WTSP-H31-80D

SFP28 25Gb/s ZR 80km Transceiver /
PRODUCT FEATURES

Data Rate	Temperature
25.78Gbps	0~70°C



1. Product Overview

The laser based 25Gigabit SFP28 ZR Transceiver is designed to transmit and receive serial optical data over single mode optical fiber with 80km.

They are compliant with SFF-8431,SFF-8432. The transmitter converts serial CML electrical data into serial optical data. The receiver converts serial optical data into serial CML electrical data.Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

Features

- Supports 25GBASE-ZR
- Supports 25.78G
- Up to 80km transmission on SMF
- EML laser and Integrated SOA & PIN TIA rosa
- High speed I/O electrical interface (25GAUI)
- SFP28 MSA package with duplex LC connector
- Single +3.3V power supply
- Power consumption 2.5 W
- Operating case temperature: 0 to 70°C
- Compliant to IEEE 802.3cc, SFF-8472 ver12.4 and SFF-8431
- Complies with EU Directive 2015/863/EU

Applications

- 25G Ethernet
- CPRI Option

2. Ordering Information

PN	Transmitter Wavelength	Data Rate	Laser	Fiber Type	Distance	Temp	DDMI
WTSP-H31-80D	1310nm	25.78Gbps	EML	SMF	80km	0~70°C	Y

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	TS	-40		85	°C

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	VCC	-0.3		3.6	V
Operating Relative Humidity	RH	5		95	%

4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	TC	0	-	70	°C	
Power Supply Voltage	VCC	3.13	3.3	3.46	V	
Power Supply Current	ICC	-	-	750	mA	
Maximum Power Dissipation	PD	-	-	2.5	W	
Bit Rate	BR		25.78	-	Gb/s	
Transmission Distance	TD		-	80	km	Over SMF

5. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Center Wavelength	λ	1295	-	1310	nm	
Average Launch Power	Pav	2	-	7	dBm	1
Optical Modulation Amplitude	OMA	2	-	8	dBm	
Average Output Power (Laser Turn off)	POUT-OFF	-	-	-30	dBm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
RIN20OMA	RIN	-	-	-130	dB/Hz	
Extinction Ratio	ER	8	-	-	dB	
Transmitter and dispersion penalty (TDP)		-	-	2.7	dB	
Optical Eye Mask	IEEE 802.3 cc	IEEE 802.3 cc	IEEE 802.3 cc	IEEE 802.3 cc	IEEE 802.3 cc	2
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Center Wavelength	λc	1295	-	1310	nm	
Receiver sensitivity	RSEN			-28	dBm	3
LOS Assert per lane	LOSA	-40	-		dBm	
LOS De-assert	LOSD	-	-	-29	dBm	
LOS Hysteresis	LOSH	0.5	-	5	dB	

6. Electrical Characteristics

Parameter	Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)
Differential Data Input Amplitude	Differential Data Input Amplitude	VIN,P-P	-	-	900	mVpp	
Differential Impedance	Differential Impedance		90	100	110	Ω	
Tx_Disable	Normal Operation	VIL	-0.3	-	0.8	V	
Tx_Disable	Laser Disable	VIH	2.0	-	VCC+0.3	V	
Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)
Differential Data Output Amplitude	Differential Data Output Amplitude	VOUT,P-P	-	-	900	mVpp	
Differential Termination Mismatch （1MHZ）	Differential Termination Mismatch （1MHZ）		-	-	10	%	
Differential Impedance	Differential Impedance		90	100	110	Ω	
Rx_LOS	Normal Operation	VOL	-0.3	-	0.4	V	
Rx_LOS	Loss Signal	VOH	2	-	VCCHOST	V	

7. Electrical Characteristics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	0 to 70	±3	ºC	Internal
Voltage	3.13 to 3.47	±3%	V	Internal
Tx Bias Current Per Lane	0 to 100	±10%	mA	Internal
Tx Output Power Per Lane	2to 7	±3	dBm	Internal
Rx Power	-28 to -4	±3	dBm	Internal

