

Product Specification

155Mbps BiDi SFP Transceiver

CLSFP15BD151320D

Product Features

- Up to 155Mbps data links
- 20km with 9/125μm SMF
- 1310nm 1550nm FP laser
- Simplex LC Connector
- Hot-pluggable SFP footprint
- Single 3. 3V power supply
- Operating temperature: - 40°C to 85°C
- RoHS
- P/N end by “D” with DDM support



Applications

- √ SDH STM I-1, SONET OC-3 IR1
- √ FAST ETHERNET

1. Product Description

The CLSFP15BD series SFPs are small form factor pluggable (SFP) transceivers compatible with multi-sourcing agreement (MSA). It is suitable for single-mode fiber (SMF) communications in Fast Ethernet and SDH STM I-1, SONET OC-3 IR1.

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.

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
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Supply Voltage	V _{CC}	-0.5	3.6	V
Storage Temperature	T _s	-40	85	°C
Operating Case Temperature	T _c	-40	85	°C

4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	T _c	-40		+85	°C
Power Supply Voltage	V _{CC}	3.15	3.3	3.45	V
Power Supply Current	I _{CC}			300	mA
Data Rate			155		MBps
Max Link Length on 9/125μm SMF 155M	L _{max}			20	km

5. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Centre Wavelength CLSFP15BD131520 CLSFP15BD131520D	λ _c	1270	1310	1370	nm
Centre Wavelength CLSFP15BD151320 CLSFP15BD151320D	λ _c	1500	1550	1580	nm
Spectral Width (RMS)	σ			4	nm
Average Output Power	P _{out}	-15		-8	dBm
Extinction Ratio	EX	9			dB
Optical Rise/Fall Time	tr/ta			2	ns
Receiver					
Centre Wavelength	λ _c	1260		1600	nm
Receiver Sensitivity	P _{IN}			-30	dBm
Receiver Overload	P _{MAX}	-6			dBm
LOS De-Assert	LOS _D			-33	dBm
LOS Assert	LOS _A	-40			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
Data Input Swing Differential	Vin	500		2400	mV
Tx-Dis Disable	Vd	2.0		Vcc	V
Tx-Dis Enable	Ven	0		0.8	V
TX-Fault (Fault)		2.0		Vcc+0.3	V
TX-Fault (Normal)		0		0.8	V
Receiver					
Data Output Swing Differential	Vout	370		2000	mV
Rx-Los Fault	Vlf	2.0		Vcc+0.3	V
Rx-Los Normal	Vln	0		0+0.8	V

7. Pin Descriptions

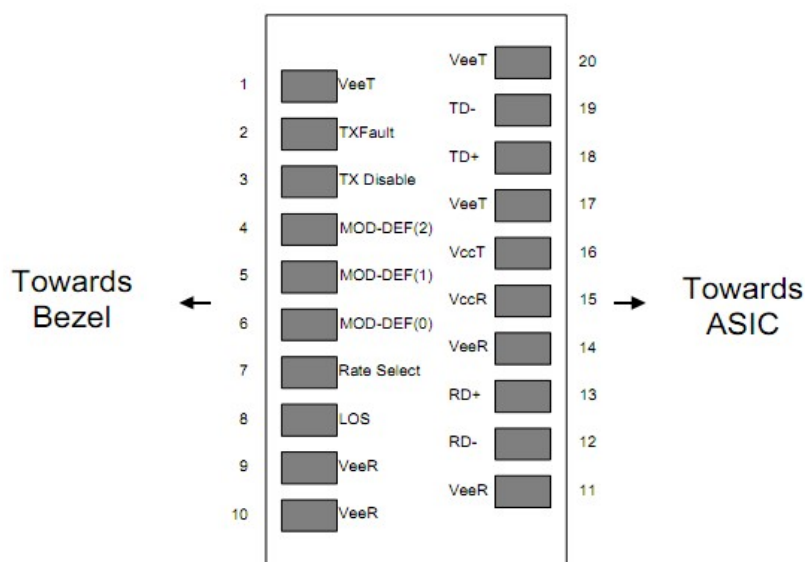


Diagram of Host Board Connector Block Pin Numbers and Names

Pin	Symbol	Description	Ref.
1	VEET	Transmitter Ground (Common with Receiver Ground)	6.1
2	TFAULT	Transmitter Fault. Not supported.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	6.2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	6.3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	6.3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	6.3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	6.4

