10PT-XXTXR-P3C-O

10GEPON Symmetric OLT PR30 XFP Transceiver

Features

- Single fiber bi-directional data links TX 10.3125Gbps, Burst Mode RX 10.3125Gbps application
- 0 to 70°C operating case temperature
- 3.3V, 5V pow er supply
- XFP package with SC receptacle connector
- Hot-pluggable capability
- High pow er 1577nm EML LD and high sensitivity 1270nm APD
- Support 20km transmission distance with SMF
- RX_LOS indication
- Low EMI and excellent ESD protection
- Digital diagnostic monitor interface
- RoHS6 compliance

Applications

- Symmetric 10GEPON OLT

Standards

- Complies with INF-8077i
- Complies with IEEE 802.3av
- Complies with FCC 47 CFR Part 15, Class B
- Complies with FDA 21 CFR 1040.10 and 1040.11

Absolute Maximum Ratings

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Storage Ambient Temperature	TSTG	-40	85	°C	
Operating Case Temperature	Tc	0	70	°C	
Operating Humidity	OH	5	95	%	
VCC3 Pow er Supply Voltage	VCC3	-0.5	3.6	V	
VCC5 Pow er Supply Voltage	VCC5	-0.5	5.5	V	

Recommended Operating Environment

Table 2 - Recommended Operating Environment

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0		+70	°C	
VCC3 Pow er Supply Voltage	VCC3	3.13	3.3	3.47	V	
VCC5 Pow er Supply Voltage	VCC5	4.75	5	5.25	V	
VCC3 Pow er Supply Current	ICC3		-	800	mA	
VCC5 Pow er Supply Current	ICC5		-	300	mA	
Date Rate			10.3125		Gbps	
Date Rate Drift		-100		+100	PPM	

Transmitter Optical Characteristics

Table 3-10GEPON Transmitter Optical Characteristics

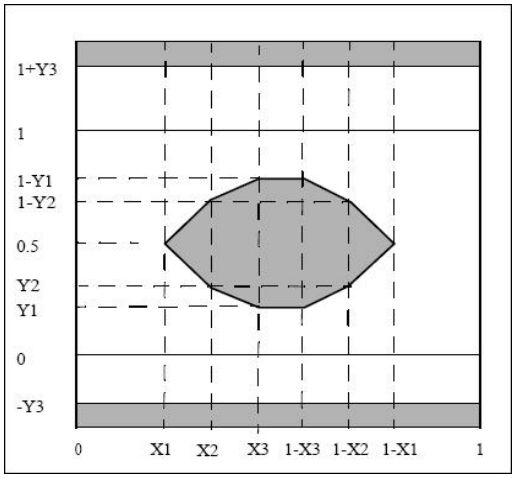
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical Center Wavelength	λC	1575		1580	nm	
Optical Spectrum Width (-20dB)	Δλ	-	-	1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Launch Optical Power	AOP	+2		+5	dBm	Launched into SMF
Pow er-OFF Transmitter Optical Power				-39	dBm	Launched into SMF
Extinction Ratio	ER	6			dB	PRBS231-1 @10.3125G bps
Total Jitter	TJ			0.39	UI	PRBS231-1 @10.3125G bps
RIN15OMA				-128	dB/Hz	
Transmitter Reflectance				-10	dB	
Transmitter and Dispersion Penalty	TDP			1.5	dB	Transmit on 20km SMF
Optical Waveform Diagram	Compliant w ith IEEE Std 802.3av					Figure 1, Mask Margin>5%

Transmitter Electrical Characteristics

Table 4-10GEPON Transmitter Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Data Input Differential Swing		120		850	mV	CML input, AC coupled
Input Differential		90	100	110	Ω	

Impedance						
Transmitter Disable Voltage - Low		0		0.8	V	
Transmitter Disable Voltage - High		2.0		VCC	V	



