

Product Specification

10Gbps SFP+ DWDM C-BAND 50/100GHz Transceiver

CLSFPP10GDWB24II-

XX**V20170819**

Product Features

- Up to 10Gbps datalinks
- 70km to 80km Power Budget 24dB SMF*1
- DWDM C-BAND EML laser*1
- Duplex LCConnector
- Hot-pluggable SFP+footprint
- Single 3.3Vpower supply
- Operating temperature: -40°Cto90°C
- RoHS
- Digital DiagnosticMonitor(DDM)
- Power Consumption:1.5W

Applications

- √ DWDM 10GBaseSFP+
- √ 10G FC

*1 Notice

Part No.	Laser	Power Budget	Power Consumption
CLSFPP10GDWB24II-	EML/APD	24dB	1.5W

1. Product Description

The CLSFPP10GDWB24I-XX is a 10Gbps enhanced small form factor pluggable SFP+ transceiver compatible with DWDM10GBASE/10GFC. It is suitable for Power Budget 24dB single-mode fiber (SMF) communications in 10Gbps Ethernet.

Channel #	C-LIGHT Part Number	Frequency (THz)	Center Wave (nm)
C13	CLSFPP10GDWB24I-C13	191.3	1567.13
H13	CLSFPP10GDWB24I-H13	191.35	1566.71
C14	CLSFPP10GDWB24I-C14	191.4	1566.31
H14	CLSFPP10GDWB24I-H14	191.45	1565.90
C15	CLSFPP10GDWB24I-C15	191.5	1565.50
H15	CLSFPP10GDWB24I-H15	191.55	1565.09
C16	CLSFPP10GDWB24I-C16	191.6	1564.68
H16	CLSFPP10GDWB24I-H16	191.65	1564.28
C17	CLSFPP10GDWB24I-C17	191.7	1563.86
H17	CLSFPP10GDWB24I-H17	191.75	1563.46
C18	CLSFPP10GDWB24I-C18	191.8	1563.05
H18	CLSFPP10GDWB24I-H18	191.85	1562.63
C19	CLSFPP10GDWB24I-C19	191.9	1562.23
H19	CLSFPP10GDWB24I-H19	191.95	1561.82
C20	CLSFPP10GDWB24I-C20	192.0	1561.42
H20	CLSFPP10GDWB24I-H20	192.05	1561.02
C21	CLSFPP10GDWB24I-C21	192.1	1560.61
H21	CLSFPP10GDWB24I-H21	192.15	1560.20
C22	CLSFPP10GDWB24I-C22	192.2	1559.79
H22	CLSFPP10GDWB24I-H22	192.25	1559.39
C23	CLSFPP10GDWB24I-C23	192.3	1558.98
H23	CLSFPP10GDWB24I-H23	192.35	1558.57
C24	CLSFPP10GDWB24I-C24	192.4	1558.17
H24	CLSFPP10GDWB24I-H24	192.45	1557.76
C25	CLSFPP10GDWB24I-C25	192.5	1557.36
H25	CLSFPP10GDWB24I-H25	192.55	1556.95
C26	CLSFPP10GDWB24I-C26	192.6	1556.55
H26	CLSFPP10GDWB24I-H26	192.65	1556.15
C27	CLSFPP10GDWB24I-C27	192.7	1555.75
H27	CLSFPP10GDWB24I-H27	192.75	1555.35
C28	CLSFPP10GDWB24I-C28	192.8	1554.94
H28	CLSFPP10GDWB24I-H28	192.85	1554.54
C29	CLSFPP10GDWB24I-C29	192.9	1554.13

