

## Product Specification

### 1.25Gbps BiDi LC 10KM SFP Transceiver

**AT-SFPGEBD151310D-L**

**AT-SFPGEBD151310D-LI**



### Product Features

- Up to 1.25Gbps data links
- 10Km with 9/125µm SMF \*1
- 1550nm DFB /1310nm PIN laser \*1
- Simplex LC Connector
- Hot-pluggable SFP footprint

ANDA Telecom Pvt. Ltd.

Registered office : E-36, Amar Colony, Lajpat Nagar-IV, New Delhi -  
110024, INDIA Phone : +91 11 41323629, +91 95 302 57173

E-mail : [Info@andatelecomindia.com](mailto:Info@andatelecomindia.com)

URL : [www.andatelecomindia.com](http://www.andatelecomindia.com)

- Single 3.3V power supply
- Operating temperature: Refer to \*1
- RoHS

## Applications

√ 1.25Gbps 1000Base-LX

PART NUMBER	WAVE LENGTH TX/RX	DISTANCE	LASER	TEMPERATURE
AT-SFPGEBD151310D-L	1550/1310nm	10Km	DFB/PIN	COM 0~70°C
AT-SFPGEBD151310D-LI	1550/1310nm	10Km	DFB/PIN	IND -40~85°C

## 1. Product Description

The AT-SFPGEBD151310D-L/I 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 1.25Gbps Ethernet and 1G/2G Fiber Channel.

## 2. Regulatory Compliance

ANDA TELECOM transceivers are AT-ass 1 Laser Products comply with FDA regulations. Meet AT-ass 1 eye safety requirements of EN 60825 and the electrical safety requirements of EN 60950.

### 3. Absolute Maximum Ratings

Parameter		Symbol	Min.	Max.	Unit
Supply Voltage		V <sub>cc</sub>	-0.5	3.6	V
Storage Temperature		T <sub>s</sub>	-40	85	°C
AT-SFPGEBD15 1310D-L	Operating Case Temperature	T <sub>c</sub>	0	70	°C
AT-SFPGEBD15 1310D-LI	Operating Case Temperature	T <sub>c</sub>	-40	85	°C

### 4. Recommended Operating Conditions

Parameter		Symbol	Min.	Typical	Max.	Unit
AT-SFPGEBD15 1310D-L	Operating Case Temperature	T <sub>c</sub>	0		70	°C
AT-SFPGEBD15 1310D-LI	Operating Case Temperature	T <sub>c</sub>	-40		85	°C
Power Supply Voltage		V <sub>cc</sub>	3.15	3.3	3.45	V
Power Supply Current		I <sub>cc</sub>			300	mA
Data Rate				1.25		GBps
Max Link Length on 9/125µm SMF		L <sub>max</sub>		10		km

## 5. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
<b>Transmitter</b>					
Centre Wavelength	$\lambda_c$	1540	1550	1560	nm
Spectral Width (-20dB)	$\sigma$			1	nm
Average Output Power	P <sub>out</sub>	-9		-3	dBm
Extinction Ratio	ER	9			dB
Optical Rise/Fall Time	tr/tf			2	ns
<b>Receiver</b>					
Centre Wavelength	$\lambda_c$	1300	1310	1320	nm
Receiver Sensitivity	P <sub>IN</sub>			-23	dBm
Receiver Overload	P <sub>MAX</sub>	1			dBm
LOS De-Assert	LOS <sub>D</sub>			-30	dBm
LOS Assert	LOS <sub>A</sub>	-35			dBm
LOS Hysteresis		0.5		4.5	dB

## 6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
<b>Transmitter</b>					
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
<b>Receiver</b>					
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