Transmitter Eye Mask Definitions and Test Procedure

X1	X2	X3	Y1	Y2	Y3	Unit
0.25	0.40	0.45	0.25	0.28	0.40	UI

Receiver Optical Characteristics

Table 5-10GEPON Receiver Optical Characteristics

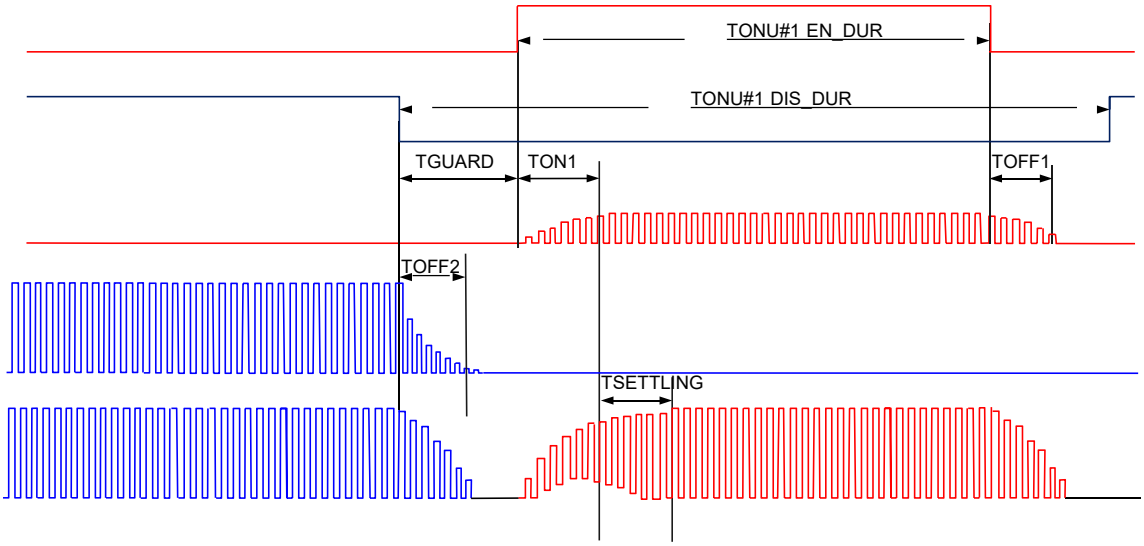
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Wavelength		1260		1280	nm	
Sensitivity	SEN			-28	dB	PRBS231-

						r1@10.3125G bps BER ≤1×10-3
Saturation Optical Pow er	SAT	-6			dBm	PRBS231-1@10.3125Gbps BER ≤1×10-3
LOS De-Assert Level				-29	dBm	
LOS assert Level		-44			dBm	
Hysteresis		0.5		6	dB	
Receiver Reflectance				-12	dB	

Receiver Electrical Characteristics

Table 6-10GEPON Receiver Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Receiver Threshold Settling Time	TSETTLING			800	ns	
Data Output Differential Swing		340		850	mV	
Loss of Signal Assert Time			0.5		μs	
Loss of Signal De-assert Time			0.5		μs	
Loss of Signal Voltage - Low		0		0.4	V	
Loss of Signal Voltage - High		2.4		VCC	V	

