WTS10E4DTx

10G SFP+ Tunable DWDM Transceiver
SMF 40km LC

Part Number
WTS10E4DTI



1. Product Overview

WTS10E4DTx is a hot pluggable 3.3V Small-Form-Factor pluggable tunable SFP+ transceiver module for use in the 9.95Gb/s to 11.3Gb/s single mode high-speed communications equipment. Digital diagnostic functions are available via 2-wire serial interface, as specified in SFF-8431.

Features

- Supports 9.95 to 11.3Gb/s
- Support 40 km link distances
- 50GHz ITU-based channel spacing
- (C-Band) with a wavelength locker
- Monolithic MZM Tunable TOSA
- PIN receiver with limiting amplifier
- Duplex LC connector
- Low power consumption:
- Commercial:<1.8W
- Industrial: <2.5W
- Positive power supply lines: 3.3 V
- Operating case temperature range:

Applications

- DWDM 10Gb/s SONET/SDH
- DWDM 10Gb/s Ethernet
- DWDM 10Gb/s SONET/SDH w/FEC

2. Ordering Information

Part Number	Product Description
WTS10E4DTI	10G SFP+ 40km Tunable transceiver, 50GHz Spacing, 96ch,191.35~196.1 THz (1566.72~1528.77nm), RX PIN, I-TEMP
WTS10E4DTC	10G SFP+ 40km Tunable transceiver, 50GHz Spacing, 96ch,191.35~196.1 THz (1566.72~1528.77nm), RX PIN, C-TEMP

3. Ordering Information

Channel	Wavelength (nm)	Frequency (THZ)	Channel	Wavelength (nm)	Frequency (THZ)
1	1566.72	191.35	50	1546.92	193.8
2	1566.31	191.4	51	1546.52	193.85
3	1565.9	191.45	52	1546.12	193.9
4	1565.5	191.5	53	1545.72	193.95
5	1565.09	191.55	54	1545.32	194
6	1564.68	191.6	55	1544.92	194.05
7	1564.27	191.65	56	1544.53	194.1

Channel	Wavelength (nm)	Frequency (THZ)	Channel	Wavelength (nm)	Frequency (THZ)
8	1563.86	191.7	57	1544.13	194.15
9	1563.45	191.75	58	1543.73	194.2
10	1563.05	191.8	59	1543.33	194.25
11	1562.64	191.85	60	1542.94	194.3
12	1562.23	191.9	61	1542.54	194.35
13	1561.83	191.95	62	1542.14	194.4
14	1561.42	192	63	1541.75	194.45
15	1561.01	192.05	64	1541.35	194.5
16	1560.61	192.1	65	1540.95	194.55
17	1560.2	192.15	66	1540.56	194.6
18	1559.79	192.2	67	1540.16	194.65
19	1559.39	192.25	68	1539.77	194.7
20	1558.98	192.3	69	1539.37	194.75
21	1558.58	192.35	70	1538.98	194.8
22	1558.17	192.4	71	1538.58	194.85
23	1557.77	192.45	72	1538.19	194.9
24	1557.36	192.5	73	1537.79	194.95
25	1556.96	192.55	74	1537.4	195
26	1556.55	192.6	75	1537	195.05
27	1556.15	192.65	76	1536.61	195.1
28	1555.75	192.7	77	1536.22	195.15
29	1555.34	192.75	78	1535.82	195.2
30	1554.94	192.8	79	1535.43	195.25
31	1554.54	192.85	80	1535.04	195.3
32	1554.13	192.9	81	1534.64	195.35
33	1553.73	192.95	82	1534.25	195.4
34	1553.33	193	83	1533.86	195.45
35	1552.93	193.05	84	1533.47	195.5
36	1552.52	193.1	85	1533.07	195.55
37	1552.12	193.15	86	1532.68	195.6
38	1551.72	193.2	87	1532.29	195.65
39	1551.32	193.25	88	1531.9	195.7
40	1550.92	193.3	89	1531.51	195.75
41	1550.52	193.35	90	1531.12	195.8
42	1550.12	193.4	91	1530.72	195.85
43	1549.72	193.45	92	1530.33	195.9
44	1549.32	193.5	93	1529.94	195.95
45	1548.91	193.55	94	1529.55	196
46	1548.51	193.6	95	1529.16	196.05
47	1548.11	193.65	96	1528.77	196.1

Channel	Wavelength (nm)	Frequency (THZ)	Channel	Wavelength (nm)	Frequency (THZ)
48	1547.72	193.7			
49	1547.32	193.75			

4. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Storage Temperature	Tstg	-40	-	85	ºC
Relative Humidity - Storage	RHO	5	-	95	%
Relative Humidity - Operating	RHS	5	-	85	%
Power Supply	VCC	-0.5	-	3.6	V

5. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Units	Notes
Case Operating Temperature		-40	25	85	ºC	Temperature Range = I
Case Operating Temperature		0	25	70	ºC	Temperature Range = C
DC Supply Voltage	VCC	3.14	-	3.46	V	

6. Recommended Operating Conditions

Parameter	Accuracy
Internally Temperature	±3℃
Internally Voltage	±3%
Measured TX Bias	±10%
Measured TX output power	±3dB
Measured RX output power	±3dB

7. Optical Parameters

Parameter	Symbol	Min	Typ	Max	Units	Notes
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Average Output Power	POUT	-1	-	4	dBm	
Optical Wavelength	λ	As per ITU-T 694.1,50GHz	As per ITU-T 694.1,50GHz	As per ITU-T 694.1,50GHz	nm	191.35THz to 196.1THz
Center Wavelength	λc_BOL	z-1.5	z	Z+1.5	GHz	
Center Wavelength	λc_EOL	z-2.5	z	Z+2.5	GHz	
Center Wavelength Spacing		-	50	-	GHz	

Parameter	Symbol	Min	Typ	Max	Units	Notes
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Output Power (Laser Off)	POFF	-	-	-30	dBm	
Extinction ratio	ER	8.2	-	-	dB	
Relative Intensity Noise	RIN	-	-	-128	dB/Hz	
Optical Return Loss Tolerance	ORLT	-	-	20	dB	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Center Wavelength		1260		1600	nm	
Received Sensitivity (Average Power)	PIN	-	-	-16	dBm	Note3
Optical Power Overload	POL	-1	-	-	dBm	
Rx_LOS of Signal Assert	PA	-26	-	-	dBm	
Rx_LOS of Signal De-assert	PD	-	-	-16	dBm	
Rx_LOS of Signal Hysteresis	PHy	0.5	-	6	dB	

8. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Notes
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Differential Data input Swing	VIN		-	900	mV	Refer to CEI-28G_VSR
Input Differential Impedance	Zin	-	100	-	Ω	
Transmitter Disable Voltage	VD	2.0	-	Vcc	V	
Transmitter Enable Voltage	VEN	0	-	0.8	V	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Differential Data Output Swing	VouT	450	600	750	mV	
Output Differential Impedance	Zout	-	100	-	Ω	
LOS Assert Voltage	VLOSA	2.0	-	Vcc	V	
LOS De-assert Voltage	VLOSD	0	-	0.8	V	

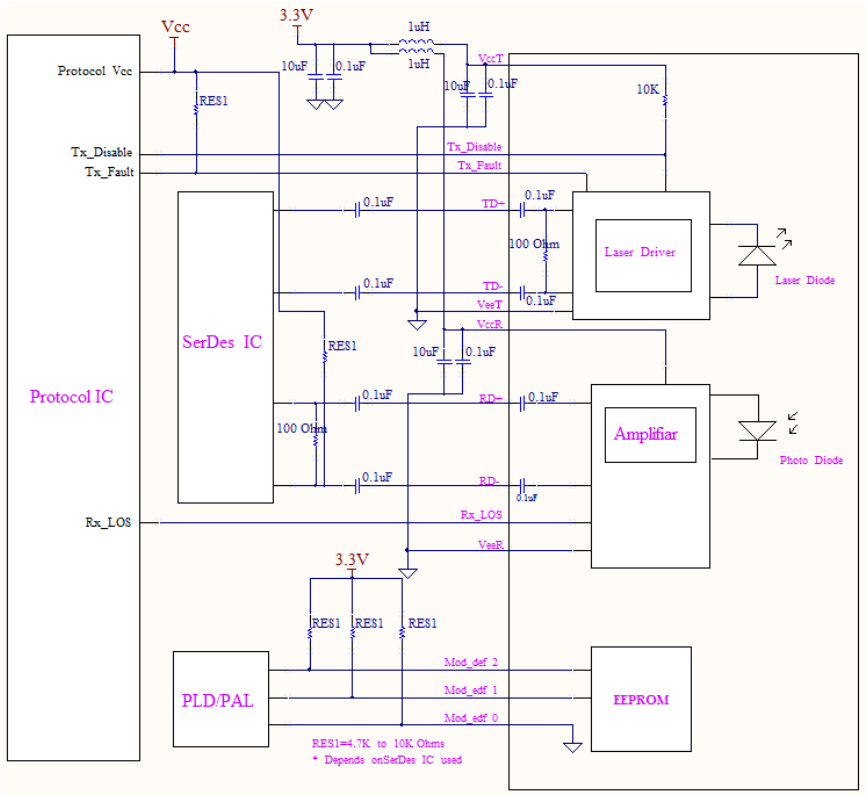
9. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Notes
Time to initialize cooled module	t_start_up_cooled	-	-	90	S	