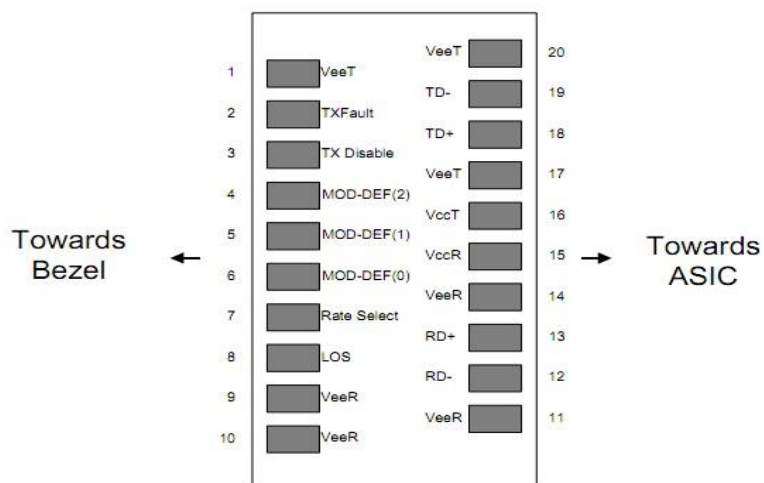


Diagram of Host Board Connector Block Pin Numbers and Names

ANDA Telecom Pvt. Ltd.

Registered office : E-36, Amar Colony, Lajpat Nagar-IV, New Delhi -  
110024, INDIAPhone : +91 11 41323629, +91 95 302 57173

E-mail : [Info@andatelecomindia.com](mailto:Info@andatelecomindia.com)

URL : [www.andatelecomindia.com](http://www.andatelecomindia.com)

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. AT-ock 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 & DDM THRESHOLD

### 8.1 EEPROM

**2 wire address 1010000X (A0hex)**

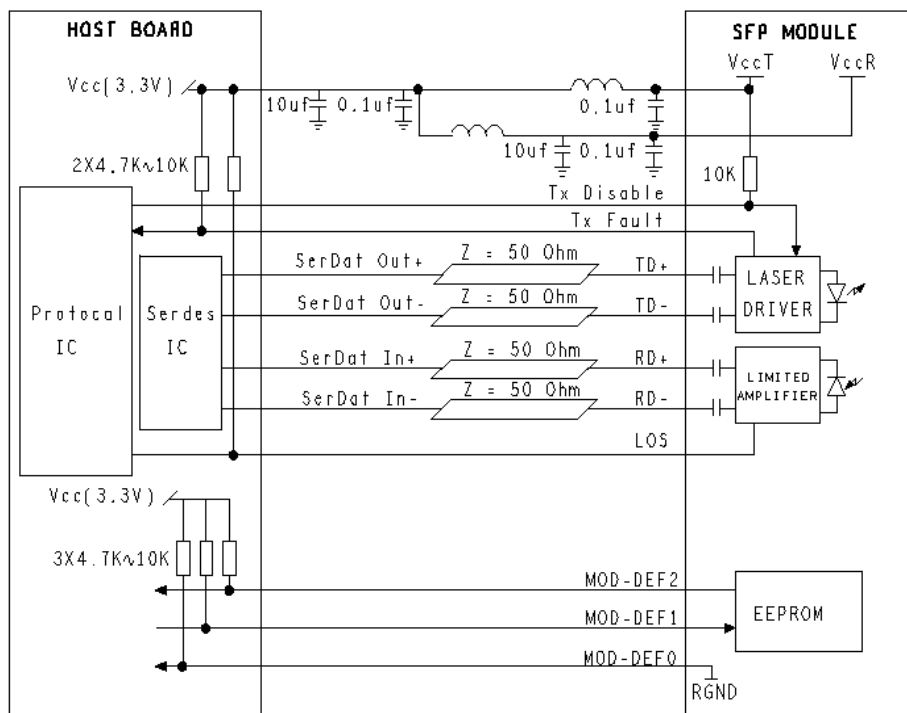
0~95
Serial ID Defined by SFP MSA (96 bytes)
96~127
Vendor Speific (32 bytes)
128~255
Reserved (128 bytes)