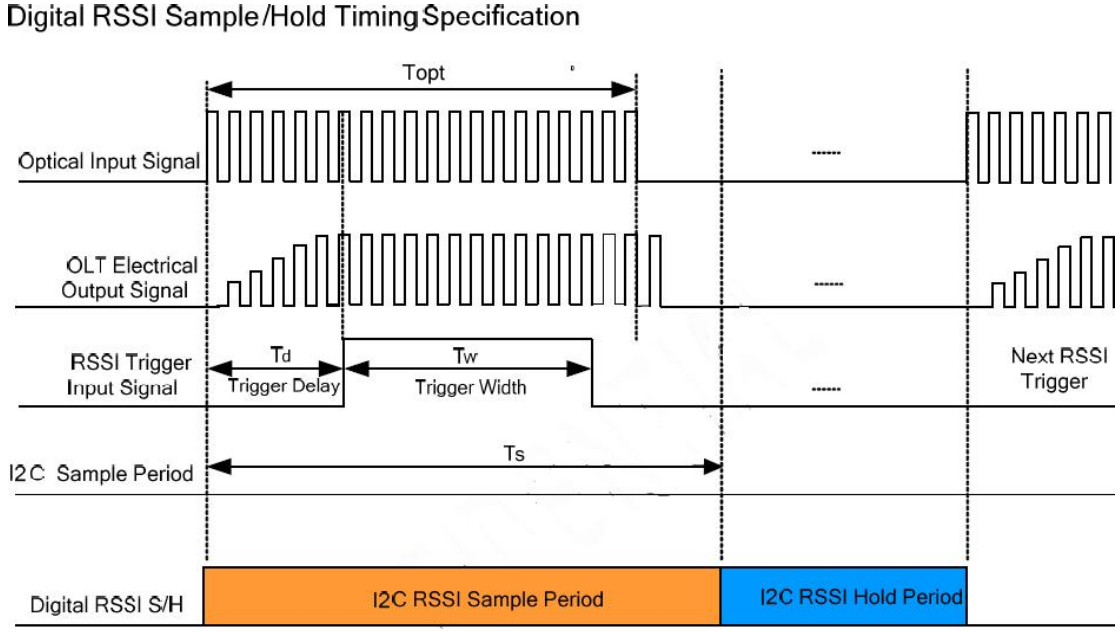


Timing Parameter Definitions in Burst More Sequence

Receiver Electrical Characteristics

Table 7- Receiver Electrical Characteristics

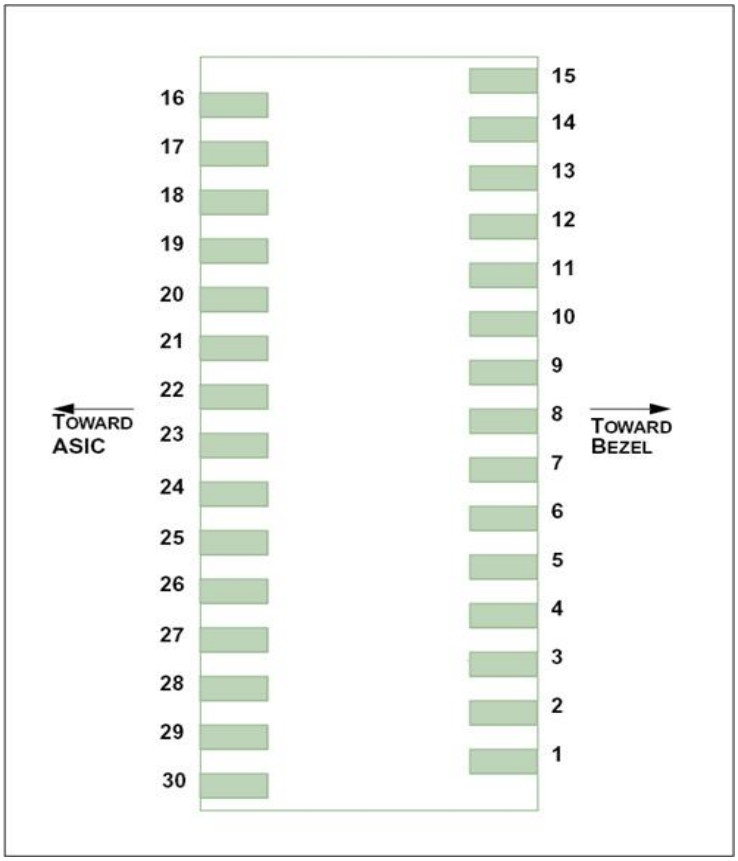
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical Signal During Time	Top t		1500		ns	
RSSI Trigger width	TW		500		ns	
RSSI Trigger Delay	TD		300		ns	
I^2C Access Prohibited Time				500	µs	



