WTS10Z8D (I)

10G SFP+ Transceiver 1550nm SMF 80km LC

Reach 80



1. Product Overview

Features

- Support data rate up to 11.3Gb/s
- Temperature-Stabilized EML Transmitter and APD Receiver
- Hot-Pluggable SFP Footprint and Duplex LC Connector
- Up to 80km reach for G.652 SMF
- Case operating temperature
- Commercial: 0°C to +70°C
- Industrial: -40°C to +85°C

Applications

- 10G Ethernet
- OTU2/2e
- 10G FC
- Other Optical Links

2. Ordering Information

Package	Product part NO.	Data Rate(Gbps)	Media	Transmission Distance(km)	Temperature Range（℃）	Temperature Range（℃）	CDR	Power Dissipation（W）
SFP+	WTS10Z8D	10.3125	SMF	80	0~70	Commercial	NO	＜1.5
SFP+	WTS10Z8DI	10.3125	SMF	80	-40-85	Industrial	NO	＜1.8

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TS	-40	+85	°C
Maximum Supply Voltage	VCC	-0.5	3.6	V
Operating Relative Humidity	RH		95	%

4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Top	0	-	70	ºC	WTS10Z8D
Case Operating Temperature	Top	-40		85	ºC	WTS10Z8DI
Power Supply Voltage	VCC	3.13	3.3	3.47	V	
Data Rate	BR		10.3125	11.3	Gbps	

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmission Distance	TD			80	km	
Coupled fiber	Single mode fiber	Single mode fiber	Single mode fiber	Single mode fiber	Single mode fiber	9/125um SMF

5. Optical Parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Power Budget		23			dB	
Data Rate			10.3125	11.3	Gbps	
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Center Wavelength	λc	1530	1550	1565	nm	
Spectral Width (-20dB)	Δλ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	Pout	0		4	dBm	2
Extinction Ratio	ER	8.2			dB	
Average Power of OFF Transmitter	Poff			-30	dBm	
Relative Intensity Noise	RIN			-128	dB/Hz	3
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Wavelength Range	λC	1270		1610	nm	
Receiver Sensitivity	Pmin			-23	dBm	4
Receiver Overload	Pmax	-6			dBm	
LOS De-Assert	LOSD			-25	dBm	
LOS Assert	LOSA	-35			dBm	
LOS-Hysteresis	Phys	0.5			dB	

6. Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Supply Voltage	Vcc	3.135		3.465	V	
Supply Current (Commercial)	Icc			450	mA	
Supply Current (Industrial）	Icc			540	mA	
Power Consumption (Commercial)	P			1.5	W	
Power Consumption (Industrial)	P			1.8	W	
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
CML Inputs (Differential)	Vin	150		1200	mVpp	1

Parameter	Symbol	Min	Typical	Max	Unit	Note
Input Impedance (Differential)	Zin	85	100	115	ohm	
TX_DIS Disable		2		Vcc+0.3	V	
TX_DIS Enable		0		0.8	V	
TX_FAULT Fault		2		Vcc+0.3	V	
TX_FAULT Normal		0		0.5	V	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
CML Outputs (Differential)	Vout	350		700	mVpp	1
Output Impedance (Differential)	Zout	85	100	115	Ohm	
RX_LOS LOS		2		Vcc+0.3	V	2
RX_LOS Normal		0		0.8	V	2
MOD_DEF (0:2) VoH		2.5			V	With Serial ID
MOD_DEF (0:2) VoL		0		0.5	V	With Serial ID

7. Digital Diagnostics

Parameter	Range	Unit	Accuracy	Calibration
Commercial Temperature	0 to +70	°C	±3°C	Internal / External
Industrial Temperature	-40 to +85	°C	±3°C	Internal / External
Voltage	3.0 to 3.6	V	±3%	Internal / External
Bias Current	30 to 100	mA	±10%	Internal / External
TX Power	0 to +4	dBm	±3dB	Internal / External
RX Power	-23 to -6	dBm	±3dB	Internal / External

