

25Gbps SFP28 40km Transceiver

Product Features:

- Supports 25GBASE(25Gb/s)
- Lane bit rate 25.78 Gb/s
- Up to 40km transmission on SMF
- 1310nm laser and APD receiver
- High speed I/O electrical interface (25GAUI)
- I2C interface with integrated Digital Diagnostic monitoring
- SFP28 MSA package with duplex LC connector
- Single +3.3V power supply; Maximum power consumption 1.2W
- Operating case temperature: 0~70 °C
- Compliant to IEEE 802.3cc Draft3.0, SFF-8402 and SFF-8432



Applications:

- 25GBase-ER 40km

1. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	TS	-40	-	+85	°C
Operate Temperature	TC	0	-	+70	°C
Supply Voltage	VCC	-0.5	-	+4.0	V
Operating Relative Humidity	RH	-	-	+85	

2. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	TC	0	-	+70	°C
Power Supply Voltage	VCC	3.13	3.3	3.47	V
Power Supply Current	ICC	-	-	0.35	A
Maximum Power Dissipation	PD	-	-	1.2	W
Lane Bit Rate	BRLANE	24.3	25.78	26.5	Gb/s
Transmission Distance	TD		-	40	km

3. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_0	1295	1310	1325	nm	
Average Launch Power	P _{out}	0	-	7	dBm	1,2
Spectral Width (-20dB)	σ	-	-	1	dBm	3
Average Output Power (Laser Turn off)	P _{out} -OFF	-	-	-30	dBm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Extinction Ratio	ER	4.5	-	-	dB	
Transmitter and dispersion penalty (TDP)	TDP	-	-	2.7	dB	
Optical Return Loss Tolerance	ORLT	-	-	20	dB	
Receiver						
Center Wavelength	λ_0	1295	1310	1325	nm	
Receiver sensitivity (OMA)		-	-	-18.0	dBm	5
Stress sensitivity (OMA)		-	-	-16.0	dBm	6

Receiver Overload	PIN-OL	-3	-	-	dBm	
Reflectance	Ref	-	-	-12	dB	
LOS Assert	LOSA	-35	-	-	dBm	
LOS De-assert	LOSD	-	-	-25	dBm	
LOS Hysteresis	LOSH	0.5	-	4	dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. High Bandwidth Mode. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
3. 20dB spectral width.
4. Equivalent extinction ratio specification for Fibre Channel. Allows smaller ER at higher average power.
5. At 5E-5 BER, KR4 FEC
6. Per IEEE802.3cc

4. Electrical Characteristics

Parameter		Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter (Module Input)							
Differential Data Input Amplitude		VIN,P-P	90	-	800	mVpp	
Differential Termination Mismatch			-	-	5	%	
Tx_Disable	Normal Operation	VIL	-0.3	-	0.8	V	
	Laser Disable	VIH	2.0	-	VCC+0.3	V	
Receiver (Module Output)							
Differential Data Output Amplitude		VOUT,P-P	185	-	425	mVpp	
Differential Termination Mismatch (1MHZ)			-	-	5	%	
Output Rise/Fall Time, 20%~80%		TR	12	-	-	ps	
Rx_LOS	Normal Operation	VOL	-	-	0.2	V	
	Lose Signal	VOH	VCC-0.2	-	-	V	

