



PON Series

GPON

EGP4321-3SCDC2x

GPON OLT Class C++ SFP Transceiver

- Single fiber bi-directional data links asymmetric TX 2488Mbps / RX1244Mbps application
- 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- Small Form Factor Pluggable package with SC/UPC Connector
- Reset burst-mode receiver design support more than 15dB dynamic range
- 0 to 70°C operating temperature
- Single 3.3V power supply
- Digital diagnostic monitoring interface
- Digital burst RSSI function to monitor the input optical
- LVPECL compatible data input/output interface
- LVTTTL transmitter disable control
- LVTTTL transmitter laser fault alarm
- LVTTTL receiver Signal Detect
- Low EMI and excellent ESD protection
- Class I laser safety standard IEC-60825 compliant
- RoHS-6 compliance

Applications

- Gigabit-capable Passive Optical Networks (GPON) Class C++ 20Km

Standards

- Complies with SFP Multi-Source Agreement (MSA) SFF-8074i
- Complies with SFF-8472 Rev 9.5
- Complies with ITU-T G.984.2 Amendment 2
- Complies with FCC 47 CFR Part 15, Class B
- Complies with FDA 21 CFR 1040.10 and 1040.11

ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Min.	Max.	Unit	Notes
Storage Ambient Temperature	T _{STG}	-40	85	°C	
Operating Case Temperature	T _c	0	70	°C	
Storage Humidity	OHs	5	95	%	
Power Supply Voltage	V _{CC}	0	3.6	V	
Receiver Damaged Threshold		+5		dBm	

RECOMMENDED OPERATING CONDITION

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{CC}	3.13	3.3	3.47	V	
Power Supply Current			350	500	mA	
Operating Case Temperature	T _c	0		70	°C	
Operating Humidity Range	OHo	5		85	%	
Nominal Data Rate			RX 1244.16 TX 2488.32		Mbit/s	

TRANSMITTER OPTICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Optical Center Wavelength	λ_c	1480		1500	nm	
Optical Spectrum Width (-20dB)	$\Delta\lambda$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Launch Optical Power	AOP	+5.5		+10	dBm	BOL, Normal Temperature
		+4.5		+10	dBm	BOL, 0~70°C
Power-OFF Transmitter Optical Power				-39	dBm	Launched into SMF
Extinction Ratio	ER	8.2			dB	PRBS 2 ²³ -1+72CID @2.488Gbit/s
Tolerance to Transmitter Incident Light		-15			dB	
Transmitter Reflectance				-10	dB	
Transmitter and Dispersion Penalty	TDP			1	dB	Transmit on 20km SMF
Optical Waveform Diagram	ITU-T G.984.2					Figure 1

TRANSMITTER ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Input Differential Swing		600		1600	mV	LVPECL input, AC coupled
Input Differential Impedance		90	100	110	Ω	
Transmitter Disable Voltage - Low		0		0.8	V	
Transmitter Disable Voltage - High		2.0		V _{CC}	V	
Transmitter Fault Alarm Voltage - Low		0		0.4	V	
Transmitter Fault Alarm Voltage - High		2.4		V _{CC}	V	

