

## GPON OLT C+ SFP 1490/1310nm 20km Optical Transceiver

### GNTP-4321S-C2CDB/GNTP-4321S-C2TDB

#### Product Features

- Support ITU-T G.984.2 GPON OLT C+ application
- Single fiber bi-directional data links with symmetric 2.488Gbps Tx and 1.244Gbps Rx
- 1490nm continuous-mode transmitter with DFB LD
- 1310nm burst-mode receiver with APD-TIA
- 2-wire interface for integrated digital diagnostic Monitoring
- Receiver RESET, Signal Detect, RSSI function indication (RESET, RX\_SD, RSSI)
- SFP package with SC/UPC receptacle optical interface
- Single +3.3V power supply
- Operation case temperature -40~85°C for industrial and 0~70°C for commercial
- RoHS6 compliance

#### Operating Condition

Parameter	Unit	Min.	Typical	Max.
Storage Temperature	°C	-40		85
Operating Case Temp for C-temp	°C	0		70
Operating Case Temp for I-temp	°C	-40		85
Operating Relative Humidity	%	5		95
Power Supply Voltage	V	3.15	3.3	3.45
Supply Current	mA			600
Bit Rate for Tx	Gbps		2.488	
Bit Rate for Rx	Gbps		1.244	

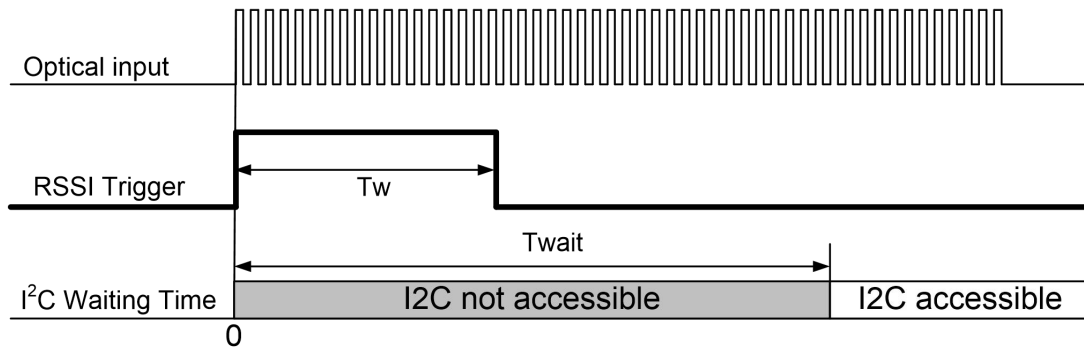
#### Characteristics

All performance is specified at whole working temperature and conditions

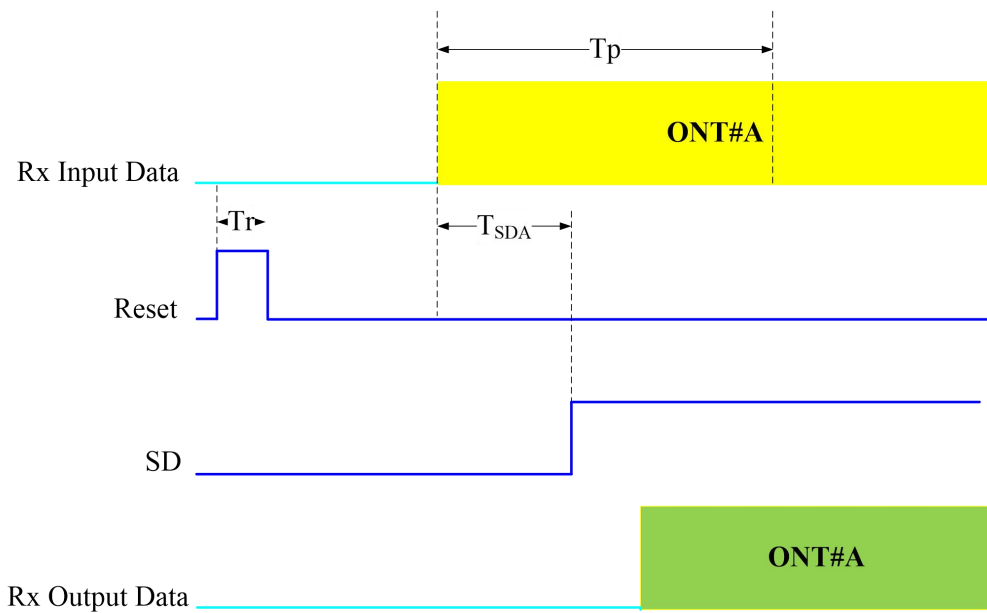
Parameter	Unit	Min.	Typical	Max.
<b>Transmitter</b>				
TX Central Wavelength	nm	1480	1490	1500
Spectral Width (-20dB)	nm			1
Side Mode Suppression Ratio (SMSR)	dB	30		
Mean Launched Power	dBm	3		7
Mean Launched Power (TX Off)	dBm			-45
Extinction Ratio	dB	8.2		
Optical Return Loss Tolerance	dB	-12		