RSSI Timing Sequence

Pin Assignment

Pin Out Drawing



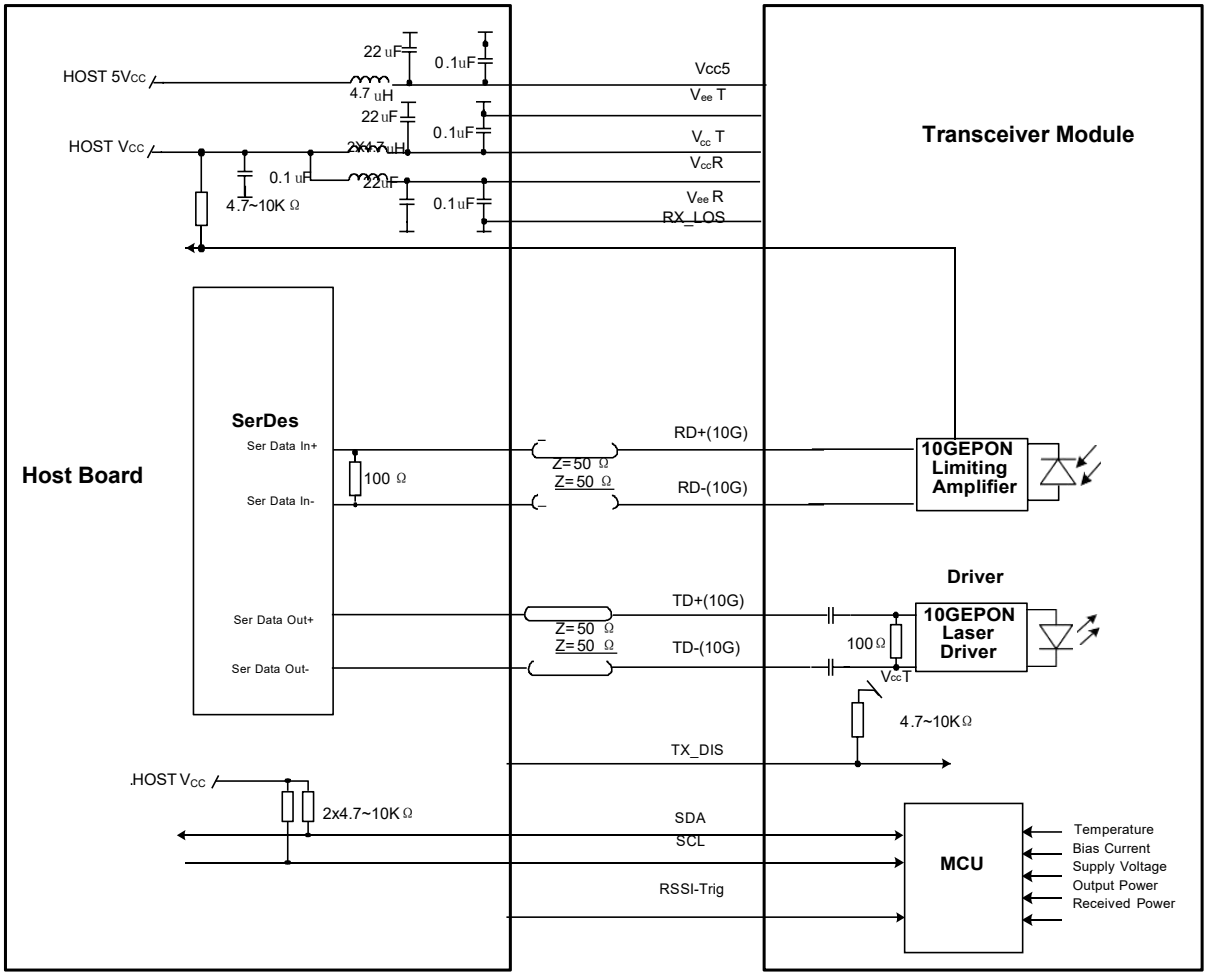
Pin Descriptions

Table 8-Pin Descriptions

Pin	Name	Description	Note
1	GND	Module Ground	
2	NC	Not connected	
3	GND	Module Ground	
4	NC	Not connected	
5	TX_DIS	Transmitter Disable	LVTTL Input, Low : transmitter on
6	VCC5	+5V Pow er Supply	
7	GND	Module Ground	
8	VCC3_ TX	Transmitter 3.3V Pow er Supply	
9	VCC3_ RX	Receiver 3.3V Pow er Supply	
10	SCL	The clock line	The clock line of two wire serial interface
11	SDA	The data line	The data line of two w ire serial interface
12	MOD_ ABS	Indicates Module is not present.	Grounded in the Module
13	NC	Not connected	
14	LOS	LOS Indication	LVTTL output, active high w hen the receiver lost signal