H29	CLSFPP10GDWB24I-H29	192.95	1553.73
C30	CLSFPP10GDWB24I-C30	193.0	1553.33
H30	CLSFPP10GDWB24I-H30	193.05	1552.92
C31	CLSFPP10GDWB24I-C31	193.1	1552.52
H31	CLSFPP10GDWB24I-H31	193.15	1552.12
C32	CLSFPP10GDWB24I-C32	193.2	1551.72
H32	CLSFPP10GDWB24I-H32	193.25	1551.32
C33	CLSFPP10GDWB24I-C33	193.3	1550.92
H33	CLSFPP10GDWB24I-H33	193.35	1550.52
C34	CLSFPP10GDWB24I-C34	193.4	1550.12
H34	CLSFPP10GDWB24I-H34	193.45	1549.72
C35	CLSFPP10GDWB24I-C35	193.5	1549.32
H35	CLSFPP10GDWB24I-H35	193.55	1548.91
C36	CLSFPP10GDWB24I-C36	193.6	1548.51
H36	CLSFPP10GDWB24I-H36	193.65	1548.11
C37	CLSFPP10GDWB24I-C37	193.7	1547.72
H37	CLSFPP10GDWB24I-H37	193.75	1547.32
C38	CLSFPP10GDWB24I-C38	193.8	1546.92
H38	CLSFPP10GDWB24I-H38	193.85	1546.52
C39	CLSFPP10GDWB24I-C39	193.9	1546.12
H39	CLSFPP10GDWB24I-H39	193.95	1545.72
C40	CLSFPP10GDWB24I-C40	194.0	1545.32
H40	CLSFPP10GDWB24I-H40	194.05	1544.93
C41	CLSFPP10GDWB24I-C41	194.1	1544.53
H41	CLSFPP10GDWB24I-H41	194.15	1544.13
C42	CLSFPP10GDWB24I-C42	194.2	1543.73
H42	CLSFPP10GDWB24I-H42	194.25	1543.33
C43	CLSFPP10GDWB24I-C43	194.3	1542.94
H43	CLSFPP10GDWB24I-H43	194.35	1542.54
C44	CLSFPP10GDWB24I-C44	194.4	1542.14
H44	CLSFPP10GDWB24I-H44	194.45	1541.75
C45	CLSFPP10GDWB24I-C45	194.5	1541.35
H45	CLSFPP10GDWB24I-H45	194.55	1540.96
C46	CLSFPP10GDWB24I-C46	194.6	1540.56
H46	CLSFPP10GDWB24I-H46	194.65	1540.16
C47	CLSFPP10GDWB24I-C47	194.7	1539.77
H47	CLSFPP10GDWB24I-H47	194.75	1539.37
C48	CLSFPP10GDWB24I-C48	194.8	1538.98
H48	CLSFPP10GDWB24I-H48	194.85	1538.58
C49	CLSFPP10GDWB24I-C49	194.9	1538.19
H49	CLSFPP10GDWB24I-H49	194.95	1537.70
C50	CLSFPP10GDWB24I-C50	195.0	1537.40
H50	CLSFPP10GDWB24I-H50	195.05	1537.01
C51	CLSFPP10GDWB24I-C51	195.1	1536.61

H51	CLSFPP10GDWB24I-H51	195.15	1536.21
C52	CLSFPP10GDWB24I-C52	195.2	1535.82
H52	CLSFPP10GDWB24I-H52	195.25	1535.42
C53	CLSFPP10GDWB24I-C53	195.3	1535.04
H53	CLSFPP10GDWB24I-H53	195.35	1534.65
C54	CLSFPP10GDWB24I-C54	195.4	1534.25
H54	CLSFPP10GDWB24I-H54	195.45	1533.87
C55	CLSFPP10GDWB24I-C55	195.5	1533.47
H55	CLSFPP10GDWB24I-H55	195.55	1533.07
C56	CLSFPP10GDWB24I-C56	195.6	1532.68
H56	CLSFPP10GDWB24I-H56	195.65	1532.29
C57	CLSFPP10GDWB24I-C57	195.7	1531.90
H57	CLSFPP10GDWB24I-H57	195.75	1531.51
C58	CLSFPP10GDWB24I-C58	195.8	1531.12
H58	CLSFPP10GDWB24I-H58	195.85	1530.73
C59	CLSFPP10GDWB24I-C59	195.9	1530.33
H59	CLSFPP10GDWB24I-H59	195.95	1529.94
C60	CLSFPP10GDWB24I-C60	196.0	1529.55
H60	CLSFPP10GDWB24I-H60	196.05	1529.16

2.RegulatoryCompliance

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.