Transmitter and dispersion Penalty	dB			1
Transmitter Mask(PRBS <sup>23</sup> -1@2.488G)	Compliant With ITU-T G.984.2			
<b>Receiver</b>				
Receive Wavelength	nm	1290	1310	1330
Sensitivity (PRBS <sup>23</sup> -1@1.244G,ER=10,BER<10 <sup>-10</sup> )	dBm			-30
Overload (PRBS <sup>23</sup> -1@1.244G,ER=10,BER<10 <sup>-10</sup> )	dBm	-12		
Receiver Burst Mode Dynamic Range	dB	15		
Damage Threshold for Receiver	dBm	5		
SD Assert Level	dBm			-33
SD De-assert Level	dBm	-45		
SD Hysteresis	dB	0.5		6
WDM Filter isolation to 1550nm	dB	38		
WDM Filter isolation to 1650nm	dB	35		
<b>Electrical Interface Characteristics</b>				
Data Input Swing Differential/TX	mV	200	-	2000
Data Output Swing Differential/RX	mV	400		1600
Date Differential Impedance	Ω	90	100	110
LVTTL Output High	V	2.4		V <sub>cc</sub>
LVTTL Output Low	V	0		0.4
LVTTL Input High	V	2.0		V <sub>cc</sub> +0.3
LVTTL Input Low	V	0		0.8
<b>Timing Characteristics</b>				
Guard Time (T <sub>g</sub> )	ns	25.6		
Reset Pulse Width (T <sub>r</sub> )	ns			12.8
Reset Delay (T <sub>rd</sub> )	ns			12.8
Receiver Preamble Time (T <sub>p</sub> )	ns			140
SD Assert Time (T <sub>SDA</sub> )	ns			100
SD De-assert Time (T <sub>SDD</sub> )	ns			12.8
RSSI Trigger Delay (T <sub>td</sub> )	ns	25		
RSSI Trigger Pulse Width (T <sub>w</sub> )	ns	500		
Internal I2C Delay (T <sub>wait</sub> )	us			500

