GPT-8524L-S5CD

1.25Gbps SFP Optical Transmitter, 550m Reach

Features

- Uni-direction SFP transmitter
- Up to 1.25Gb/s transmitter data links
- 850nm VCSEL laser
- Compliant with SFP MSA and SFF-8472 with duplex LC
- receptacle Digital Diagnostic Monitoring:
  Internal Calibration or External Calibration 550m
- transmission with 50/125μm MMF Compatible with RoHS
- +3.3V single power supply Operating case temperature:
- Standard : 0 to +70℃

Applications

- Uni-directional data diode

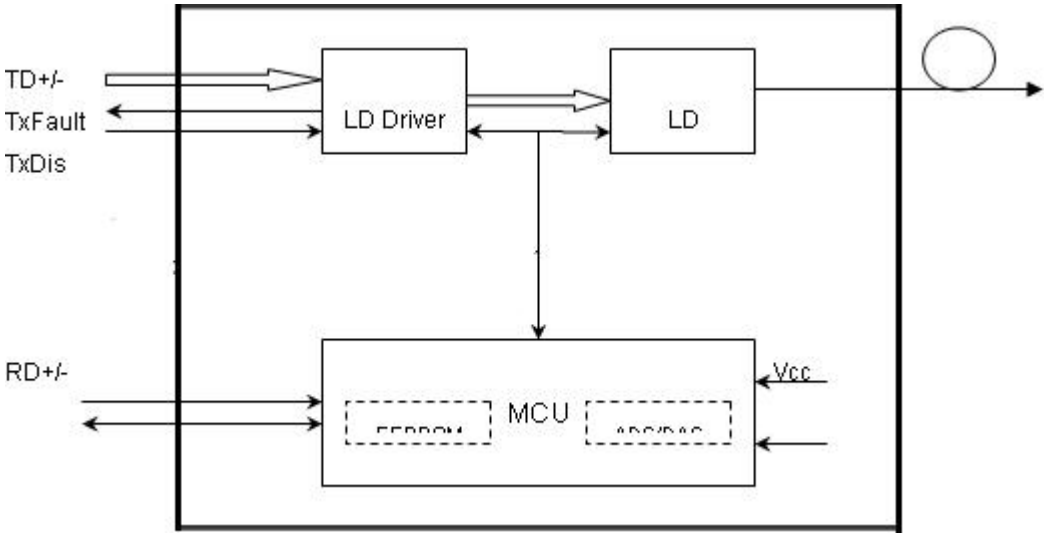
Description

The SFP transmitter are high performance, cost effective modules supporting dual data-rate of 1.25Gbps and 550m transmission distance with MMF.

The transmitter consists of two sections: a VCSEL laser transmitter and MCU control unit. All modules satisfy class I laser safety requirements.

The transmitter 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	Standard	Tc	0		+70	°C

Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Power Supply Current	Icc			300	mA
Data Rate			1.25		Gbps

Optical and Electrical Characteristics

GPT-8524L-S5CD: (VCSEL, 850nm, 550m Reach)

Table 3 - Optical and Electrical Characteristics

Parameter		Symbol	Min	Typical	Max	Unit	Notes
Transmitter							
Centre Wavelength		λc	830	850	860	nm	
Spectral Width (RMS)		σ			0.85	nm	
Average Output Power		Pout	-10		-3	dBm	1
Extinction Ratio		ER	9			dB	
Optical Rise/Fall Time (20%~80%)		tr/tf			0.16	ns	
Data Input Swing Differential		VIN	400		1800	mV	2
Input Differential Impedance		ZIN	90	100	110	Ω	
TX Disable	Disable		2.0		Vcc	V	
	Enable		0		0.8	V	
TX Fault	Fault		2.0		Vcc	V	
	Normal		0		0.8	V	

Notes:

1. The optical power is launched into SMF.

2. PECL input, internally AC-coupled and terminated.

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Timing and Electrical

Table 4 - Timing and Electrical

Parameter	Symbol	Min	Typical	Max	Unit
Tx Disable Negate Time	t_on			1	ms
Tx Disable Assert Time	t_off			10	µs
Time To Initialize, including Reset of Tx Fault	t_init			300	ms
Tx Fault Assert Time	t_fault			100	µs
Tx Disable To Reset	t_reset	10			µs
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