9	VEER	Receiver Ground (Common with Transmitter Ground)	6.1
10	VEER	Receiver Ground (Common with Transmitter Ground)	6.1
11	VEER	Receiver Ground (Common with Transmitter Ground)	6.1
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)	6.1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	6.1
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)	6.1

Notes:

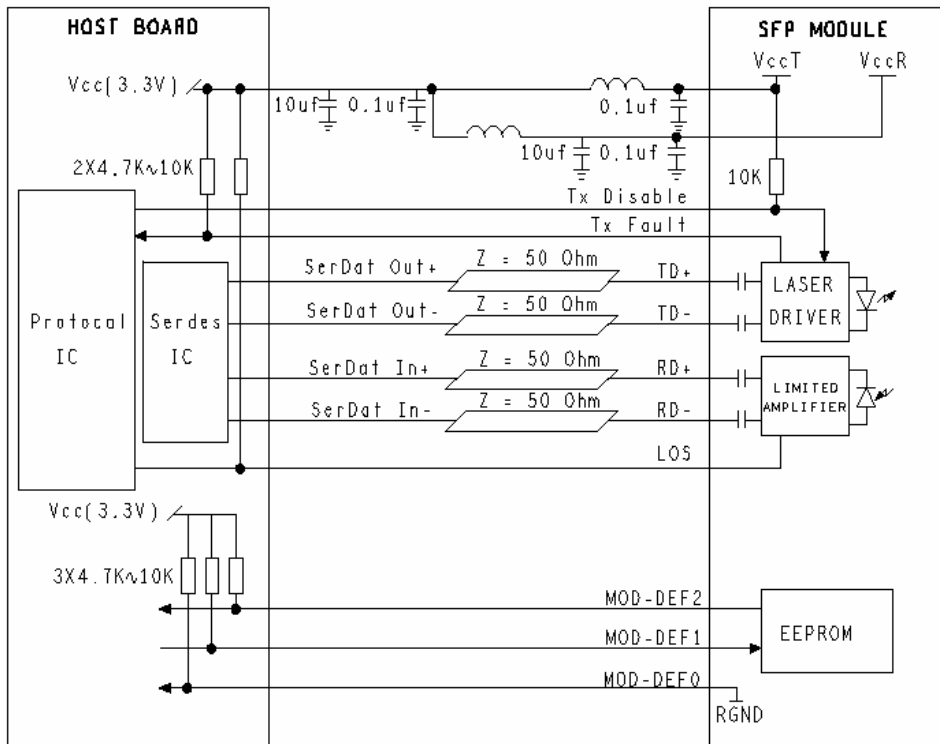
- 6.1 Circuit ground is internally isolated from chassis ground.
- 6.2 Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
- 6.3 Should be pulled up with 4.7k - 10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF(0) pulls line low to indicate module is plugged in.
- 6.4 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 Descriptions (A0)