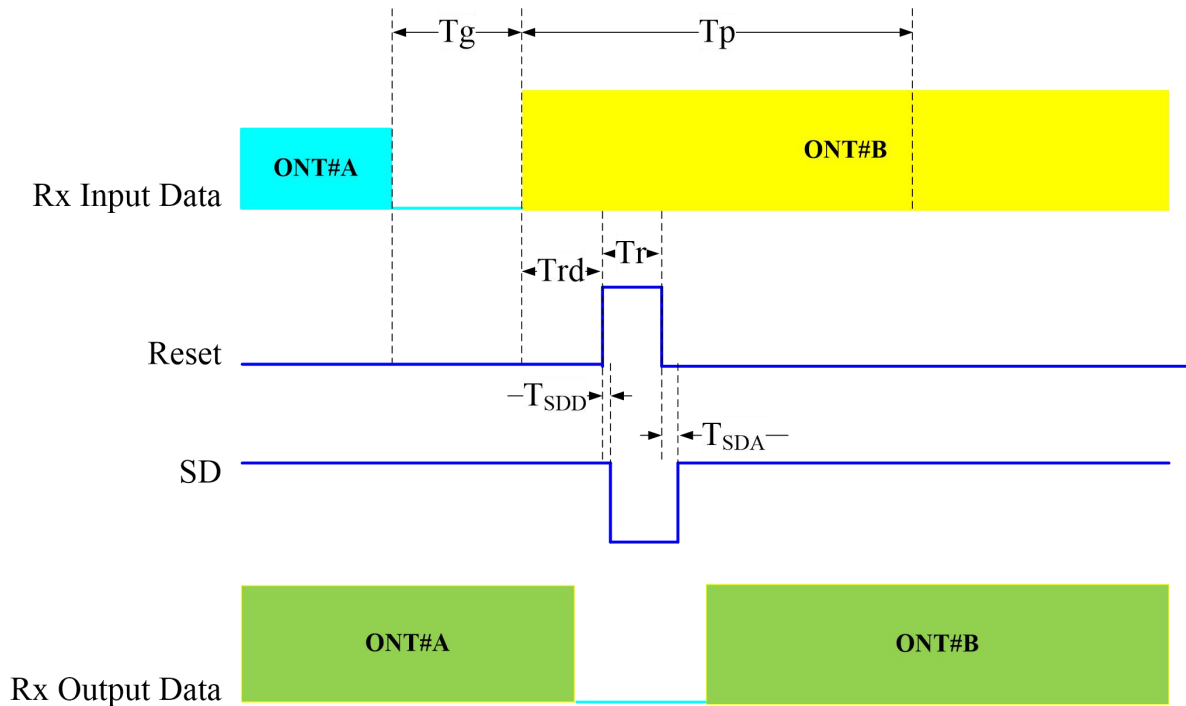
### Timing Sequence for RSSI



### Timing Sequence for Ranging Mode



### Timing Sequence for Working Mode

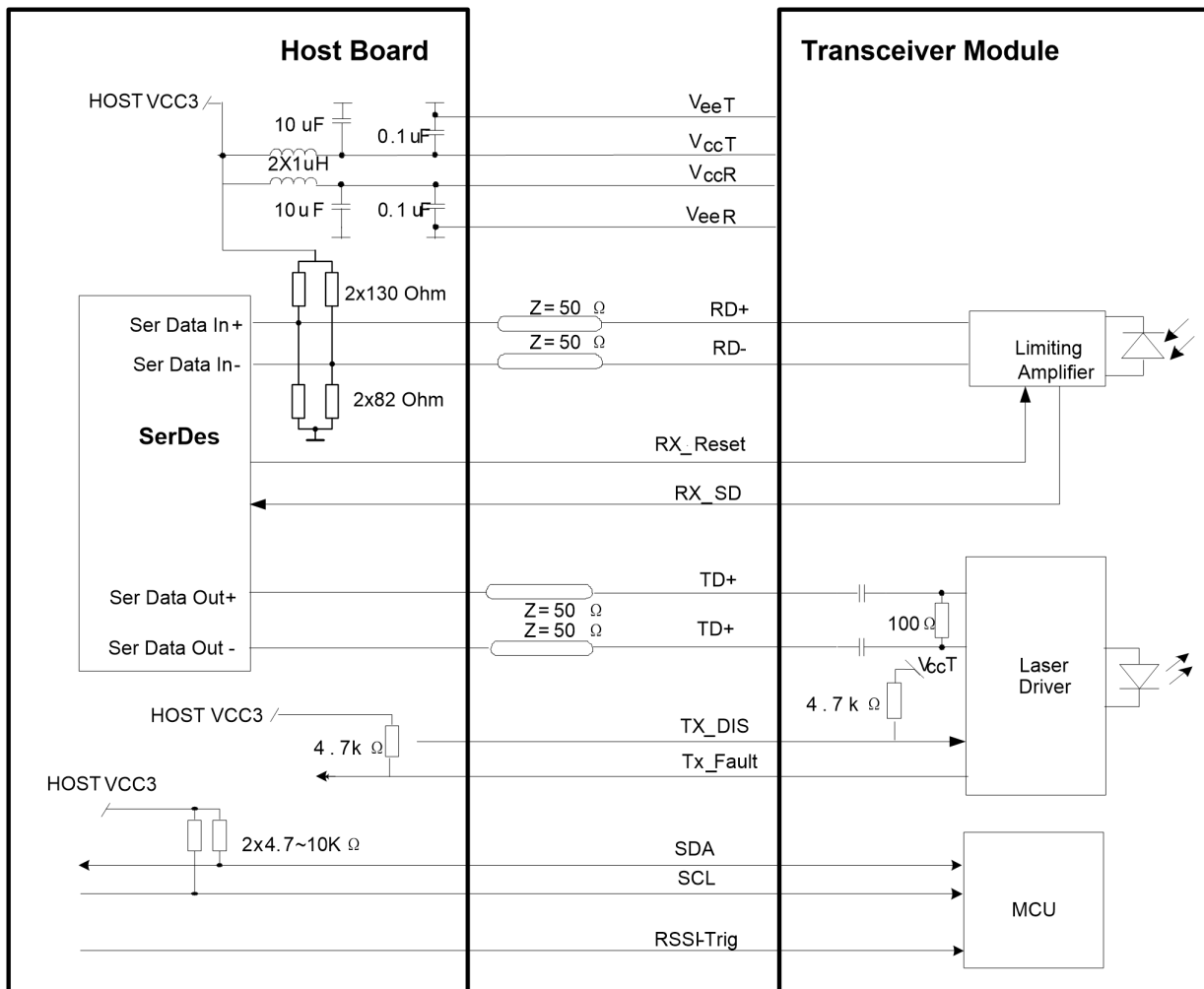


### Pin Definitions

Pin No.	Symbol	Level / Logic	Description
1	VeeT		Module Transmitter Ground
2	Tx_Fault	LVTTL-O	Module Transmitter Fault
3	Tx_DIS	LVTTL-I	Laser output is disabled when this pin is asserted high or left unconnected
4	SDA	LVTTL-I	2-Wire Serial Interface Data Line
5	SCL	LVTTL-I/O	2-Wire Serial Interface Clock
6	MOD_ABS	LVTTL-O	Module Absent, connected to ground in the module