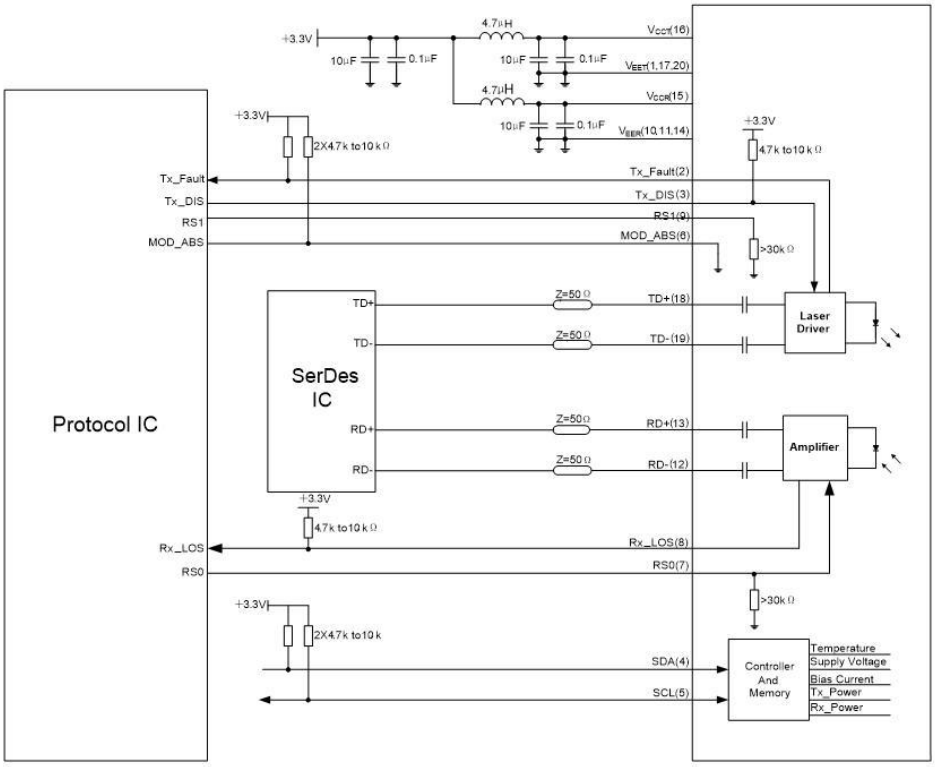
10. Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	Veet	Transmitter Ground (Common with Receiver Ground)	
2	TxFault	Transmitter Fault.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	
4	SDA	2-wire Serial Interface Data Line	
5	SCL	2-wire Serial Interface Clock Line	
6	MOD_ABS	Module Absent. Grounded within the module	
7	RS0	Rate Select 0	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	
9	RS1	No connection required	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
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)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
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)	

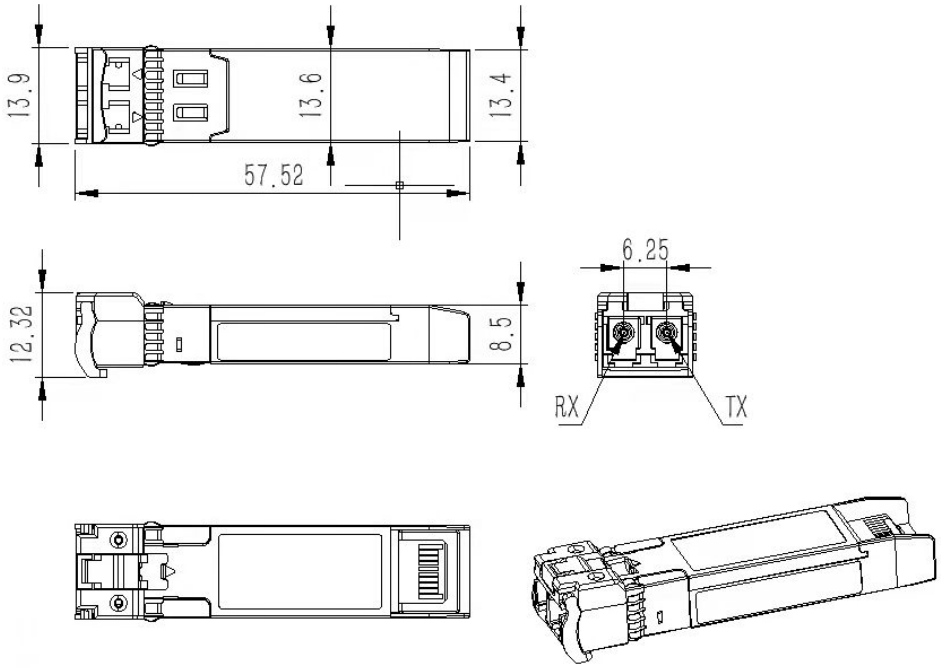
11. Electrical Interface



12. Recommended Interface Circuit



13. Mechanical Specifications



14. Revision History

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