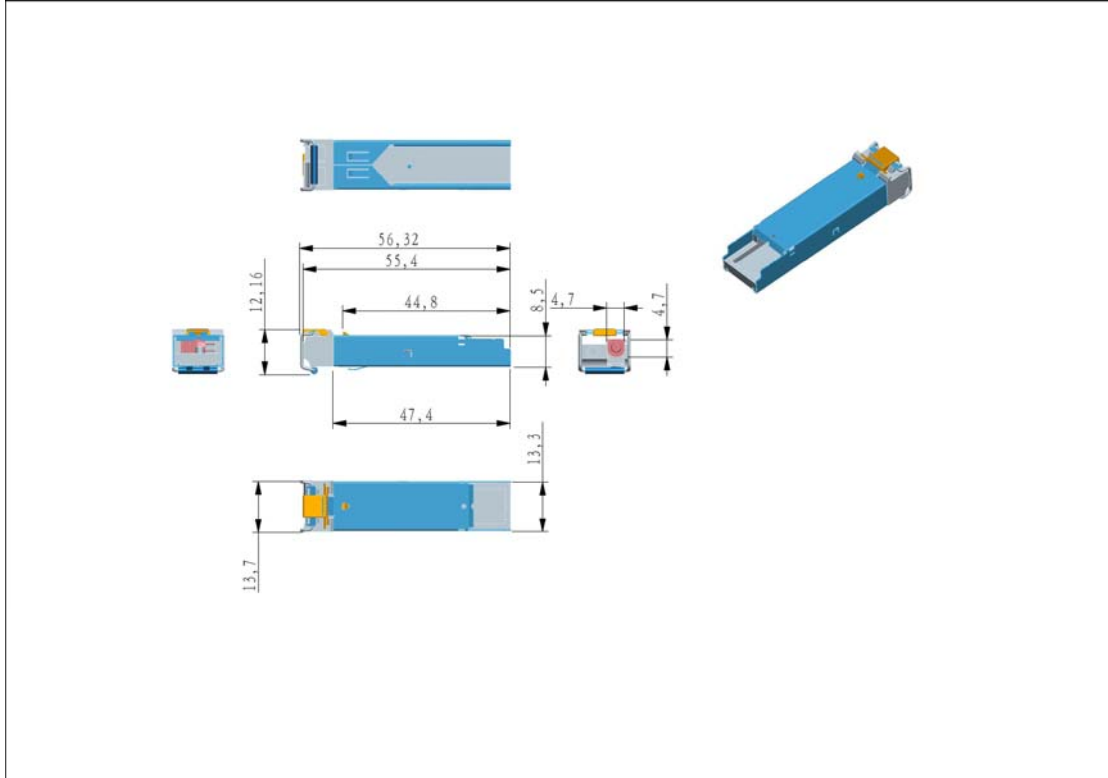
Addr	Field Size (Bytes)	Name of Field	HEX	Description
0	1	Identifier	03	SFP
1	1	Ext. Identifier	04	MOD4
2	1	Connector	07	LC
3-10	8	Transceiver	00 00 00 02 12 00 0D 01	Transmitter Code
11	1	Encoding	01	8B10B
12	1	BR, nominal	0D	1250M bps
13	1	Reserved	00	
14	1	Length (9um)-km	0A/14/28	10km/20km/40km
15	1	Length (9um)	64/C8/FF	
16	1	Length (50um)	37	550m
17	1	Length (62.5um)	09	550m
18	1	Reserved	00	
19	1	Reserved	00	

20-35	16	Vendor name	57 49 4E 54 4F 50 20 20 20 20 20 20 20 20 20 20	WINTOP
36	1	Reserved	00	
37-39	3	Vendor OUI	00 00 00	
40-55	16	Vendor PN	xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx	ASC II
56-59	4	Vendor rev	31 2E 30 20	V1.0
60-61	2	Wavelength	05 1E	1310nm
62	1	Reserved	00	
63	1	CC BASE	XX	Check sum of byte 0~62
64-65	2	Options	00 1A	LOS, TX_DISABLE, TX_FAULT
66	1	BR, max	32	50%
67	1	BR, min	32	50%
68-83	16	Vendor SN	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Unspecified
84-91	8	Vendor date code	XX XX XX 20	Year, Month, Day
92-94	3	Reserved	00	
95	1	CC_EXT	XX	Check sum of byte 64~94
96-255	160	Vendor specific		

9. Recommend Circuit



10. Mechanical Specifications



Ordering Information

Part No.	Data Rate	Laser	Fiber Type	Distance	Optical Interface
CLSFP15BD131520 CLSFP15BD131520D CLSFP15BD151320 CLSFP15BD151320D	155Mbps	1310nm 1550nm FP	SMF	20km	Simplex LC

NOTICE:

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

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