WTE01TP1(2)(3) PX20+/++/+++

1.25G EPON OLT PX20+/++/+++ SFP Transceiver T14/R13 20km SC



1. Product Overview

The WTE01TPx transceiver with supports data rate of typical 1.25 Gbps for GEPON OLT application up to 20km transmission distance, it's designed meeting with China Telecom EPON equipment technical requirement V2.1 1000BASE-PX20+/++/+++ specifications. SC receptacle is for optical interface.

Fig 1 Transceiver Block Diagram

The module provides digital diagnostic information of its operating conditions and status, including transmitting power, laser bias, receiver input optical power, module temperature, and supply voltage. Calibration and alarm/warning threshold data are written and stored in internal memory (EEPROM). The memory map is compatible with SFF-8472, as shown in Fig. 2. The diagnostic data are raw A/D values and must be converted to real world units using calibration constants stored in EEPROM locations 56 – 95 in A2h.

Fig 2 EEPROM Information

Features

- SC BIDI SFP Single Mode Transceiver
- Compliant with SFP MSA and SFF-8472
- Single +3.3 Power Supply, Hot-pluggable
- Complies with Telcordia (Bellcore) GR-468-CORE
- Class I laser safety standard IEC-60825 compliant
- 1490nm Continuous Mode Transmitter and 1310nm Burst Mode APD-TIA Receiver
- Typical data rate 1.25 Gbps, Maximal reach 20km
- Comply with China Telecom EPON equipment technical requirement V2.1 1000BASE-PX20+/++/+++

Applications

- GEPON OLT for P2MP Application

2. Absolute Maximum Ratings

Absolute Maximum Ratings	Absolute Maximum Ratings	Absolute Maximum Ratings	Absolute Maximum Ratings	Absolute Maximum Ratings	Absolute Maximum Ratings
Parameter	Symbol	Min.	Max.	Unit	Note
Storage Temperature	Tst	-40	+85	°C	
Operating Case Temperature	Tc	0	70	°C	
Input Voltage	-	GND	Vcc	V	
Power Supply Voltage	Vcc-Vee	-0.5	+3.6	V	

3. Recommended Operating Conditions

Recommended Operating Conditions	Recommended Operating Conditions	Recommended Operating Conditions	Recommended Operating Conditions	Recommended Operating Conditions	Recommended Operating Conditions	Recommended Operating Conditions
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Operating Case Temperature	Tc	0	-	70	°C	
Data Rate	DR	-	1.25	-	Gbps	
Total Supply Current	-	-	-	400	mA	
Damage Threshold for Receiver	-	-	-	4	dBm	

4. Recommended Operating Conditions

Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Optical Central Wavelength		1480	1490	1500	nm	-
Spectral Width (-20dB)		-	-	1	nm	-
Side Mode Suppression Ratio	SMSR	30	-	-	dB	-
Average Optical Output Power	Po	+2	+3.5	+5.5	dBm	WTE01TP1
Average Optical Output Power	Po	+3.5	+5	+7	dBm	WTE01TP2
Average Optical Output Power	Po	+5	+7	+10	dBm	WTE01TP3
Extinction Ratio	Er	9	-	-	dB	-
Rise/Fall Time	Tr/Tf	-	-	260	ps	-
Transmitter Total Jitter	Jp-p	-	-	344	ps	
Transmitter Reflectance	RFL	-	-	-12	dB	
Average Lauched Power of Off Transmitter	Poff	-	-	-39	dBm	-
Differential Input Voltage	VIN-DIF	300	-	1600	mV	-
Tx Disable Input Voltage-Low	VIL	0	-	0.8	V	-
Tx Disable Input Voltage-High	VIH	2.0	-	Vcc	V	-
Output Eye	Compliant with IEEE 802.3ah-2004	Compliant with IEEE 802.3ah-2004	Compliant with IEEE 802.3ah-2004	Compliant with IEEE 802.3ah-2004	Compliant with IEEE 802.3ah-2004	Compliant with IEEE 802.3ah-2004
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operate Wavelength	-	1260	1310	1360	nm	-

Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Sensitivity	Pr	-	-	-28	dBm	WTE01TP1
Sensitivity	Pr	-	-	-30	dBm	WTE01TP2/3
Saturation	Ps	-8	-	-	dBm	WTE01TP1
Saturation	Ps	-10	-	-	dBm	WTE01TP2/3
LOS assert Level	-	-45	-	-	dBm	-
LOS De-Assert Level	-	-	-	-30	dBm	-
LOS Hysteresis	-	0.5	-	5	dB	-
Receiver Optical Reflectance	-	-	-	-12	dB	-
Data Output Low	Vol	-2	-	-1.58	V	-
Data Output High	Voh	-1.1	-	-0.74	V	-
LOSOutput Voltage-Low	VSD-L	0	-	0.8	V	-
LOS Output Voltage-High	VSD-H	2.0	-	Vcc	V	

5. Recommended Operating Conditions

Addr. (decimal)	Field Size (Bytes)	Name of Field	Content (Hex)	Content (Decimal)	Description
0	1	Identifier	03	3	SFP
1	1	Ext. Identifier	04	4	MOD4
2	1	Connector	01	1	SC
3-10	8	Transceiver	00 00 00 80 00 00 00 00	00 00 00 128 00 00 00 00	EPON
11	1	Encoding	01	1	8B10B
12	1	BR, nominal	0C	12	1.25Gbps
13	1	Reserved	00	0	-
14	1	Length (9um)-km	14	20	20/km
15	1	Length (9um)	C8	200	20km
16	1	Length (50um)	00	0	-
17	1	Length (62.5um)	00	0	-
18	1	Length (copper)	00	0	-
19	1	Reserved	00	0	-
20-35	16	Vendor name	57 69 6E 63 6F 54 65 6B 20 20 20 20 20 20 20 20	87 105 110 99 111 84 101 107 32 32 32 32 32 32 32 32	'WincoTek' (ASCII)
36	1	Reserved	00	0	-
37-39	3	Vendor OUI	00 00 00	0 0 0	-
40-55	16	Vendor PN	57 54 45 30 31 54 50 31 20 20 20 20 20 20 20 20	87 84 69 48 49 84 80 49 32 32 32 32 32 32 32 32	WTE01TP1 (ASCII); 16-byte PN varies with ordered WT grade
			20 20	83 xx 32 32	
56-59	4	Vendor rev	30 30 30 20	48 48 48 32	“000” (ASCII)
60-61	2	Wavelength	05 D2	05 210	1490

Addr. (decimal)	Field Size (Bytes)	Name of Field	Content (Hex)	Content (Decimal)	Description
62	1	Reserved	00	0	-
63	1	CC BASE	-	-	Check sum of bytes 0 - 62
64	1	Reserved	00	0	
65	1	Options	1A	26	
66	1	BR, max	00	0	-
67	1	BR, min	00	0	-
68-83	16	Vendor SN	-	-	ASCII
84-91	8	Vendor date	-	-	Year (2 bytes), Month (2 bytes), Day (2 bytes)
92	1	DDM Type	68	104	Internal Calibrated
93	1	Enhanced Option	B0	176	LOS, TX_FAULT and Alarm/warning flags implemented
94	1	SFF-8472 Compliance	03	3	SFF-8472 Rev 10.3
95	1	CC EXT	-	-	Check sum of bytes 64 - 94
96-255	160	Vendor spec			

6. Recommended Operating Conditions

Parameter	Unit	Accuracy	Range	Calibration
Tx Optical Power	dB	±3	Po: -Pomin~Pomax dBm, Recommended operation conditions	External/Internal
Rx Optical Power	dB	±3	Pi: Ps~Pr dBm, Recommended operation conditions	External/Internal
Bias Current	%	±10	Id: 1-100mA, Recommended operating conditions	External/Internal
Power Supply Voltage	%	±3	Recommended operating conditions	External/Internal
Internal Temperature	℃	±3	Recommended operating conditions	External/Internal

7. Optical Parameters

Pin No.	Name	Function	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	
2	Tx Fault	Transmitter Fault Indication	3	Note 1
3	Tx Disable	Transmitter Disable	3	Note 2
4	MOD-DEF2	Module Definition 2	3	Note 3
5	MOD-DEF1	Module Definition 1	3	Note 3
6	MOD-DEF0	Module Definition 0	3	Note 3

