WTS10B2Dx

10G SFP+ Transceiver 1550nm SMF 120km LC

Part Number WTS10B2DC	**Wavelength 1550**	**Reach 120**
Temperature 0~70 commercial		



1. Product Overview

WTS10B2Dx SFP+ transceiver is designed for use in 10-Gigabit Ethernet links up to 120km over single mode fiber. The module consists of 1550nm EML Laser, APD and Preamplifier in a high-integrated optical sub-assembly. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472. WTS10B2Dx transceivers provide a unique enhanced digital diagnostic monitoring interface, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, and received optical power and transceiver supply voltage. It also defines a sophisticated system of alarm and warning flags, which alerts end-users when particular operating parameters are outside of a factory set normal range. The SFP+ MSA defines a 256-byte memory map in EEPROM that is accessible over a 2-wire serial interface at the 8bit address 1010000X (A0h). The digital diagnostic monitoring interface makes use of the 8bit address 1010001X (A2h), so the originally defined serial ID memory map remains unchanged.

Features

- Up to 11.3Gb/s data links
- 1550nm EML transmitter and APD receiver
- Up to 11.3Gb/s data links
- 1550nm EML transmitter and APD receiver
- Up to 120km on 9/125μm SMF
- Hot-pluggable SFP+ footprint
- Duplex LC/UPC type pluggable optical interface
- RoHS- 10 compliant and lead-free
- Support Digital Monitoring interface
- Single +3.3V power supply
- Compliant with SFF+MSA and SFF-8472
- Metal enclosure, for lower EMI

Applications

- 10GBASE-120km & 10G Ethernet
- SDH STM64
- Other Optical Links

2. Ordering Information

Part Number	Data Rate (Gb/s)	Wavelength(nm)	Transmission Distance(km)	Temperature (oC) (Operating Case)
WTS10B2DC	10.3125	1550	120	0~70 commercial
WTS10B2DE	10.3125	1550	120	- 10~80 extended
WTS10B2DI	10.3125	1550	120	-40~85 Industrial

3. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Storage Temperature	TS	-40	85	oC	

Parameter	Symbol	Min	Max	Unit	Notes
Power Supply Voltage	VCC	-0.5	3.6	V	
Relative Humidity (non-condensation)	RH	5	95	%	
Damage Threshold	THd	0		dBm	

4. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	TOP	0		70	o C	Commercial
Operating Case Temperature	TOP	-10		80	o C	Extended
Operating Case Temperature	TOP	-40		85	o C	Industrial
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Data Rate			10.3125		Gb/s	
Control Input Voltage High		2		Vcc	V	
Control Input Voltage Low		0		0.8	V	
Link Distance (SMF)	D			120	km	9/125um

5. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Center Wavelength	λ	1530	1550	1565	nm	1
Optical Spectral Width	Δλ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Power	PAVG	2		6	dBm	2
Optical Extinction Ratio	ER	8.2			dB	
Transmitter and Dispersion Penalty	TDP			3.2	dB	
Transmitter OFF Output Power	POff			-30	dBm	
Transmitter Eye Mask	Compliant with IEEE802.3ae	Compliant with IEEE802.3ae	Compliant with IEEE802.3ae	Compliant with IEEE802.3ae	Compliant with IEEE802.3ae	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Center Wavelength	λC	1270		1610	nm	
Receiver Sensitivity (Average Power)	Sen.			-26	dBm	3
Input Saturation Power (overload)	Psat	-8			dBm	

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
LOS Assert	LOSA	-35			dBm	
LOS De-assert	LOSD			-27	dBm	
LOS Hysteresis	LOSH	0.5			dB	

6. Recommended Operating Conditions

Parameter	Symbol	Min.	Max	Unit	Notes
Temperature monitors absolute error	DMI_ Temp	-3	3	℃	Over operating temp
Supply voltage monitor absolute error	DMI _VCC	-0.15	0.15	V	Full operating range
RX power monitor absolute error	DMI_RX	-3	3	dB	
Bias current monitor	DMI_ bias	- 10%	10%	mA	
TX power monitor absolute error	DMI_TX	-3	3	dB	