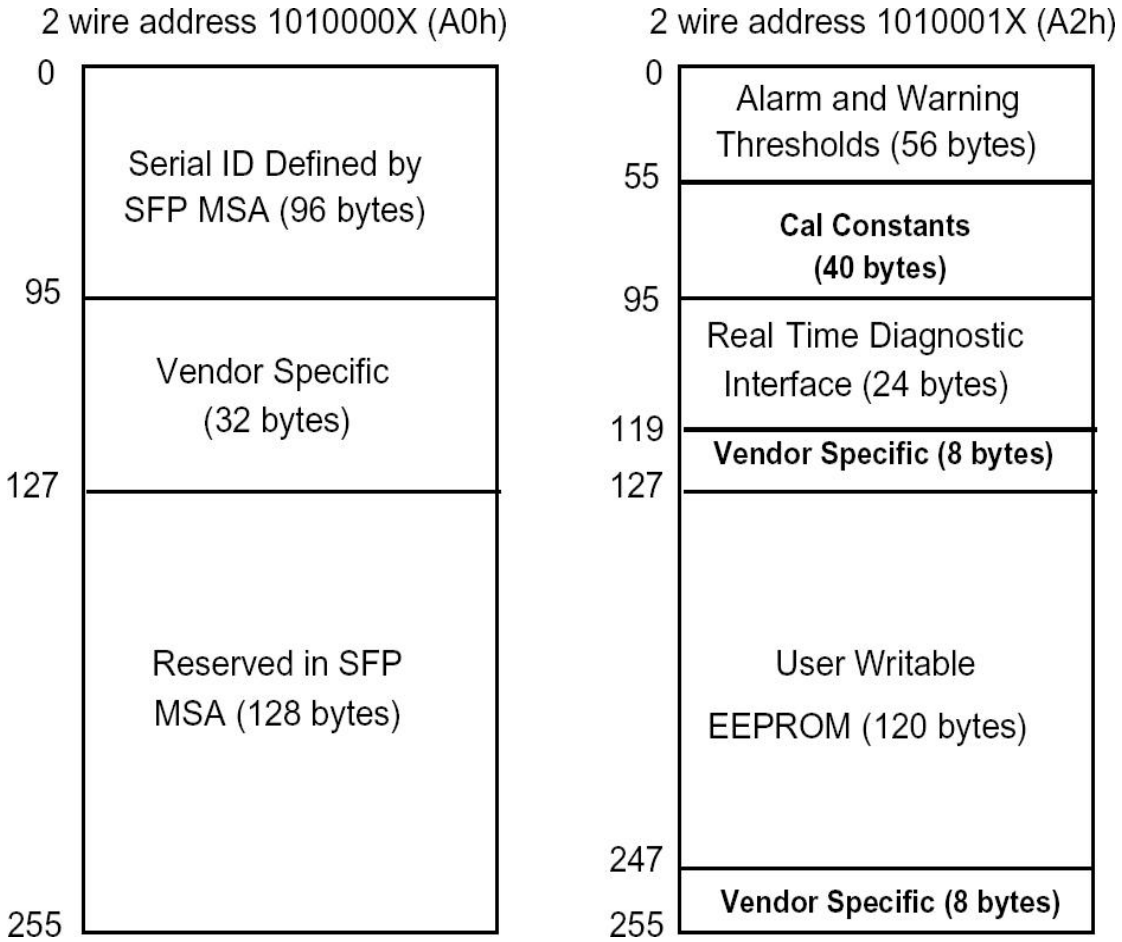
Parameter	Range	Unit	Accuracy	Calibration
Temperature	0 to +70	°C	±3°C	Internal / External
Voltage	3.0 to 3.6	V	±3%	Internal / External
Bias Current	0 to 100	mA	±10%	Internal / External
TX Power	-10 to -3	dBm	±3dB	Internal / External

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.


