

Product Specification

1.25Gbps BiDi LC 80KM SFP Transceiver

AT- SFPGEBD151380D-L

AT- SFPGEBD151380D-LI

Product Features

- Up to 1.25Gbps data links
- 80km with 9/125µm SMF *1
- 1550nm/1310nm DFB laser *1
- Simplex LC Connector
- Hot-pluggable SFP footprint
- Single 3.3V power supply
- Operating temperature: Refer to *1
- RoHS



Applications

√ 1.25Gbps 1000Base-Z ,√ 1G/2G Fiber Channel

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PART NUMBER	TX/RX	DISTANCE	LASER	TEMPERATURE
AT- SFPGEBD151380D-L	1550/1310nm	80KM	DFB/PIN	COM 0~70°C
AT- SFPGEBD151380D-LI	1550/1310nm	80KM	DFB/PIN	IND -40~85°C

1. Product Description

The AT- SFPGEBD151380D-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 _{CC}	-0.5	3.6	V
Storage Temperature		T _s	-40	85	°C
AT- SFPGEBD15138	Operating Case Temperature	T _c	0	70	°C

0D-L					
AT-SFPGEBD15138	Operating Case Temperature	T _c	-40	85	°C
0D-LI					

4. Recommended Operating Conditions

Parameter		Symbol	Min.	Typical	Max.	Unit
AT-SFPGEBD15138	Operating Case Temperature	TC	0		70	°C
0D-L						
AT-SFPGEBD15138	Temperature	TC	-40		85	°C
0D-LI						
Power Supply Voltage		VCC	3.15	3.3	3.45	V
Power Supply Current		ICC			300	mA
Data Rate				1.25		GBps
Max Link Length on 9/125µm SMF		L _{max}			80	km

5. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					

Centre Wavelength	λ_c	1540	1550	1560	nm
Spectral Width ((-20dB)	σ			1	nm
Average Output Power	P _{out}	0		5	dBm
Extinction Ratio	ER	9			dB
Optical Rise/Fall Time	tr/tf			2	ns
Receiver					
Centre Wavelength	λ_c	1300	1310	1320	nm
Receiver Sensitivity	P _{IN}			-23	dBm
Receiver Overload	P _{MAX}	1			dBm
LOS De-Assert	LOS _D			-30	dBm
LOS Assert	LOS _A	-35			dBm
LOS Hysteresis		0.5		4.5	dB

6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Input Differential Impedance	Z _{in}	90	100	110	Ω
Data Input Swing Differential	V _{in}	500		2400	mV
Tx-Dis Disable	V _d	2.0		V _{cc}	V
Tx-Dis Enable	V _{en}	0		0.8	V
TX-Fault (Fault)		2.0		V _{cc} +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

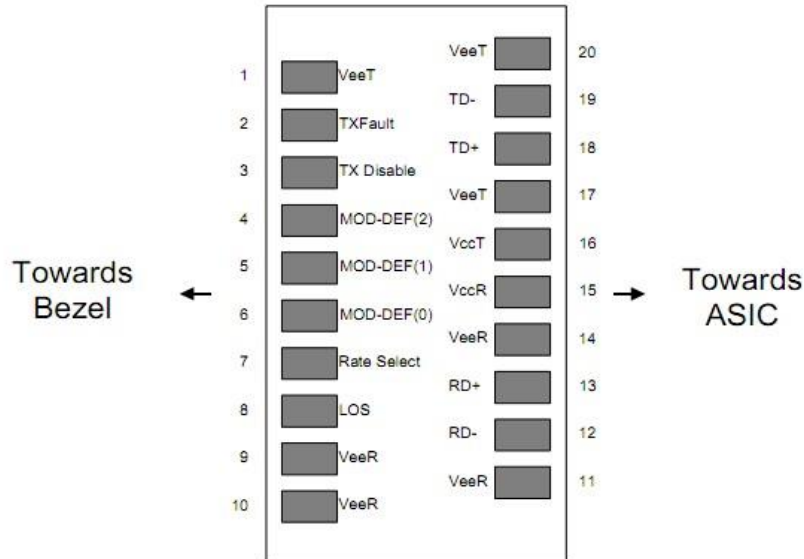


Diagram of Host Board Connector Block Pin Numbers and Names

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. 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)