7	RX_Reset	LVTTL-I	Receiver RESET signal
8	RX_SD	LVTTL-O	Receiver Signal Detected Indication
9	RSSI_TRIG	LVTTL-I	Receiver RSSI Trigger signal
10	VeeR		Module Receiver Ground
11	VeeR		Module Receiver Ground
12	RD-	LVPECL-O	Receiver Inverted Data Output
13	RD+	LVPECL-	Receiver Non-Inverted Data Output

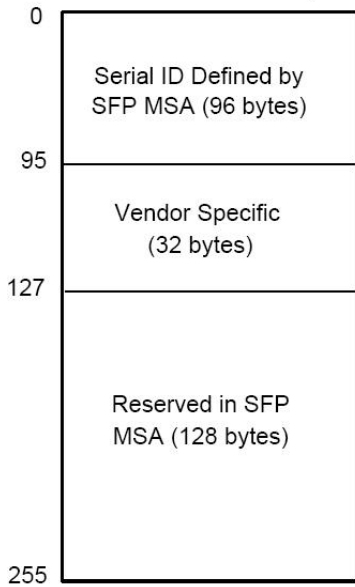
		O	
14	VeeR		Module Receiver Ground
15	VccR		Module Receiver 3.3V Supply
16	VccT		Module Transmitter 3.3V Supply
17	VeeT		Module Transmitter Ground
18	TD+	LVPECL-I	Transmitter Non-Inverted Data Input
19	TD-	LVPECL-I	Transmitter Inverted Data Input
20	VeeT		Module Transmitter Ground