8. Pin Descriptions

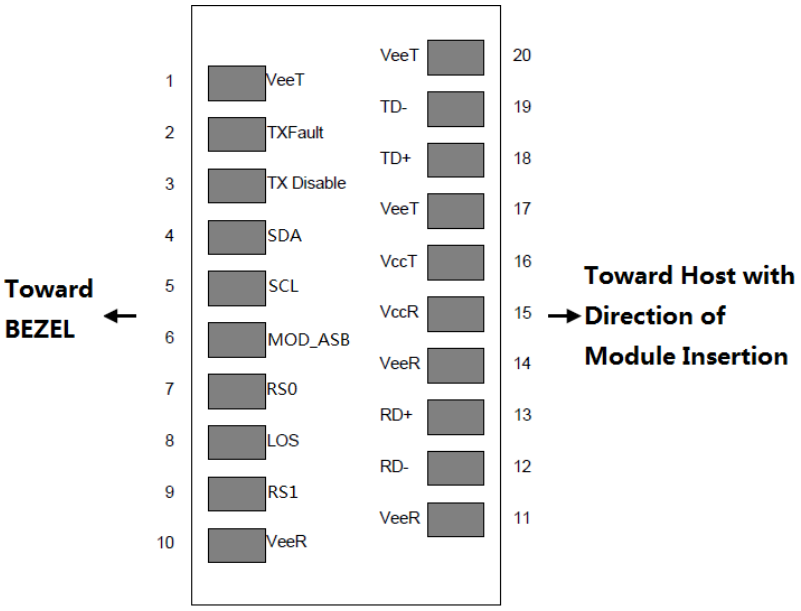
PIN	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground	1
2	Tx_Fault	Transmitter Fault - High indicates a fault condition	2
3	Tx_Disable	Transmitter Disable – High or open disables the transmitter	
4	SDA	2-wire Serial Interface Data Line (MOD-DEF2)	3
5	SCL	2-wire Serial Interface Clock (MOD-DEF1)	3
6	MOD_ABS	Module Absent, connected to VeeT or VeeR in the module	
7	RS0	Rate Select 0	5

PIN	Symbol	Name/Description	Notes
8	RX_LOS	Receiver Loss of Signal(LVTTL-O). Logic 0 indicates normal operation	4
9	RS1	Rate Select 1	5
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Inverse Received Data out (CML-O), AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VeeR	Receiver Ground	1
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VeeT	Transmitter Ground	1

