WTS10Z8B54

10G SFP+ Transceiver T15/R14(T14/R15)
SMF 80km LC

Part Number
WTS10Z8B54



1. Product Overview

The single mode transceiver is small form factor pluggable module for optical data communications such as 10G Ethernet. It is with the SFP+ 20-pin connector to allow hot plug capability. The module is designed for single mode fiber and operates at a nominal wavelength of 1550nm or 1490nm; The transmitter section uses a EML laser, which is class 1 laser compliant according to International Safety Standard. The receiver section consists of a APD photodiode integrated with a TIA. The transceiver designs are optimized for high performance and cost effective to supply customers the best solutions for telecommunication.

Features

- Supports 9.95 to 11.3Gb/s bit rates
- Simplex LC Connector
- Hot pluggable SFP+ footprint
- Cooled 1550nm EML transmitter, 1490nm APD receiver
- Applicable for 80km SMF connection
- Low power consumption, < 1.5W
- Digital Diagnostic Monitor Interface
- Optical interface compliant to IEEE 802.3ae 10GBASE-60
- Electrical interface compliant to SFF-8431
- Operating case temperature:
- Commerical:0 to 70 °C
- Functional Diagram

Applications

- 10.3125Gbps Ethernet
- 10GBASE-LW at 9.953Gbps
- Other optical links

2. Ordering Information

Part Number	Description
WTS10Z8B54	SFP+Bidi,9.95 to 11.3Gb/s, 1550/1490nm, 80km, 0~70℃, with Digital Diagnostic Monitor
Notes: When CWDM wavelengths, the wavelength spacling >20nm	Notes: When CWDM wavelengths, the wavelength spacling >20nm

3. Ordering Information

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Data Rate	DR	9.95	10.3125	11.3	Gb/s	
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc5			450	mA	
Operating Case Temp.	Tc	0		70	°C	

4. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature	TS	-40	85	°C	
Relative Humidity	RH	0	85	%	

5. Optical Parameters

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Operating Wavelength	λ	1530	1550	1565	nm	
Operating Wavelength	λ	1470	1490	1510	nm	
Ave. output power (Enabled)	PAVE	0		5	dBm	1
Side-Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	9			dB	
RMS spectral width	Δλ			1	nm	
Rise/Fall time (20%~80%)	Tr/Tf			50	ps	
Dispersion penalty	TDP			3.2	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Output Optical Eye	Compliant with IEEE 0802.3ae	Compliant with IEEE 0802.3ae	Compliant with IEEE 0802.3ae	Compliant with IEEE 0802.3ae	Compliant with IEEE 0802.3ae	Compliant with IEEE 0802.3ae
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Operating Wavelength	λ	1470	1490	1510	nm	
Operating Wavelength	λ	1530	1550	1565	nm	
Receiver Sensitivity	PSEN1			-22	dBm	2
Overload	PAVE			-7	dBm	
LOS Assert	Pa	-35			dBm	
LOS De-assert	Pd			-23	dBm	
LOS Hysteresis	Pd-Pa	0.5			dB	

6. Electrical Characteristics

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Differential data input swing	VIN, PP	150		1200	mVpp	1

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmit Disable Voltage	VD	VCC-0.8		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Input differential impedance	Rin		100		Ω	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Differential data output swing	Vout,pp	300		850	mVpp	2
Output rise time and fall time	Tr, Tf	28			Ps	3
LOS asserted	VLOS_F	VCC-0.8		Vcc	V	4
LOS de-asserted	VLOS_N	Vee		Vee+0.8	V	4