TRANSMITTER EYE MASK DEFINITIONS AND TEST PROCEDURE

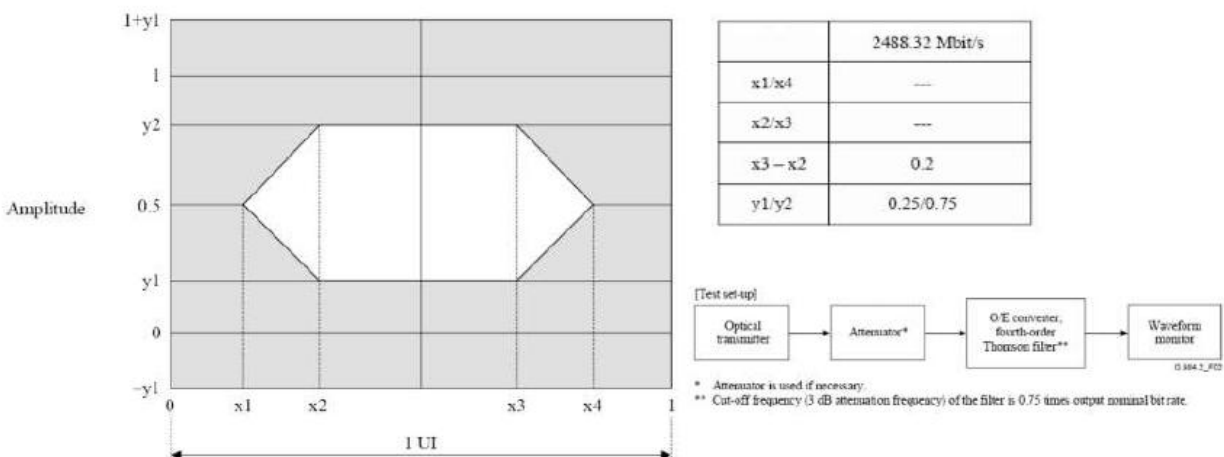


Figure 1 Transmitter Eye Mask Definitions and Test Procedure

RECEIVER OPTICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Wavelength		1290		1330	nm	
Sensitivity (BOL, Normal Temperature)	SEN			-31	dBm	PRBS 2 ²³ -1+72CID@1.244Gbps BER ≤1×10 ⁻¹⁰
Sensitivity (EOL, 0~70°C)	SEN			-30		
Saturation Optical Power	SAT	-12			dBm	
Dynamic Range		15			dB	Figure 2
Loss Of Signal De-assert Level				-33	dBm	
Loss Of Signal Assert Level		-45			dBm	
Loss Of Signal Hysteresis		0.5		6	dB	
Receiver Reflectance				-12	dB	