8. Digital Diagnostics

Parameter	Symbol	Min.	Typical	Max.	Unit
TX_Disable Assert Time	t_off			100	us
TX_Disable Negate Time	t_on			2	ms
Time to Initialize Include Reset of TX_FAULT	t_int			300	ms
TX_FAULT from Fault to Assertion	t_fault			100	us
TX_Disable Time to Start Reset	t_reset	10			us
Receiver Loss of Signal Assert Time	TA,RX_LOS			100	us
Receiver Loss of Signal Deassert Time	Td,RX_LOS			100	us

Parameter	Symbol	Min.	Typical	Max.	Unit
Rate-Select Chage Time	t_ratesel			10	us
Serial ID Clock Time	t_serial-clock			100	kHz

9. Pin Descriptions

Pin	Symbol	Name/Description	Ref.
1	VeeT	Module transmitter ground	1
2	Tx Fault	Module transmitter fault	2
3	Tx Disable	Transmitter Disable; Turns off transmitter laser output	3
4	SDL	2 wire serial interface data input/output (SDA)	4
5	SCL	2 wire serial interface clock input (SCL)	4
6	MOD-ABS	Module Absent, connect to VeeR or VeeT in the module	4
7	RS0	Rate select0, optionally control SFP+ receiver. When high, input data rate >4.5Gb/ s; when low, input data rate <=4.5Gb/s	5
8	LOS	Receiver Loss of Signal Indication	6
9	RS1	Rate select0, optionally control SFP+ transmitter. When high, input data rate >4.5Gb/s; when low, input data rate <=4.5Gb/s	1
10	VeeR	Module receiver ground	1
11	VeeR	Module receiver ground	1
12	RD-	Receiver inverted data out put	
13	RD+	Receiver non-inverted data out put	
14	VeeR	Module receiver ground	1
15	VccR	Module receiver 3.3V supply	
16	VccT	Module transmitter 3.3V supply	
17	VeeT	Module transmitter ground	1
18	TD+	Transmitter inverted data out put	
19	TD-	Transmitter non-inverted data out put	
20	VeeT	Module transmitter ground	1

10. EEPROM Memory Map

Data Address	Length (Byte)	Name of Length	Description and Contents
Base ID Fields	Base ID Fields	Base ID Fields	Base ID Fields
0	1	Identifier	Type of Serial transceiver (03h=SFP)

Data Address	Length (Byte)	Name of Length	Description and Contents
1	1	Reserved	Extended identifier of type serial transceiver (04h)
2	1	Connector	Code of optical connector type (07=LC)
3-10	8	Transceiver	10G Base-ER
11	1	Encoding	64B/66B
12	1	BR, Nominal	Nominal baud rate, unit of 100Mbps
13-14	2	Reserved	(0000h)
15	1	Length(9um)	Link length supported for 9/125um fiber, units of 100m
16	1	Length(50um)	Link length supported for 50/125um fiber, units of 10m
17	1	Length(62.5um)	Link length supported for 62.5/125um fiber, units of 10m
18	1	Length (Copper)	Link length supported for copper, units of meters
19	1	Reserved	
20-35	16	Vendor Name	SFP vendor name: WincoTek
36	1	Reserved	
37-39	3	Vendor OUI	Order-specific registered OUI
40-55	16	Vendor PN	Part Number: "WTS10Z8D"(ASCII)
56-59	4	Vendor rev	Revision level for part number
60-62	3	Reserved	
63	1	CCID	Least significant byte of sum of data in address 0-62
Extended ID Fields	Extended ID Fields	Extended ID Fields	Extended ID Fields
64-65	2	Option	Indicates which optical SFP signals are implemented (001Ah = LOS, TX_FAULT, TX_DISABLE all supported)
66	1	BR, max	Upper bit rate margin, units of %
67	1	BR, min	Lower bit rate margin, units of %
68-83	16	Vendor SN	Serial number (ASCII)
84-91	8	Date code	WincoTek's Manufacturing date code
92-94	3	Reserved	
95	1	CCEX	Check code for the extended ID Fields (addresses 64 to 94)
Vendor Specific ID Fields	Vendor Specific ID Fields	Vendor Specific ID Fields	Vendor Specific ID Fields
96-127	32	Readable	WincoTek specific date, read only
128-255	128	Reserved	Reserved for SFF-8079