7. Digital Diagnostics

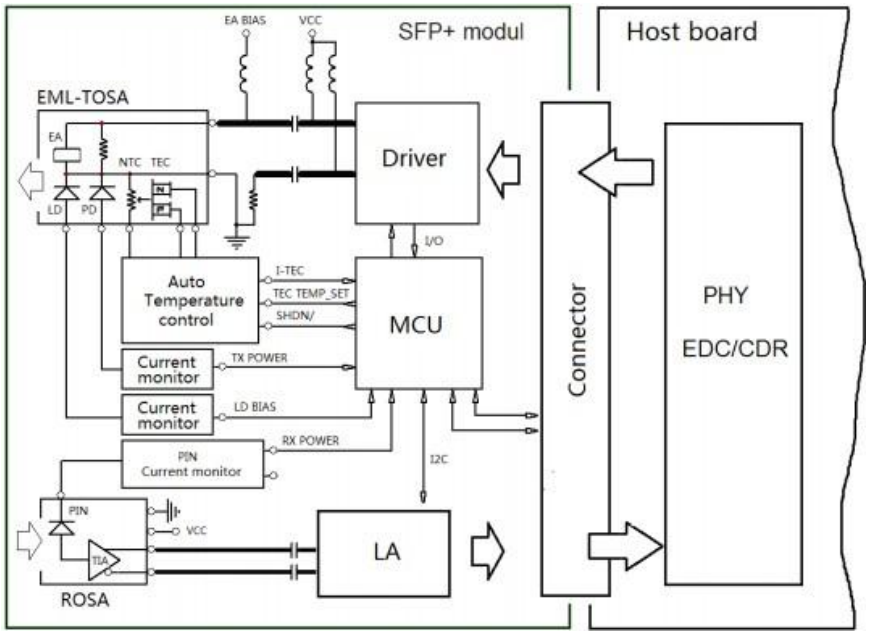
Parameter	Symbol	Min.	Max	Unit	Notes
Transceiver temperature	DTemp-E	ºC	-5	+75	±5ºC
Transceiver supply voltage	DVoltage	V	2.8	4.0	±3%
Transmitter bias current	DBias	mA	0	127	±10%
Transmitter output power	DTx-Power	dBm	-2	+7	±2dB
Receiver average input power	DRx-Power	dBm	-24	0	±2dB

8. Pin Descriptions

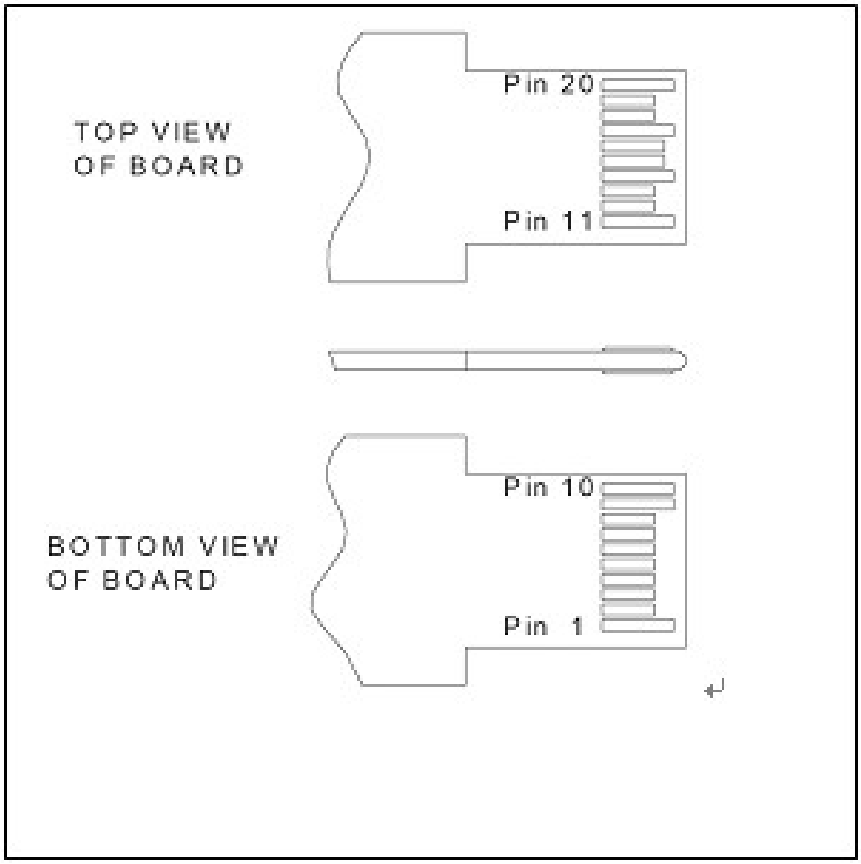
Pin	Symbol	Name/Description	Notes
1	VEET [1]	Transmitter Ground	
2	Tx_FAULT [2]	Transmitter Fault	
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open	
4	SDA [2]	2-wire Serial Interface Data Line	
5	SCL [2]	2-wire Serial Interface Clock Line	
6	MOD_ABS [4]	Module Absent. Grounded within the module	
7	RS0	Rate Select 0	
8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation	
9	RS1 [5]	Rate Select 1	
10	VEER [1]	Receiver Ground	
11	VEER [1]	Receiver Ground	