7. Electrical Characteristics

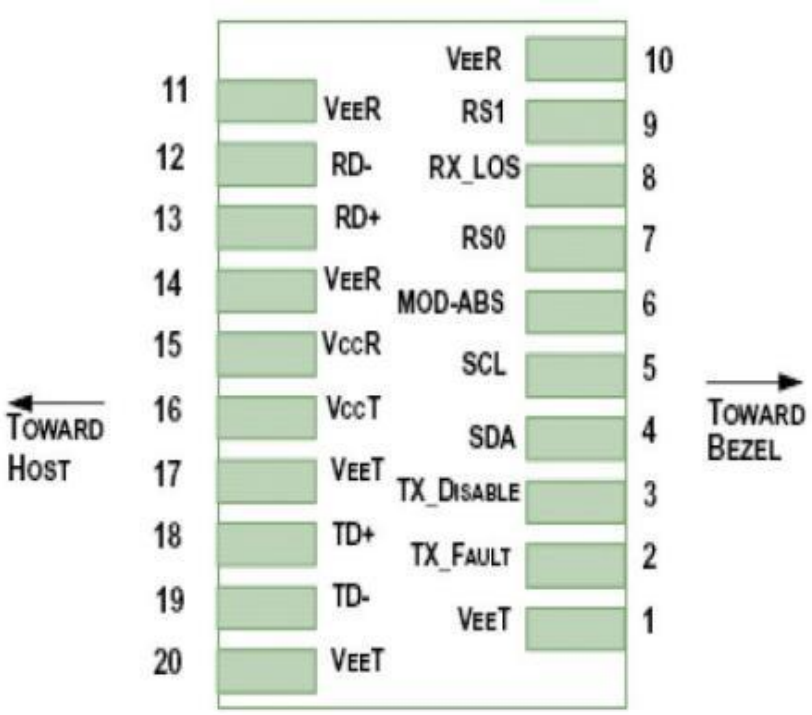
Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Power Consumption	p			1.8	W	
Supply Current	Icc			520	mA	
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Single-ended Input Voltage Tolerance	Vcc	-0.3		4.0	V	
AC Common Mode Input Voltage Tolerance (RMS)		15			mV	
Differential Input Voltage Swing	Vin,pp	120		820	mVpp	
Differential Input Impedance	Zin	90	100	110	Ohm	1
Transmit Disable Assert Time				10	us	
Transmit Disable Voltage	Vdis	Vcc- 1.3		Vcc	V	
Transmit Enable Voltage	Ven	Vee		Vee +0.8	V	2
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Differential Output Voltage Swing	Vout,pp	350		850	mVpp	
Differential Output Impedance	Zout	90	100	110	Ohm	3
Data output rise/fall time	Tr/Tf	28			ps	4
LOS Assert Voltage	VlosH	Vcc- 1.3		Vcc	V	5
LOS De-assert Voltage	VlosL	Vee		Vee +0.8	V	5

Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Power Supply Rejection	PSR	100			mVpp	6

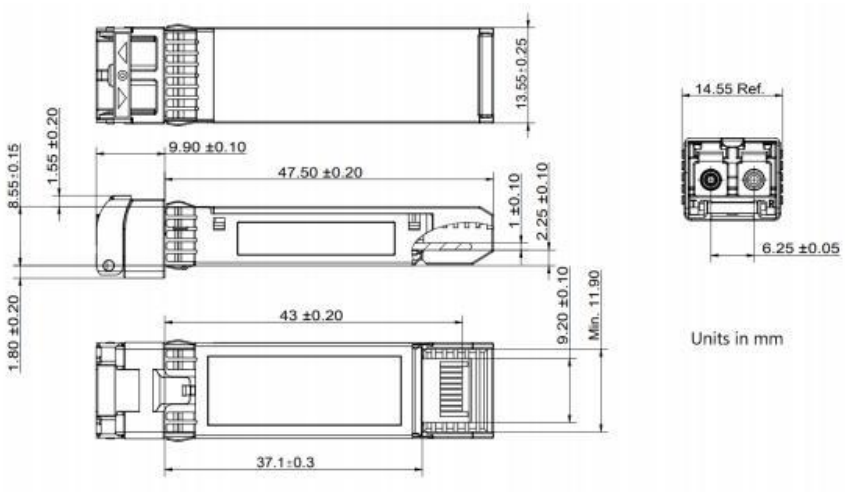
8. Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	V EET	Transmitter Ground (Common with Receiver Ground)	1
2	T FAULT	Transmitter Fault.	2
3	T DIS	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD_ABS	Module Absent. Grounded within the module	4
7	RS0	Rate Select 0	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	6
9	RS1	No connection required	
10	V EER	Receiver Ground (Common with Transmitter Ground)	1
11	V EER	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	V EER	Receiver Ground (Common with Transmitter Ground)	1
15	V CCR	Receiver Power Supply	
16	V CCT	Transmitter Power Supply	
17	V EET	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	V EET	Transmitter Ground (Common with Receiver Ground)	1

9. Technical Figure 1



10. Technical Figure 2



11. Revision History

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