3.Absolute MaximumRatings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V _{cc}	-0.5	4	V
Storage Temperature	T _s	-40	85	°C
Operating Case Temperature	T _c	-40	90	°C

4.Recommended OperatingConditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	T _c	-40		90	°C
Power Supply Voltage	V _{cc}	3.15	3.3	3.45	V
Power Supply Current	I _{cc}			450	mA

Data Rate			10		GBps
Max Link Length on 9/125 μ m SMF	Lmax			80	km

5. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Centre Wavelength *2	λ_c	X-100	X	X+100	nm
Centre Wavelength Spacing			0.8		nm
Spectral Width (-20dB)	σ			1	nm
Average Output Power	Pout	0		5	dBm
Extinction Ratio	ER	8.2			dB
Average Launch Power of Off Transmitter	Poff			-30	dBm
Relative Intensity Noise	RIN			-130	dB/Hz
Receiver					
Centre Wavelength	λ_c	1520		1570	nm
Receiver Sensitivity	PIN			-24	dBm
Receiver Overload	Pmax	-7			dBm
LOS De-Assert	LOS _D			-35	dBm
LOS Assert	LOS _A	-37			dBm
LOS Hysteresis		0.5		4.5	dB

*2. X= Center Wavelength. Wavelength stability is achieved within 60 seconds of power up

6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Input Differential Impedance	Zin	90	100	110	Ω
Data Input Swing Differential	Vin	250		1200	mV
Tx-Dis Disable	Vd	2.0		Vcc	V
Tx-Dis Enable	Ven	0		0.8	V
Receiver					
Data Output Swing Differential	Vout	250		800	mV
Rx-Los Fault	Vlf	2.0		VccHOST	V
Rx-Los Normal	Vln	0		0+0.8	V
Output rise and fall time	Tr, Tf	30			ps

7. PinDescriptions

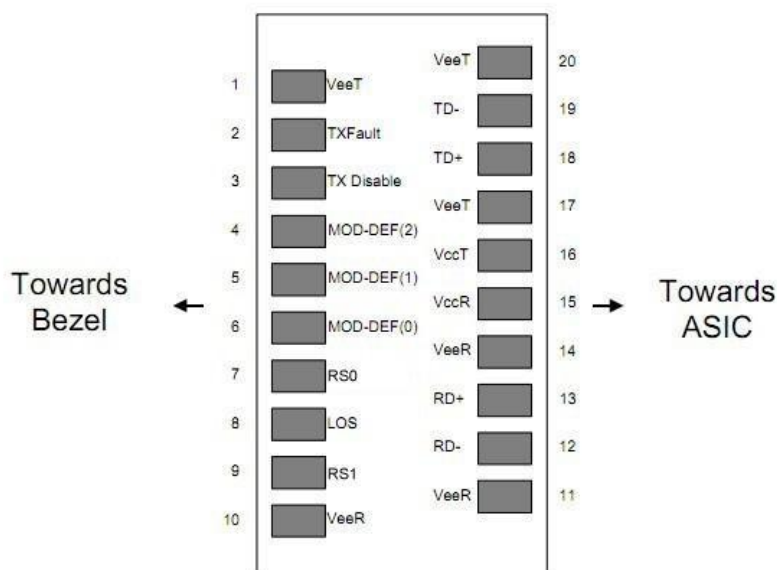


Diagram of Host Board Connector Block Pin Numbers and Names

Pin	Symbol	Description	Ref.
1	VEET	TransmitterGround (Common with ReceiverGround)	7.1
2	TFAULT	Transmitter Fault. Not supported.	
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 ofSignalindication. Logic 0indicatesnormaloperation.	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	ReceiverGround (Common with TransmitterGround)	7.1
11	VEER	ReceiverGround (Common with TransmitterGround)	7.1
12	RD-	Receiver InvertedDATAout. ACCoupled.	
13	RD+	Receiver Non-invertedDATAout. ACCoupled.	
14	VEER	ReceiverGround (Common with TransmitterGround)	7.1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	TransmitterGround (Common with ReceiverGround)	7.1

18	TD+	Transmitter Non-Inverted DATAin. ACCoupled.	
19	TD-	Transmitter Inverted DATAin. ACCoupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	7.1

Notes:

- 1.1 Circuit ground is internally isolated from chassis ground.
- 1.2 Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
- 1.3 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.
- 1.4 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 & DDMTHRESHOLD

8.1 EEPROM

2 wire address 1010000X (A0h)