BURST MODE RECEIVER DYNAMIC RANGE IN GPON SYSTEM

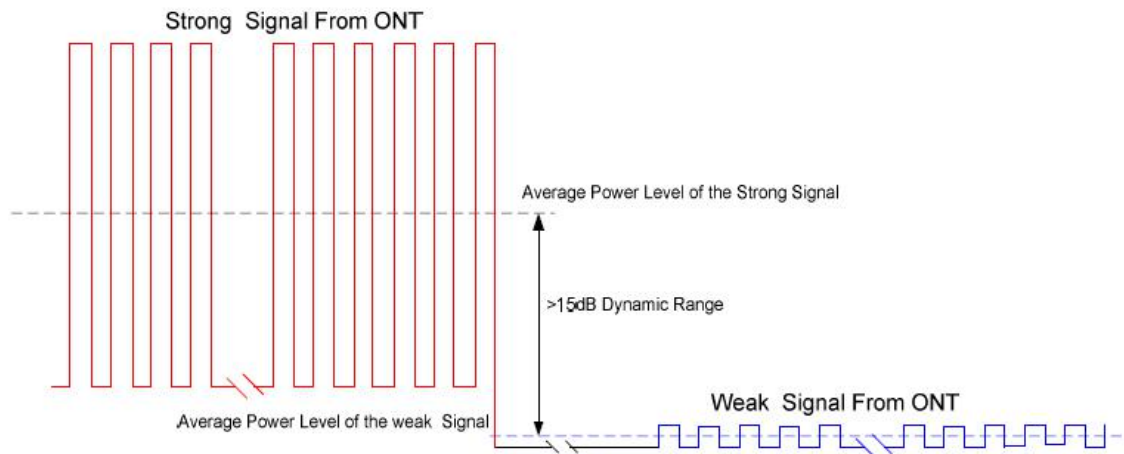


Figure 2 Burst Mode Receiver dynamic Range in GPON System

RECEIVER ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Output Voltage – Low (-Vcc)		-1.81		-1.62	V	
Data Output Voltage – High (-Vcc)		-1.02		-0.88	V	
Data Output Differential Swing		400		1600	mV	LVPECL output, DC coupled
Reset width	T _{RESET}	16			bits	
Reset-Low		0		0.4	V	
Reset-High		2.4		V _{cc}	V	
Receiver Amplitude Recovery	T _{RECOVERY}			32	bits	Refer to the Reset signal falling edge
Signal Detect Assert Time				50	ns	
Signal Detect De-assert Time				12.8	ns	Refer to the Reset signal rising edge
Signal Detect Voltage-Low		0		0.4	V	
Signal Detect Voltage-High		2.4		V _{cc}	V	
RSSI Trigger-Low		0		0.8	V	
RSSI Trigger-High		2.0		V _{cc}	V	
Optical Signal During Time	T _{ont}	300			ns	
RSSI Trigger width	T _w	300		T _{ont} -T _D	ns	
RSSI Trigger Delay	T _D	0		3000	ns	
I ² C Access Prohibited Time				500	μs	

