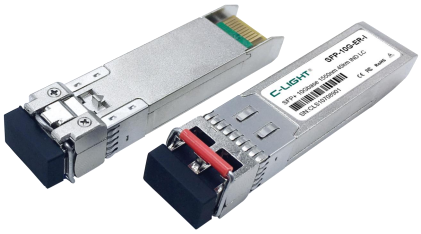
Product Specification

9.95 Gbps ~ 11.3Gbps 0℃ ~ 85℃ 40KM SFP+ 1550nm Transceiver

CLSFP1510GERI-LF

Product Features



- 9.95 Gbps ~ 11.3Gbps data links
- 40km with 9/125μm SMF
- Cooled EML 1550nm laser
- Duplex LC Connector
- Hot-pluggable SFP+ footprint
- Single 3. 3V power supply
- Operating temperature: 0℃ to 85℃
- RoHS
- Power Consumption < 1.5W
- Digital Diagnostic Monitor (DDM) meet SFF-8472

Applications

√ 10GBase-ER/EW 10GEthernet

√ CPRI 10G ER

1. Product Description

The CLSFP1510GERI-LF is a 10Gbps enhanced small form factor pluggable SFP+ transceiver compatible with 10GBASE-ER/EW and CPRI 10G ER Ind. It is suitable for single-mode fiber (SMF) communications in 10Gbps Ethernet and CPRI 10G ER Ind..

2. Regulatory Compliance

C-light transceivers are Class 1 Laser Products comply with FDA regulations. Meet Class 1 eye safety requirements of EN 60825 and the electrical safety requirements of EN 60950. Meet SFF-8431, SFF-8432, IEEE 802.3ae, RoHS, EN55022 class B, IEC 61000-4-2.

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	Vcc	-0.5	4	V
Storage Temperature	Ts	-40	85	°C
Operating Case Temperature	Tc	0	85	°C

4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	Tc	0		85	°C
Power Supply Voltage	Vcc	3.135	3.3	3.465	V
Power Supply Current	Icc			400	mA
Data Rate		9.95	10	11.3	Gbps
Max Link Length on 9/125μm SMF	Lmax			40	km

5. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Centre Wavelength	λc	1530		1565	nm
Spectral Width (-20dB)	σ			1	nm
Average Output Power	Pout	-1		4	dBm
Extinction Ratio	ER	6			dB
Average Launch Power of Off Transmitter	Poff			-30	dBm

Receiver					
Centre Wavelength	λc	1260		1600	nm
Receiver Sensitivity	P_{IN}			-16	dBm
Receiver Overload	Pmax	3			dBm
LOS De-Assert	LOS_D			-20	dBm
LOS Assert	LOS_A	-30			dBm
LOS Hysteresis		0.5		4.5	dB

6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Input Differential Impedance	Zin	90	100	110	Ω
Single ended data input swing	Vin	180		700	mV
Tx-Dis Disable	Vd	2.0		Vcc	V
Tx-Dis Enable	Ven	0		0.8	V
Receiver					
Single ended data output swing	Vout	300		850	mV
Rx-Los Fault	Vlf	2.0		Vcc_{HOST}	V
Rx-Los Normal	Vln	0		0+0.8	V
Output rise and fall time	Tr, Tf	30			ps