### Recommended Interface Circuit

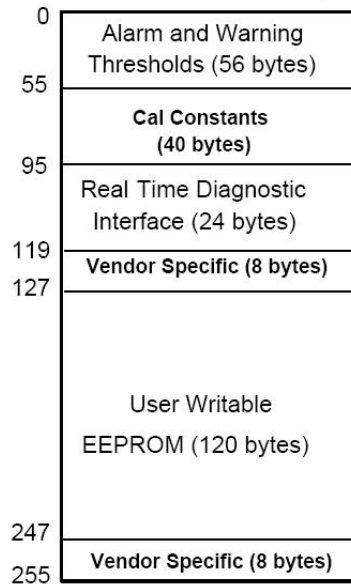


### EEPROM Information

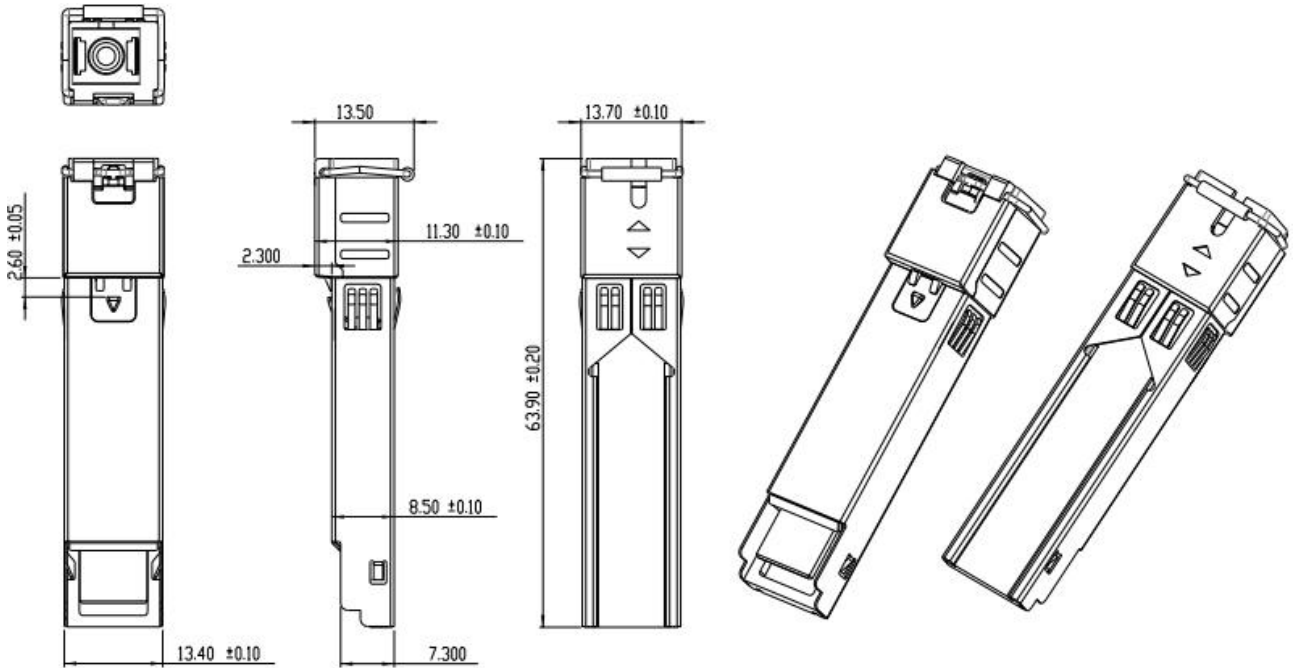
2 wire address 1010000X (A0h)



2 wire address 1010001X (A2h)



### Mechanical Diagram



## Ordering Information

Ordering P/Ns	Description
GNTP-4321S-C2CDB	GPON OLT C+, 20km, TX 1490nm 2.488Gbps, RX 1310nm 1.244Gbps, SFP form-factor, SC/UPC Receptacle, 0~70°C Commercial Temperature
GNTP-4321S-C2TDB	GPON OLT C+, 20km, TX 1490nm 2.488Gbps, RX 1310nm 1.244Gbps, SFP form-factor, SC/UPC Receptacle, -40~85°C Industrial Temperature

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## Revision History

Version	Date	Description
V0	May-06-2014	New release
V1	Oct-9-2016	Add new industrial temperature PN for GNTP-4321S-C2TDB