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### 3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V <sub>CC</sub>	-0.5	4	V
Storage Temperature	T <sub>s</sub>	-40	85	°C
Operating Case Temperature	T <sub>c</sub>	0	70	°C

### 4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	T <sub>c</sub>	0		70	°C
Power Supply Voltage	V <sub>CC</sub>	3.15	3.3	3.45	V
Power Supply Current	I <sub>CC</sub>			200	mA
Data Rate			10		GBps
Max Link Length on 9/125µm SMF	L <sub>max</sub>		20		km

### 5. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
<b>Transmitter</b>					
Centre Wavelength	$\lambda_c$	1260	1310	1360	nm
Spectral Width (-20dB)	$\sigma$			1	nm
Average Output Power	P <sub>out</sub>	-3		0	dBm
Extinction Ratio	ER	3.5			dB
Average Launch Power of Off Transmitter	P <sub>off</sub>			-30	dBm
<b>Receiver</b>					
Centre Wavelength	$\lambda_c$	1200	1310	1600	nm
Receiver Sensitivity	P <sub>IN</sub>			-13	dBm
Receiver Overload	P <sub>max</sub>	0.5			dBm
LOS De-Assert	LOS <sub>D</sub>			-23	dBm

ANDA Telecom Pvt. Ltd.

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LOS Assert	LOS <sub>A</sub>	-23			dBm
LOS Hysteresis		0.5		4.5	dB

## 6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
<b>Transmitter</b>					
Input Differential Impedance	Z <sub>in</sub>	90	100	110	Ω
Data Input Swing Differential	V <sub>in</sub>	250		1200	mV
Tx-Dis Disable	V <sub>d</sub>	2.0		V <sub>cc</sub>	V
Tx-Dis Enable	V <sub>en</sub>	0		0.8	V
<b>Receiver</b>					
Data Output Swing Differential	V <sub>out</sub>	250		800	mV
Rx-Los Fault	V <sub>lf</sub>	2.0		V <sub>ccHOST</sub>	V
Rx-Los Normal	V <sub>ln</sub>	0		0+0.8	V
Output rise and fall time	Tr, Tf	30			ps

## 7. Pin Descriptions

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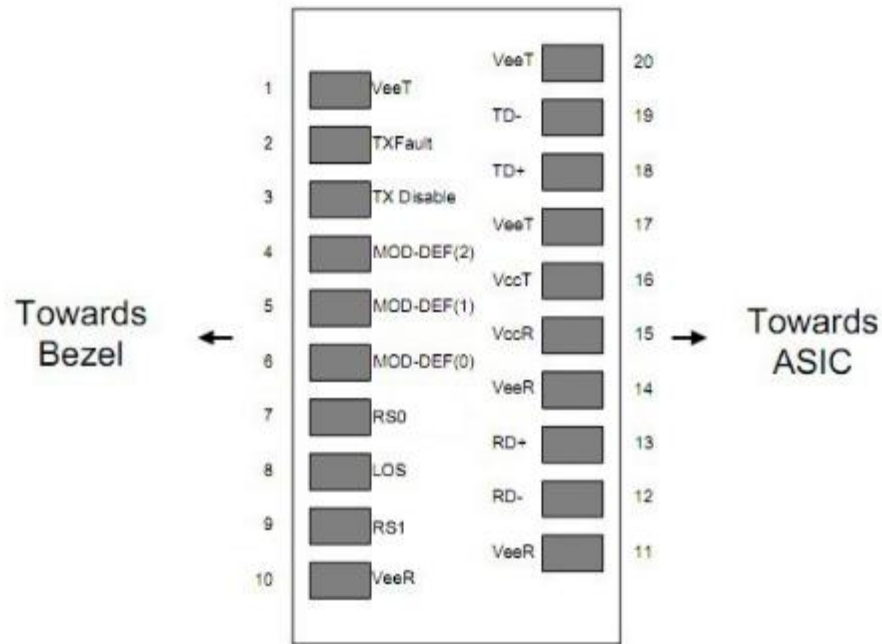
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**Diagram of Host Board Connector Block Pin Numbers and Names**

Pin	Symbol	Description	Ref.
1	VEET	Transmitter Ground (Common with Receiver Ground)	7.1
2	TFAULT	Transmitter Fault. 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 < 4.25 GBd	
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 < 4.25 GBd	
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.	

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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 & DDM THRESHOLD

### 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)

### 8.1 DDM THRESHOLD

	Low Alarm	Low Warn	High Warn	High Alarm
Temperature	-5°C	0°C	70°C	75°C
Voltage	3V	3.1V	3.6V	3.7V
Tx Bias	15mA	20mA	75mA	85mA
Tx Power	-8dBm	-7dBm	0dBm	0.5dBm
Rx Power	-18dBm	-16dBm	0.5dBm	1.5dBm

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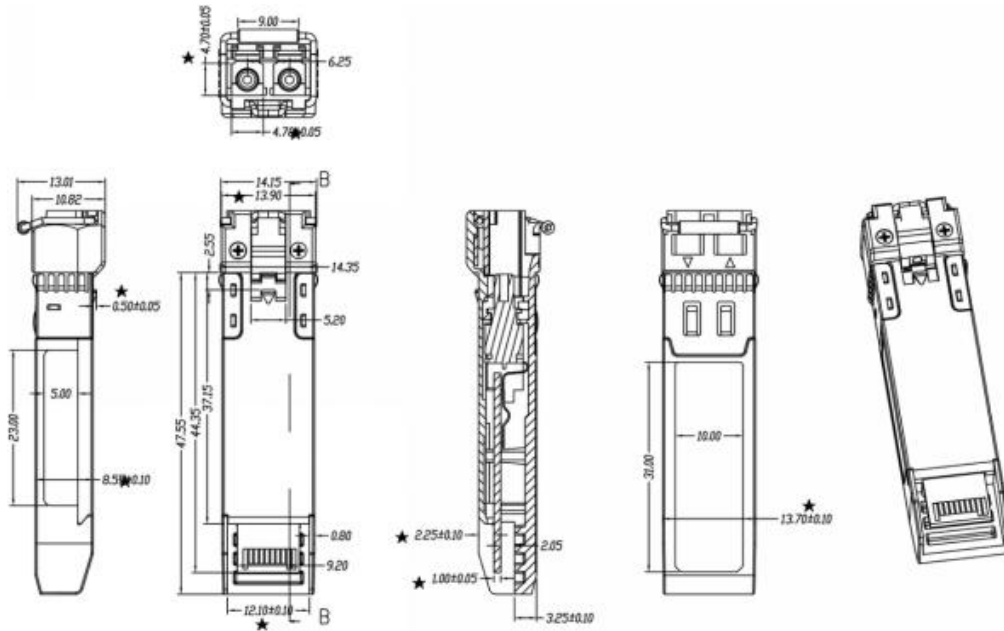
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## 9. Mechanical Specifications



## Ordering Information

Part No.	Data Rate	DDM	Wave	Fiber Type	Dist.	Temp.	Optical Interface
ATSF-P1310GLR	10Gbps	yes	1310nm	SMF	20 KM	0~70°C	LC

## VERSION UPDATE:

VERSION NO.	DATE	UPDATED INFORMATION
V20160818	20160818	<ol style="list-style-type: none"> <li>EEPROM&amp; DDM Threshold updated</li> <li>"LABEL" added</li> <li>Ordering information updated</li> <li>Product picture updated</li> </ol>

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