15	GND	Module Ground	
16	GND	Module Ground	
17	RD_10 G_N	Inverted 10G Received Data Out	CML output, DC coupled
18	RD_10 G_P	Non-inverted 10G Received Data Out	CML output, DC coupled
19	GND	Module Ground	
20	NC	Not connected	
21	NC	Not connected	
22	N.C.	Not be Connected in the transceiver	

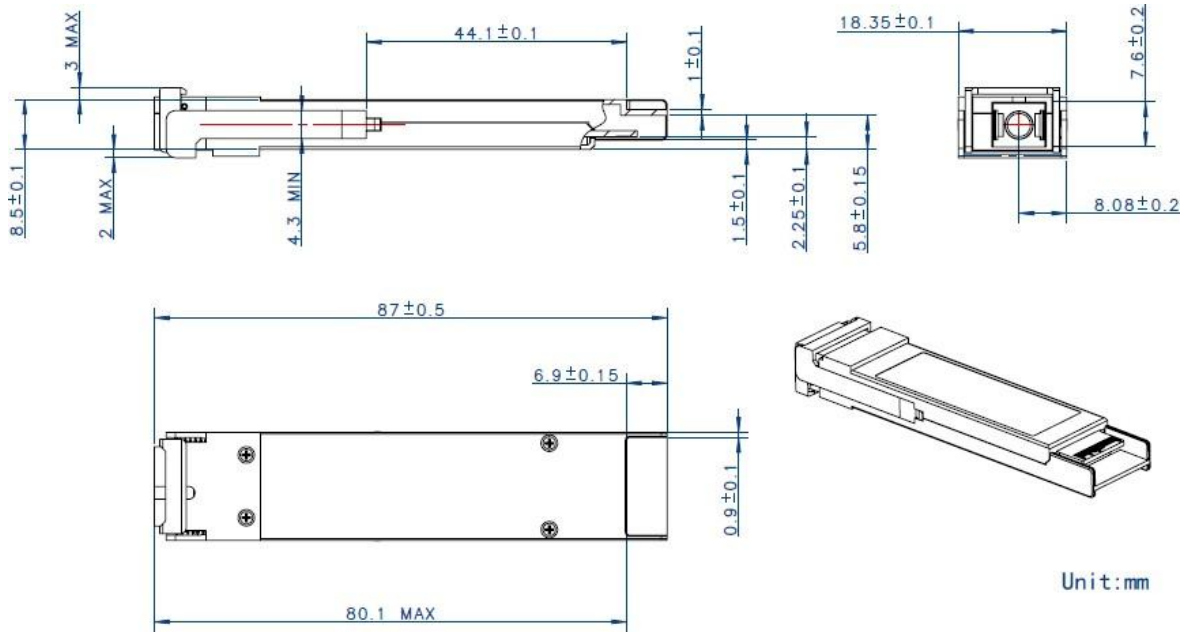
23	RSSI_TRIG	RSSI Trigger for Transceiver	RSSI Trigger
24	N.C.	Not be Connected in the transceiver	
25	N.C.	Not be Connected in the transceiver	
26	N.C	Not be Connected in the transceiver	
27	GND	Module Ground	
28	TX_10G_N	Inverted Transmit Data in	CML input, AC coupled
29	TX_10G_P	Non-Inverted Transmit Data in	CML input, AC coupled
30	GND	Module Ground	