Pin	Symbol	Name/Description	Notes
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver DATA out. AC Coupled	
14	VEER [1]	Receiver Ground	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET [1]	Transmitter Ground	
18	TD+	Transmitter DATA in. AC Coupled	
19	TD-	Transmitter Inverted DATA in. AC Coupled	
20	VEET [1]	Transmitter Ground	

9. Block Diagram



10. Pin Assignment

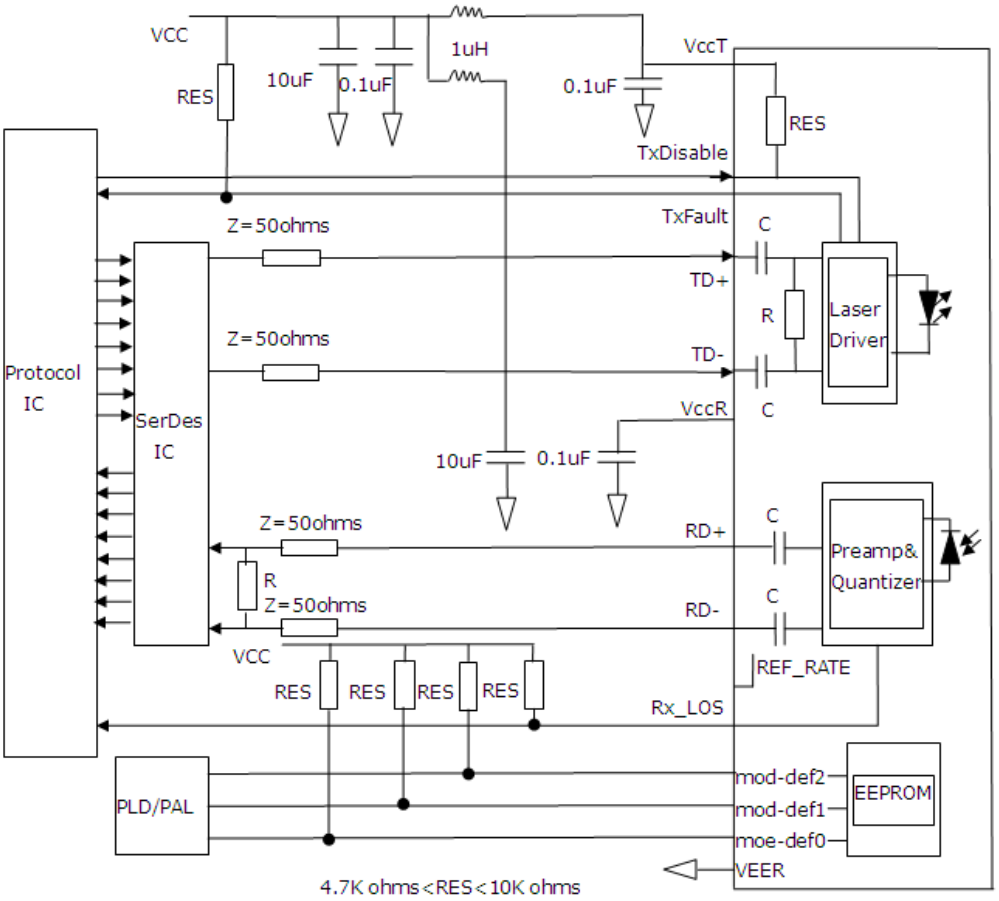


11. Digital Diagnostics Memory Map

2 wire address 1010000X (**A0h**)	
Address	**Information**
0~95	Serial ID Defined by SFP MSA (96 bytes)
96~127	Vendor Specific (32 bytes)
128~255	Reserved,SFF8079 (128 bytes)

2 wire address 1010001X (**A2h**)	
Address	**Information**
0~55	Alarm and Warning Thresholds (56 bytes)
56~95	Calibration Constants (40 bytes)
96~119	Real Time Diagnostic Interface (24 bytes)
120~127	Vender Specific (8 bytes)
128~247	User Writable EEPROM (120 bytes)
248~255	Vender Specific (8 bytes)

12. Recommended Interface Circuit



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