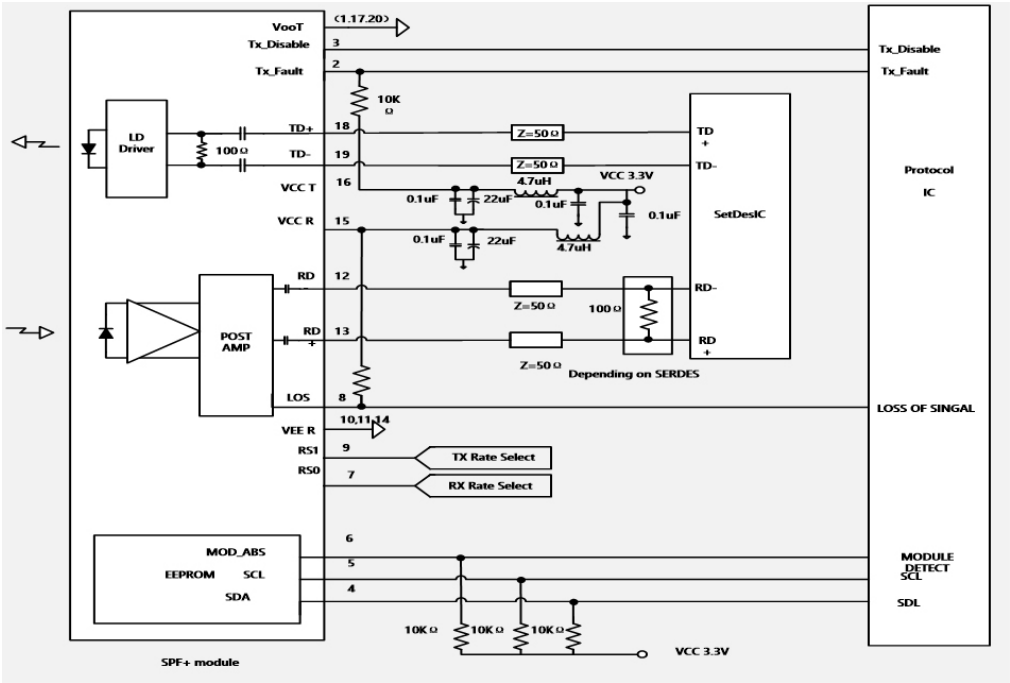
9. Revision History

Version No.	Date	Description
1.0	July 10, 2023	Specification datasheet

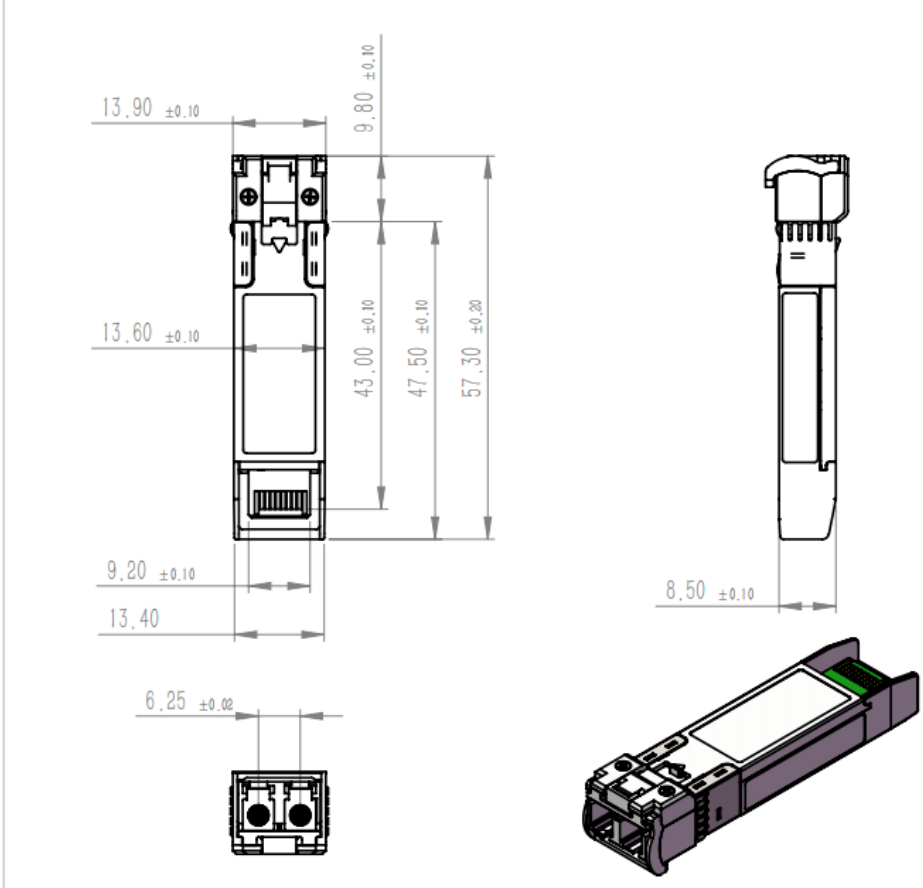
10. Pin Assignment



11. Recommended Interface Circuit



12. Mechanical Specifications



13. Revision History

Version	Date	Description	Prepared by
V6	2025	Unified WincoTek datasheet format	WincoTek
V6.1	2026-10-23	Engineering and format review	WincoTek