11. EEPROM Memory Map

Data Address	Length (Byte)	Name of Length	Description and Contents
Base ID Fields	Base ID Fields	Base ID Fields	Base ID Fields
00-01	2	Temp High Alarm	MSB at low address
02-03	2	Temp Low Alarm	MSB at low address
04-05	2	Temp High Warning	MSB at low address
06-07	2	Temp Low Warning	MSB at low address
08-09	2	Voltage High Alarm	MSB at low address
10-11	2	Voltage Low Alarm	MSB at low address
12-13	2	Voltage High Warning	MSB at low address
14-15	2	Voltage Low Warning	MSB at low address
16-17	2	Bias High Alarm	MSB at low address
18-19	2	Bias Low Alarm	MSB at low address
20-21	2	Bias High Warning	MSB at low address
22-23	2	Bias Low Warning	MSB at low address
24-25	2	TX Power High Alarm	MSB at low address
26-27	2	TX Power Low Alarm	MSB at low address
28-29	2	TX Power High Warning	MSB at low address
30-31	2	TX Power Low Warning	MSB at low address
32-33	2	RX Power High Alarm	MSB at low address
34-35	2	RX Power Low Alarm	MSB at low address
36-37	2	RX Power High Warning	MSB at low address
38-39	2	RX Power Low Warning	MSB at low address
40-41	2	Optional Laser Temp High Alarm	MSB at low address
42-43	2	Optional Laser Temp Low Alarm	MSB at low address
44-45	2	Optional Laser Temp High Warning	MSB at low address
46-47	2	Optional Laser Temp Low Warning	MSB at low address
48-49	2	Optional TEC Current High Alarm	MSB at low address
50-51	2	Optional TEC Current Low Alarm	MSB at low address
52-53	2	Optional TEC Current High Warning	MSB at low address
54-55	3	Optional TEC Current Low Warning	MSB at low address
Calibration Constants for External Calibration Option	Calibration Constants for External Calibration Option	Calibration Constants for External Calibration Option	Calibration Constants for External Calibration Option
56-91	36	Calibration Constants for External Calibration Option	Refer to the SFP 8472 Rev12.4
92-94	3	Reserved	
95	1	Checksum	Byte 95 contains the low order 8 bits of the sum of bytes 0-94
Real Time Diagnostic and Control Registers	Real Time Diagnostic and Control Registers	Real Time Diagnostic and Control Registers	Real Time Diagnostic and Control Registers
96-110	15	A/D Values and Status Bits	Refer to the SFP 8472 Rev12.4

Data Address	Length (Byte)	Name of Length	Description and Contents
111	1	Reserved	Reserved (was assigned to SFF-8079).
Alarm and Warning Flag Bits	Alarm and Warning Flag Bits	Alarm and Warning Flag Bits	Alarm and Warning Flag Bits
112-117	6	Optional Alarm and Warning Flag Bits	Refer to the SFP 8472 Rev12.4
Extended Module Control/Status Bytes	Extended Module Control/Status Bytes	Extended Module Control/Status Bytes	Extended Module Control/Status Bytes
118-119	2	Extended Module Control/Status Bytes	Refer to the SFP 8472 Rev12.4
Optional Page Select Byte	Optional Page Select Byte	Optional Page Select Byte	Optional Page Select Byte
120-126	7	Vendor Specific	Vendor specific memory addresses
127	1	Optional Page Select	Defines the page number for subsequent reads and writes to locations A2h
User Accessible EEPROM Locations	User Accessible EEPROM Locations	User Accessible EEPROM Locations	User Accessible EEPROM Locations
128-247	120	User EEPROM	User writable EEPROM
Vendor Specific Control Function Locations	Vendor Specific Control Function Locations	Vendor Specific Control Function Locations	Vendor Specific Control Function Locations
248-255	8	Vendor Specific	Vendor specific control functions