2 wire address 1010000X (A0h)
0
Serial ID Defined by SFP MSA (96 bytes)
95
Vendor Specific (32 bytes)
127
Reserved in SFP MSA (128 bytes)
255
2 wire address 1010001X (A2h)
0
Alarm and Warning Thresholds (56 bytes)
55
Cal Constants (40 bytes)
95
Real Time Diagnostic Interface (24 bytes)
119
Vendor Specific (8 bytes)
127
User Writable EEPROM (120 bytes)
247
Vendor Specific (8 bytes)
255

Pin Definitions

Pin Descriptions

Pin	Signal Name	Description	Plug Seq.	Notes
1	V_{EET}	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note 1
3	TX DISABLE	Transmitter Disable	3	Note 2
4	MOD_DEF(2)	SDA Serial Data Signal	3	Note 3
5	MOD_DEF(1)	SCL Serial Clock Signal	3	Note 3
6	MOD_DEF(0)	TTL Low	3	Note 3
7	Rate Select	Not Connected	3	
8	LOS	Not Connected	3	
9	V_{EER}	Not Connected	1	
10	V_{EER}	Not Connected	1	
11	V_{EER}	Not Connected	1	
12	RD-	Not Connected	3	
13	RD+	Not Connected	3	
14	V_{EER}	Not Connected	1	
15	V_{CCR}	Not Connected	2	
16	V_{CCT}	Transmitter Power Supply	2	
17	V_{EET}	Transmitter Ground	1	
18	TD+	Transmit Data In	3	Note 4
19	TD-	Inv. Transmit Data In	3	Note 4
20	V_{EET}	Transmitter Ground	1	

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

1) TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.

2) TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7k~10kΩ resistor. Its states are:

Low (0 to 0.8V): Transmitter on

(>0.8V, < 2.0V): Undefined

High (2.0 to 3.465V): Transmitter

Disabled Open: Transmitter

Disabled

3) 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 VccT or VccR.

Mod-Def 0 is grounded by the module to indicate that the

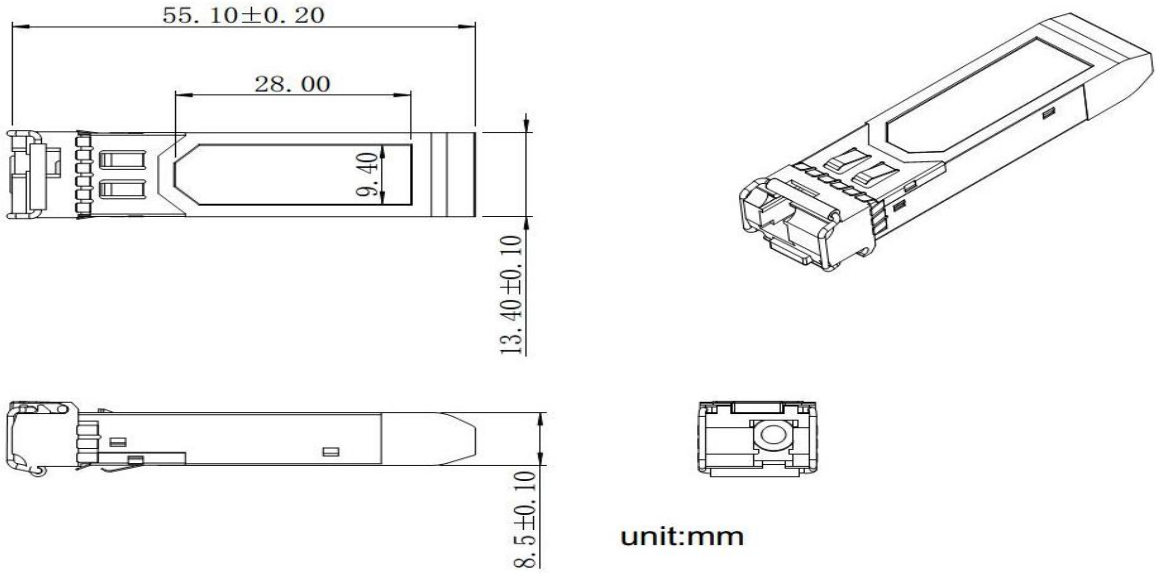
module is present Mod-Def 1 is the clock line of two wire

serial interface for serial ID

Mod-Def 2 is the data line of two wire serial interface for serial ID

4) TD-/+: These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Mechanical Dimensions



Ordering information

Part Number	Product Description
GPT-8524L-S5CD	850nm, 1.25Gbps,550m, 0ºC ~ +70ºC

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