to indicate that the module is present Mod-Def 1 is the clock line of two wire serial interface for serial ID Mod-Def 2 is the data line of two wire serial interface for serial ID

- 2) LOS is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor. Pull up voltage between 2.0V and Vcc+0.3V. Logic 1 indicates loss of signal; Logic 0 indicates normal operation. In the low state, the output will be pulled to less than 0.8V.
- 3) RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.

Mechanical Dimensions



Ordering information

| Part Number | Product Description |
|-------------|---------------------|
|-------------|---------------------|



| | |
|----------------|------------------------------------|
| GPR-8524L-S5CD | 850nm, 1.25Gbps, 550m, 0°C ~ +70°C |
|----------------|------------------------------------|

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