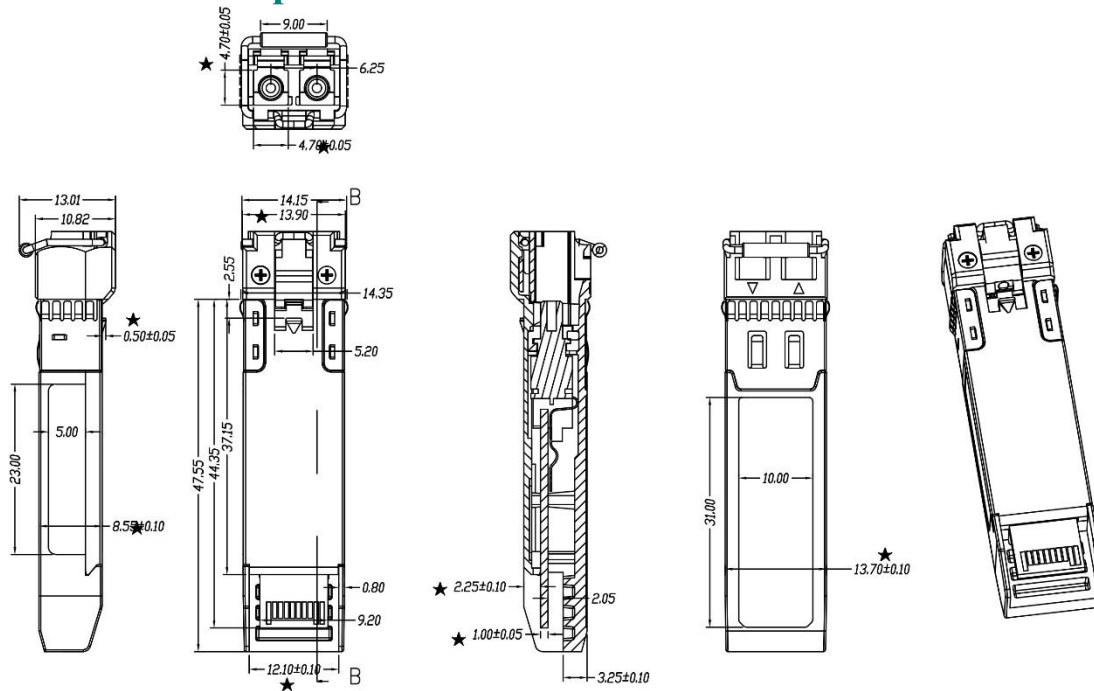
0~95	Serial ID Defined by SFP MSA (96 bytes)
96~127	Vendor Specific (32 bytes)
128~255	Reserved (128 bytes)

8.2 DDMTHRESHOLD

CLSFP10GDWB24II-XX

	Low Alarm	Low Warn	High Warn	High Alarm
Temperature	-45℃	-40℃	90℃	95℃
Voltage	3V	3.1V	3.5V	3.6V
Tx Bias	15mA	20mA	90mA	100mA
Tx Power	-3dBm	-2dBm	5dBm	7dBm
Rx Power	-27dBm	-26dBm	-8dBm	-7dBm

9. Mechanical Specifications



10. LABEL

C-LIGHT offers label OEM design and print.
 Label barcode supports code128 and 2D barcode
 SIZE: 26mm*10.5mm



Ordering Information

Part No.	Data Rate	DDM	Wave	Fiber Type	Power Budget	Temp.	Optical Interface
CLSFP10GDWB24II-	10Gbps	yes	XX *	SMF	24dB	-40~85°C	LC

* Please refer to the channel list in Page2

*** WARNING: PLEASE KEEP THE RECEIVED POWER LOWER THAN -7dBm**

VERSION UPDATE:

VERSION NO.	DATE	UPDATED INFORMATION
V20170819	20170819	New Published

NOTICE:

C-LIGHT reserves the right to make changes to this product in this specification without notice, in order to improve product performance.

CONTACT:

Shenzhen C-Light network communication co., Ltd

4F East, Building 1, Shunheda Factory Plant, Liuxiandong industrial park,
Xili, Nanshan Dist, Shenzhen

PR. China

Tel:86-755-2778-9180 **Fax:**86-755-2778-9174

E-mail:sales@c-light.com <http://www.c-light.com>