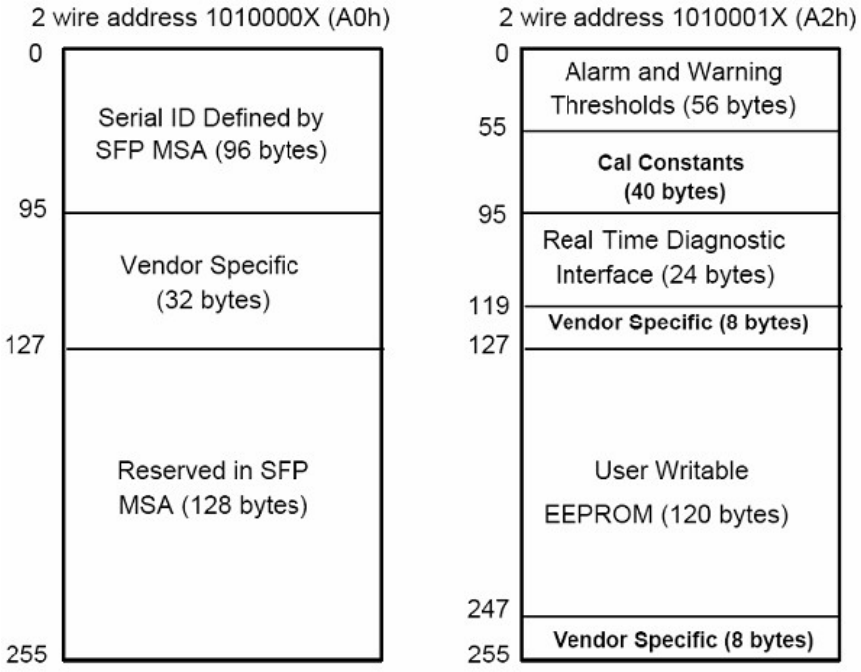
12. Regulatory Compliance

Feature	Reference	Performance
ROHS	Available on request	Compatible with standards
EMC CE	Available on request	Compatible with standards
FCC	Available on request	Compatible with standards