5. Pin Descriptions

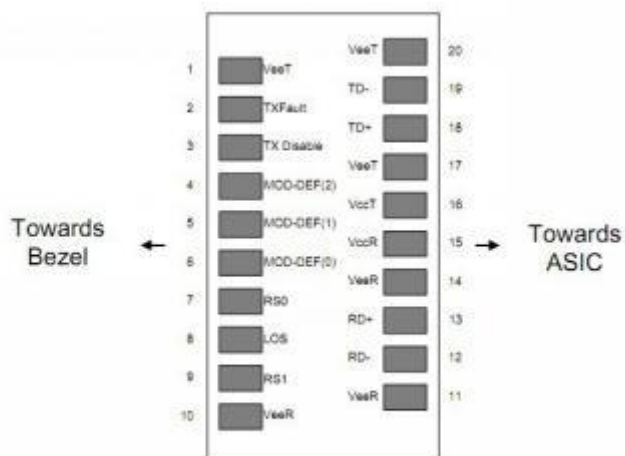


Diagram of Host Board Connector Block Pin Numbers and Names

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

6. EEPROM & DDM THRESHOLD

6.1 EEPROM

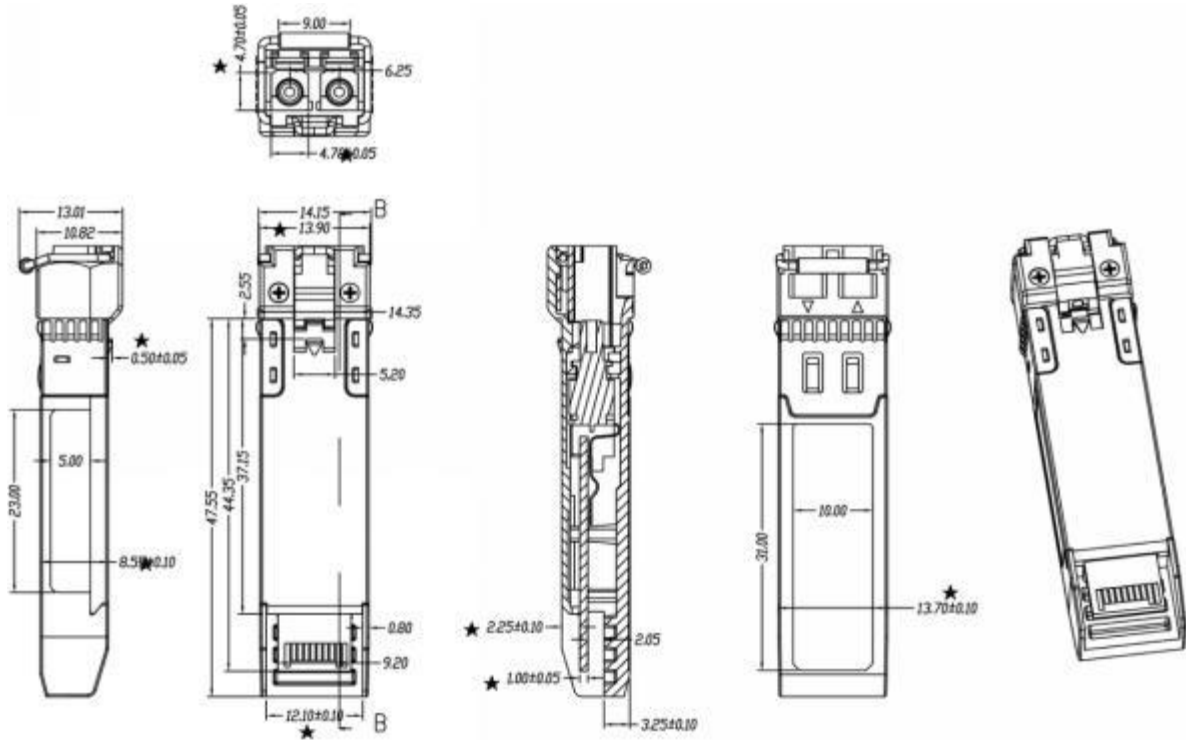
2 wire address 1010000X (A0h)

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

6.2 DDM THRESHOLD

	Low Alarm	Low Warn	High Warn	High Alarm
Temperature	-5℃	0℃	70℃	75℃
Voltage	3V	3.1V	3.5V	3.6V
Tx Bias	10mA	15mA	90mA	100mA
Tx Power	-4dBm	-3dBm	7dBm	8dBm
Rx Power	-22dBm	-21dBm	-4dBm	-3dBm

7. Mechanical Specifications



Ordering Information

Part No.	Data Rate	DDM	Wave	Fiber Type	Dist.	Temp.	Optical Interface
SFP-25G-31-ER	25Gbps	yes	1310nm	SMF	40km	0~70°C	LC

NOTICE:

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