Typical Interface Circuit

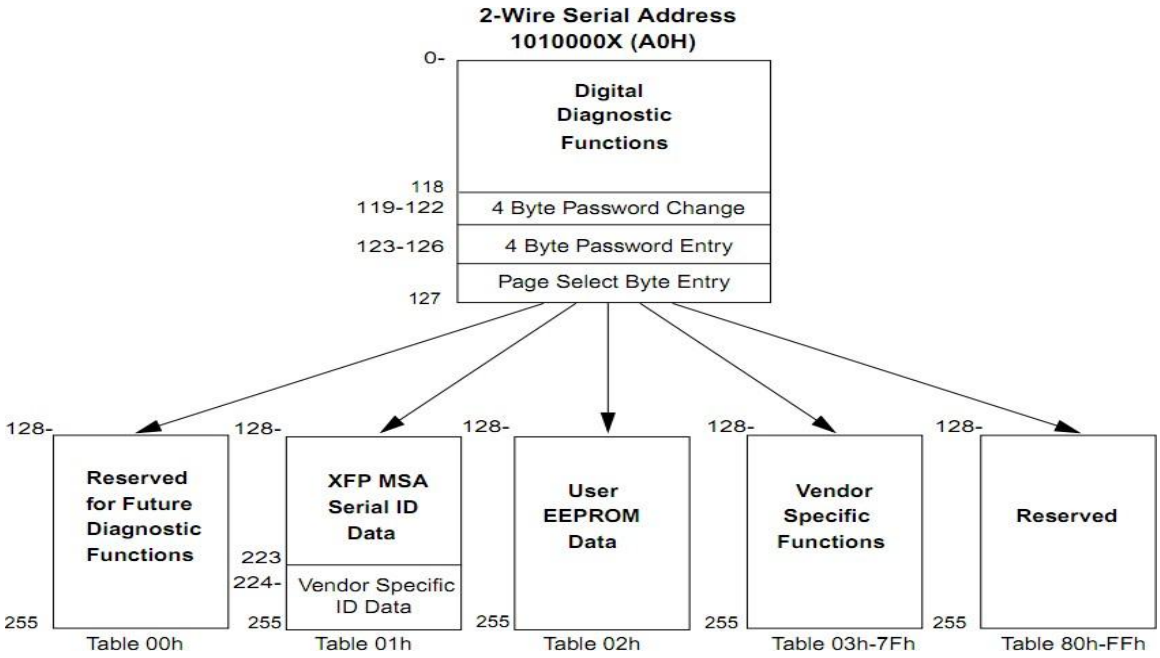


Typical Interface Circuit

Package Outline



EEPROM Information



EEPROM Memory Map Specific Data Field Descriptions

Digital Diagnostic Monitoring Interface

Table 9-Digital Diagnostic Monitoring Interface

Parameter	Range	Accuracy	Calibration	NOTES
Temperature	0 to 70°C	±3°C	Internal	LSB: 1/256C
Voltage	2.97 to 3.63V	±10%	Internal	LSB: 0.1mV
Bias Current	0 to 130mA	±10%	Internal	LSB: 2uA
TX Pow er	2 to 5dBm	±3dB	Internal	LSB: 0.1uW
RX Pow er monitor	-30 to -6dBm	±3dB	Internal	LSB: 0.1uW

Ordering information

Table 10- Ordering information

Part Number	Product Description
10PT-XXTXR-P3C-O	Symmetric 10GEPON OLT XFP，without 1G TX/RX , 1577T/1270R, SC, PR30, 0 ~ +70ºC, with DDM

E-mail: sales@ascentoptics.com

Web : http://www.ascentoptics.com