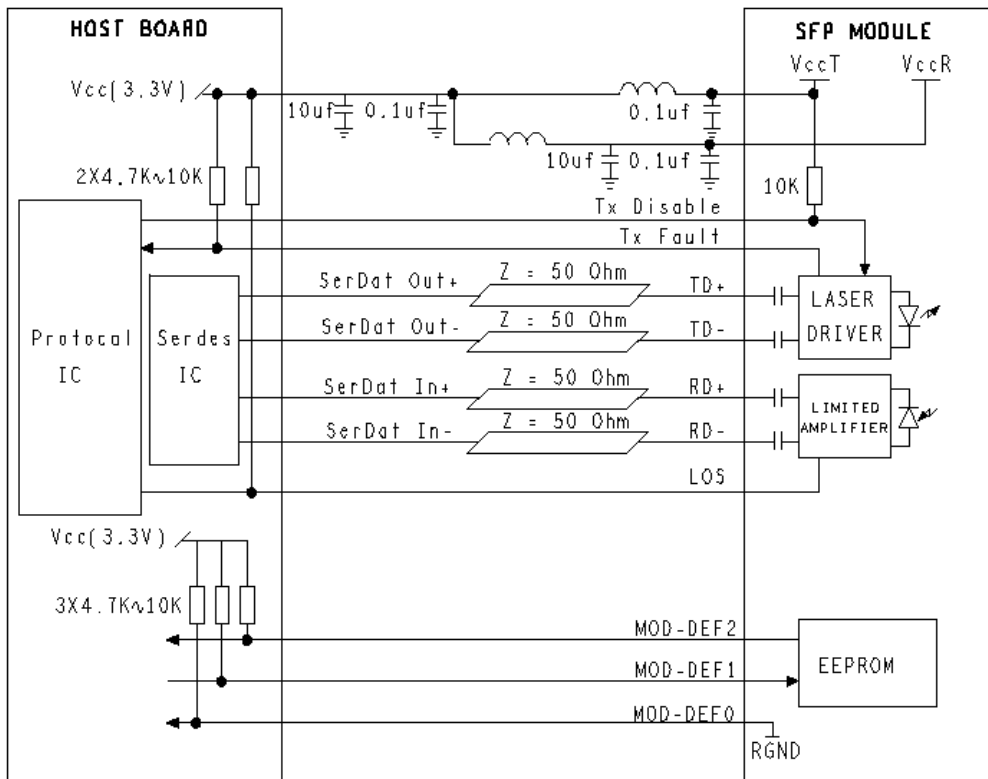
8.2 DDM THRESHOLD

AT- SFPGEBD151380D-L/ I

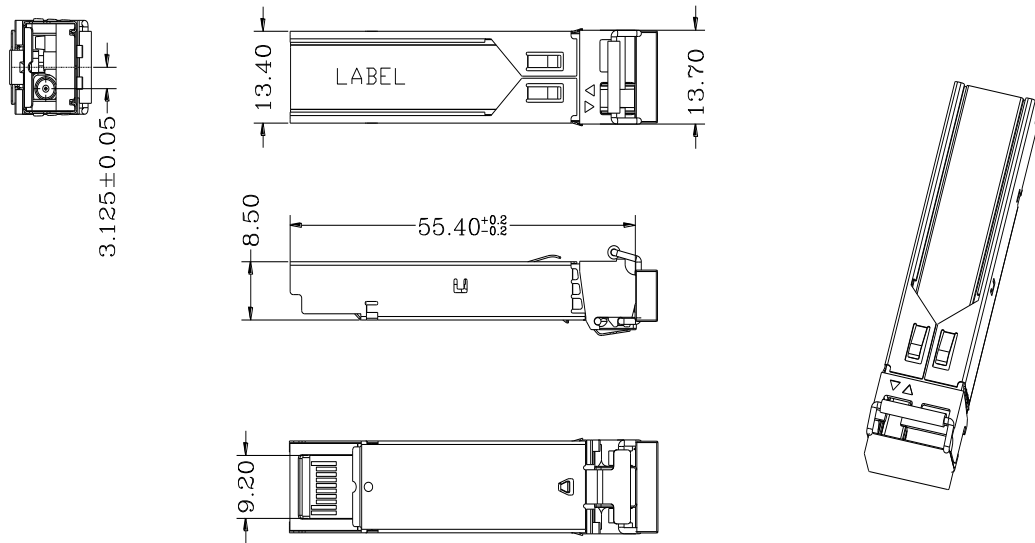
		Low Alarm	Low Warn	High Warn	High Alarm
Temp	AT- SFPGEBD151380D-LI	-45°C	-40°C	85°C	90°C

	AT- SFPGEBD151380D-L	-5°C	0°C	70°C	75°C
Voltage		3V	3.1V	3.6V	3.7V
Tx Bias AT- SFPGEBD151380D-L		3mA	4mA	70mA	75mA
Tx Bias AT- SFPGEBD151380D-LI		3mA	4mA	125mA	130mA
Tx Power		-4dBm	-3dBm	6dBm	7dBm
Rx Power		-30dBm	-29dBm	1dBm	3dBm

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-SFPGEBD151380D-L	1.25Gbps	yes	1550nm/ 1310nm	SMF	80km	0~70°C	BiDi LC
AT-SFPGEBD151380D-LI	1.25Gbps	yes	1550nm/ 1310nm	SMF	80km	-40~85°C	BiDi LC

VERSION UPDATE:

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VERSION NO.	DATE	UPDATED INFORMATION
V20161010	20161010	<ol style="list-style-type: none">1. EEPROM& DDM Threshold updated2. "LABEL" added3. Ordering information updated4. Product picture updated
V20170815	20170815	<ol style="list-style-type: none">1. More items added into list

NOTICE:

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