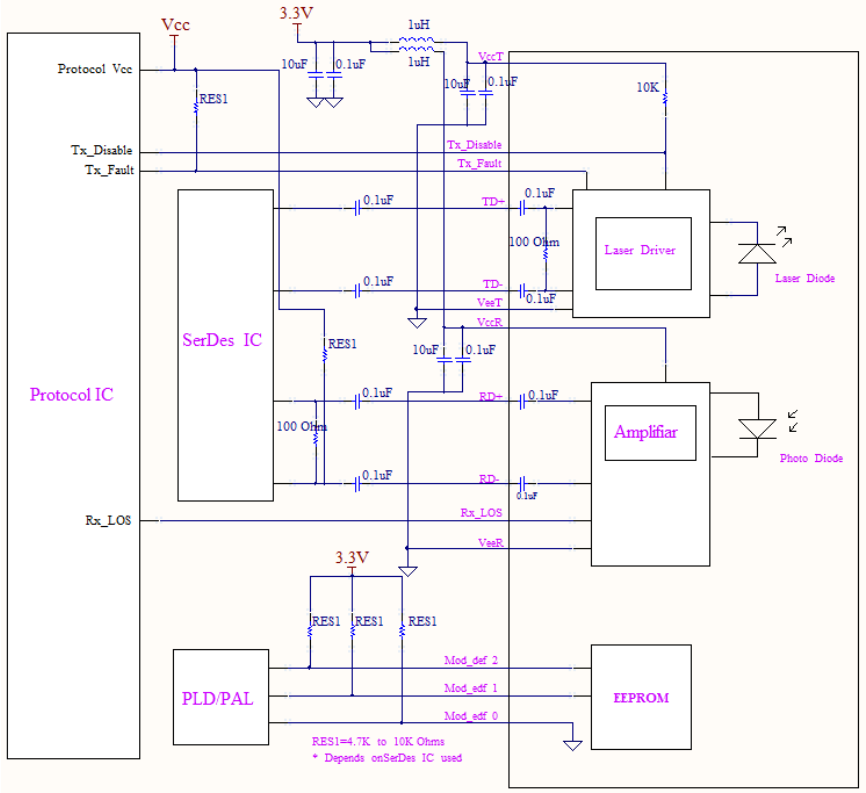
13. Revision History

Version No.	Date	Description
1.0	March 19, 2021	Specification datasheet

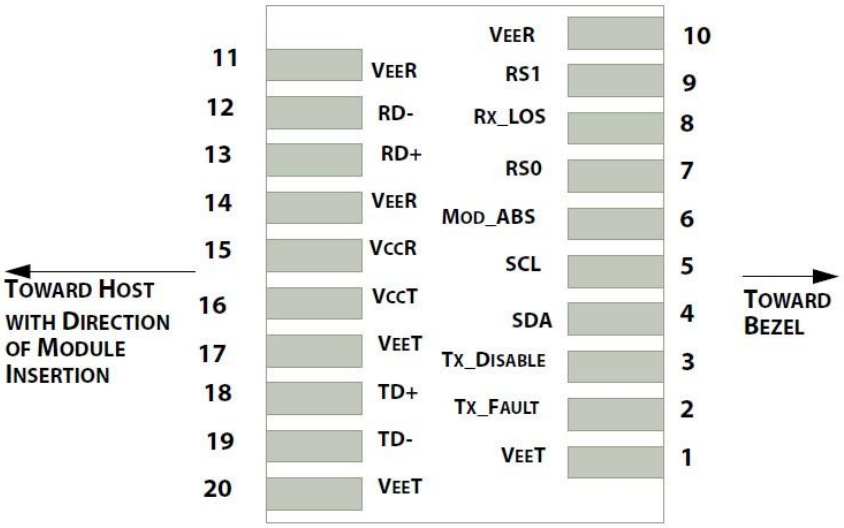
14. Digital Diagnostics Memory Map



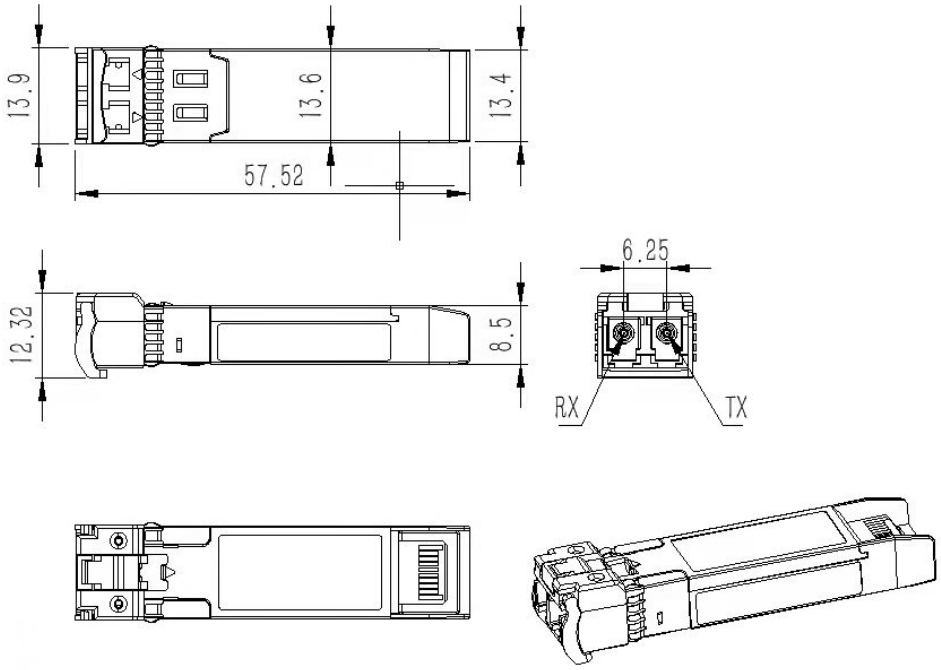
15. Electrical Interface



16. Pin Diagram



17. Mechanical Specifications



18. Revision History

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