7. Pin Descriptions

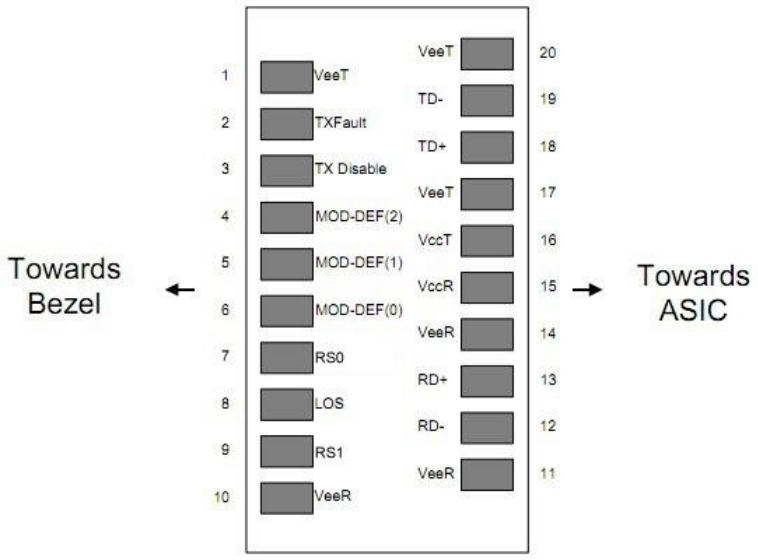


Diagram of Host Board Connector Block Pin Numbers and Names

Pin	Symbol	Description	Ref.
1	VEET	Transmitter Ground (Common with Receiver Ground)	7.1
2	TFAULT	Transmitter Fault.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	7.2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	7.3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	7.3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	7.3
7	RS0	Rate Select0, optionally controls SFP+ module receiver. When high input signaling rate>4.25 GBd and when low input signaling rate<4.25GBd	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	7.4
9	RS1	Rate Select1, optionally controls SFP+ module receiver. When high input signaling rate>4.25 GBd and when low input signaling rate<4.25GBd	
10	VEER	Receiver Ground (Common with Transmitter Ground)	7.1
11	VEER	Receiver Ground (Common with Transmitter Ground)	7.1
12	RD-	Receiver Inverted DATA out. AC Coupled.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled.	
14	VEER	Receiver Ground (Common with Transmitter Ground)	7.1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	7.1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	7.1

Notes:

7.1 Circuit ground is internally isolated from chassis ground.

7.2 Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.

7.3 Should be pulled up with 4.7k - 10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF(0) pulls line low to indicate module is plugged in.

7.4 LOS is open collector output. Should be pulled up with 4.7k -10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

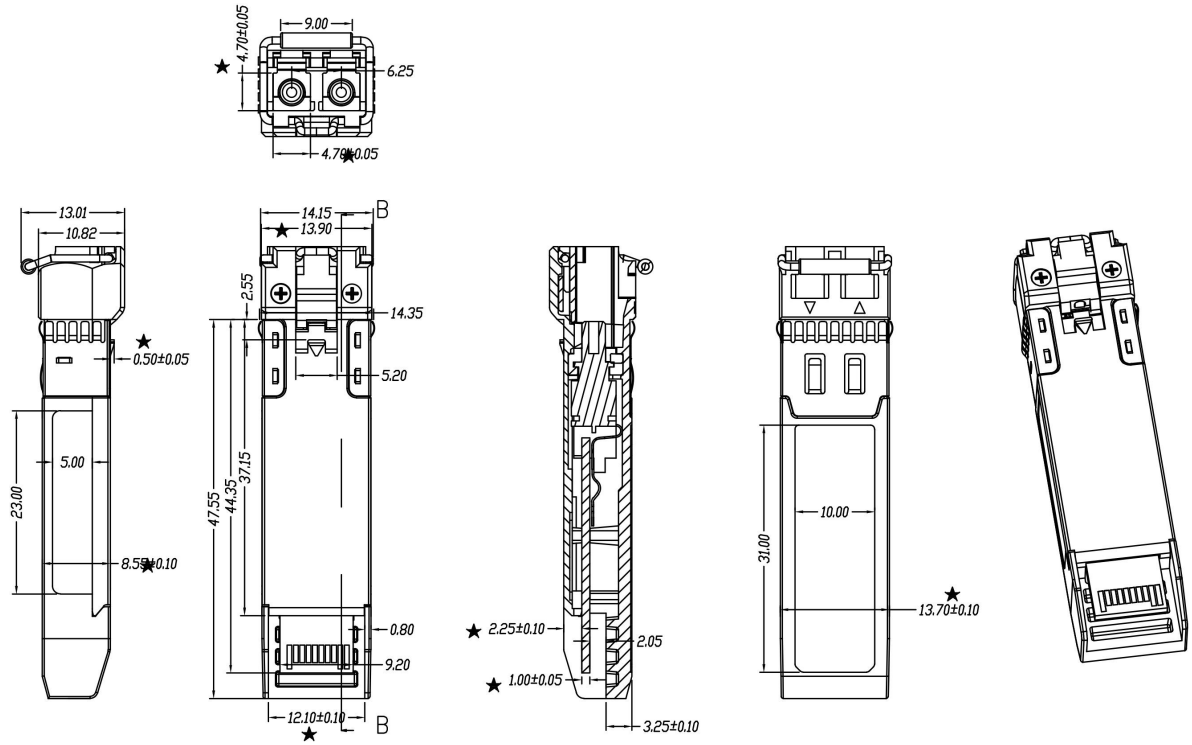
8. EEPROM

The 2-wire management interface according to SFF-8472 DDM (DOM) allows the device to read the status of the optical module (at least the parameters Tx, Rx, temperature, bias, voltage).

2 wire address 1010000X (A0h)

0~95 Serial ID Defined by SFP MSA (96 bytes)
96~127 Vendor Specific (32 bytes)
128~255 Reserved (128 bytes)

9. Mechanical Specifications



Ordering Information

Part No.	Data Rate	DDM	Laser	Fiber Type	Dist.	Temp.	Optical Interface
CLSFP1510GERI-LF	9.95~11.3 Gbps	yes	1550nm EML	SMF	40km	0~85℃	Dual LC

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