Pin No.	Name	Function	Plug Seq.	Notes
7	RSSI_Trigg	Receiver Signal Strength Indication	3	
8	LOS	Los Of Signal	3	Note 4
9	VeeR	Receiver Ground	1	Note 5
10	VeeR	Receiver Ground	1	Note 5
11	VeeR	Receiver Ground	1	Note 5
12	RD-	Inv. Receiver Data Out	3	Note 6
13	RD+	Receiver Data Out	3	Note 6
14	VeeR	Receiver Ground	1	Note 5
15	VccR	Receiver Power Supply	2	Note 7, 3.3V□ 5%
16	VccT	Transmitter Power Supply	2	Note 7, 3.3V□ 5%
17	VeeT	Transmitter Ground	1	Note 5
18	TD+	Transmitter Data In	3	Note 8
19	TD-	Inv.Transmitter Data In	3	Note 8
20	VeeT	Transmitter Ground	1	Note 5

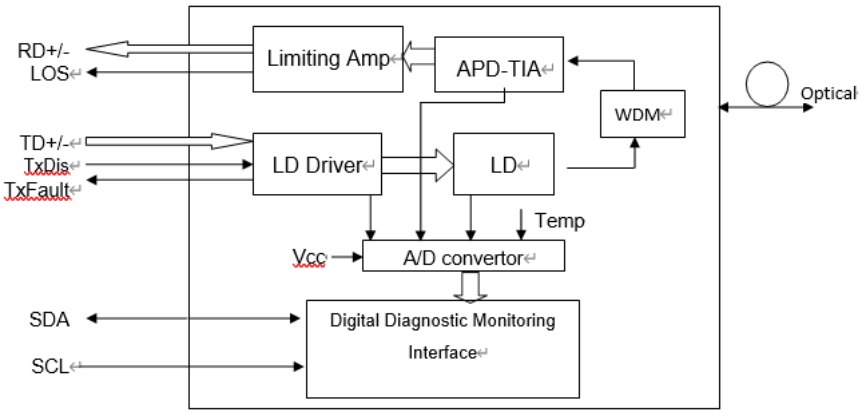
8. Additional Specifications

Parameter (Unit)	C Temp (℃)	Voltage (V)	Bias (mA)	TX Power (dBm)	TX Power (dBm)	TX Power (dBm)	RX Power (dBm)	RX Power (dBm)	RX Power (dBm)
High Alarm	100	3.6	80	+5.5	+7	+8	-8	-10	-10
Low Alarm	-10	3	1	+2	+3.5	+5	-28	-30	-30
High Warning	95	3.5	70	+5	+6	+7.5	-9	-11	-11
Low Warning	0	3.1	2	+2.5	+4	+6	-27	-29	-29

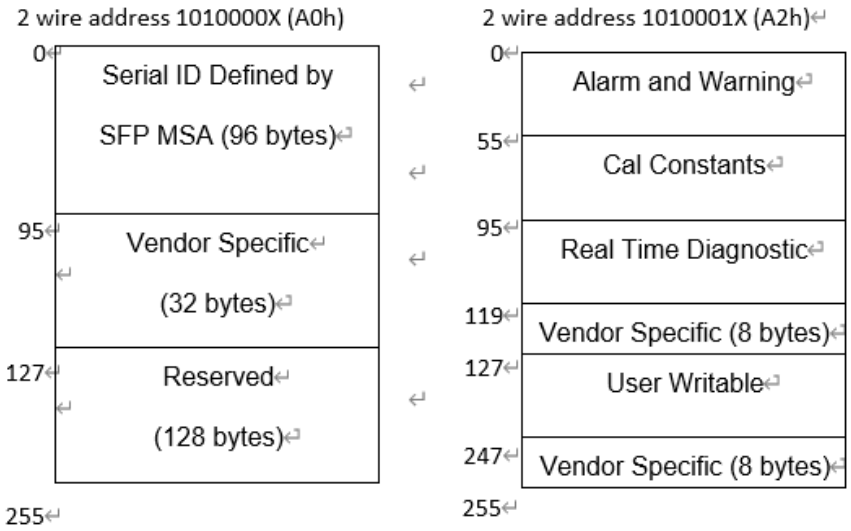
9. Additional Specifications

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Packet Length	-	600	-	-	ns
Trigger delay	Td	100	-	-	ns
RSSI Trigger and Sample Time	Tw	500	-	-	ns
Internal delay	Ts	500	-	-	us

10. Technical Figure 1



11. Technical Figure 2



12. Revision History

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