## 8.2 DDM THRESHOLD

### AT-SFPGEBD151310D-L/I

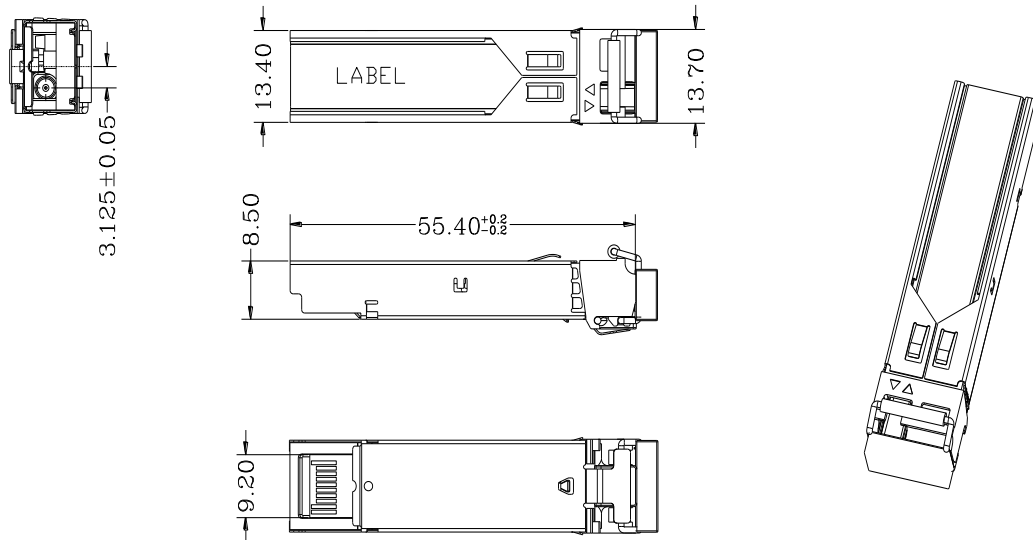
		Low Alarm	Low Warn	High Warn	High Alarm
Temp	AT-SFPGEBD151310D-L I	-45°C	-40°C	85°C	90°C
Temp	AT-SFPGEBD151310D-L	-5°C	0°C	70°C	75°C
Voltage		3V	3.1V	3.6V	3.7V
Tx Bias AT-SFPGEBD151310D-L		3mA	4mA	70mA	75mA
Tx Bias AT-SFPGEBD151310D-LI		3mA	4mA	125mA	130mA
Tx Power		-13.5dBm	-9.5dBm	-1dBm	1dBm
Rx Power		-23dBm	-19dBm	-3dBm	1dBm

## 9. Recommend Circuit





## 10. Mechanical Specifications



Units in mm

Tolerance without indication is ±0.1mm

## 11. LABEL

ANDA TELECOM offers label OEM design and print.

Label barcode supports code128 and 2D barcode

SIZE: 30mm \* 9mm

## Ordering Information

Part No.	Data Rate	DDM	TX/RX	Fiber Type	Dist.	Temp.	Optical Interface
AT-SFPGEBD151310D-L	1.25Gbps	yes	1550nm/ 1310nm	SMF	10km	0~70°C	BiDi LC
AT-SFPGEBD151310D-L I	1.25Gbps	yes	1550nm/ 1310nm	SMF	10km	-40~85°C	BiDi LC

ANDA Telecom Pvt. Ltd.

Registered office : E-36, Amar Colony, Lajpat Nagar-IV, New Delhi -  
110024, INDIAPhone : +91 11 41323629, +91 95 302 57173

E-mail : [Info@andatelecomindia.com](mailto:Info@andatelecomindia.com)

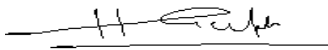
URL : [www.andatelecomindia.com](http://www.andatelecomindia.com)

## VERSION UPDATE:

VERSION NO.	DATE	UPDATED INFORMATION
V20161010	20161010	<ol style="list-style-type: none"> <li>1. EEPROM&amp; DDM Threshold updated</li> <li>2. "LABEL" added</li> <li>3. Ordering information updated</li> <li>4. Product picture updated</li> </ol>
V20170815	20170815	<ol style="list-style-type: none"> <li>1. More items added into list</li> </ol>

## NOTICE:

ANDA TELECOM reserves the right to make changes to this product in this specification without notice, in order to improve product performance.




(Harish Gupta)

**Authorised Signatory**