TIMING PARAMETER DEFINITIONS IN BURST MODE SEQUENCE

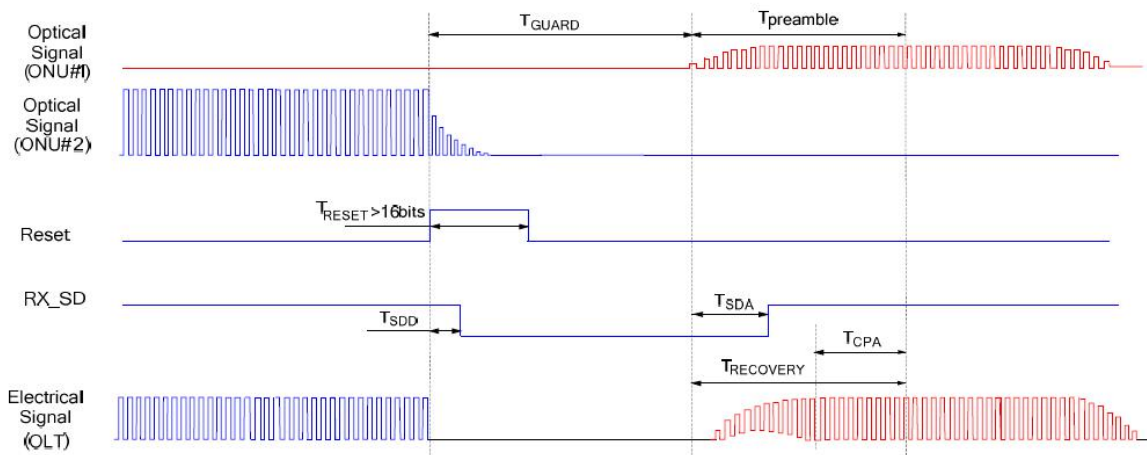


Figure 3 Burst Receiver Timing Sequence

RSSI TIMING SEQUENCE

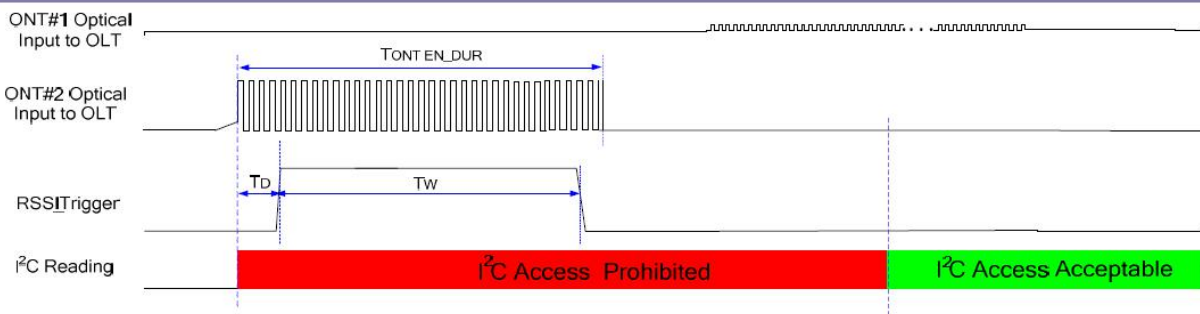


Figure 4 RSSI TIMING SEQUENCE

PIN DESCRIPTION			
PIN	Name	Description	Notes
1	V _{EE} T	Transmitter Ground	
2	TX Fault	Transmitter Fault Indication	High: abnormal; Low: normal
3	TX Disable	Transmitter Disable	High: transmitter disable; Low: transmitter enable
4	MOD-DEF2	Module Definition 2	The data line of two wire serial interface
5	MOD-DEF1	Module Definition 1	The clock line of two wire serial interface
6	MOD-DEF0	Module Definition 0	Connected to Ground in the transceiver
7	Reset	Receiver Reset	High: reset the receiver
8	SD	Signal Detect	High: signal detected; Low: loss of signal;
9	RSSI Trigger	RSSI Trigger for Transceiver A/D Conversion	High: enable RSSI A/D conversion
10	V _{EE} R	Receiver Ground	
11	V _{EE} R	Receiver Ground	
12	RD-	Inv. Receiver Data Out	LVPECL logic output, DC coupled
13	RD+	Receiver Data Out	LVPECL logic output, DC coupled
14	V _{EE} R	Received Ground	
15	V _{CC} R	Receiver Power	
16	V _{CC} T	Transmitter Power	
17	V _{EE} T	Transmitter Ground	
18	TD+	Transmit Data In	LVPECL logic input, AC coupled
19	TD-	Inv. Transmit Data In	LVPECL logic input, AC coupled
20	V _{EE} T	Transmitter Ground	

SFP RECOMMENDED HOST BOARD POWER SUPPLY FILTERING NETWORK

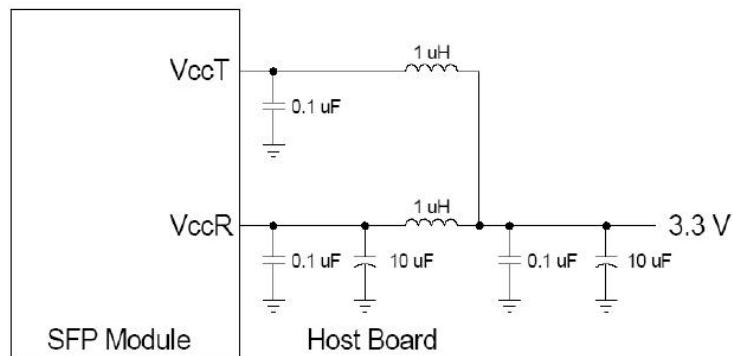


Figure 5 SFP Recommended Host Board Power Supply Filtering Network

SFP PIN (GOLDEN FINGER) DRAWING

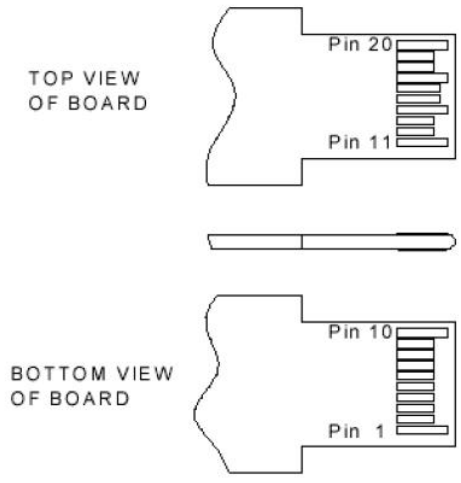


Figure 6 SFP Pin (Golden Finger) Drawing

TYPICAL INTERFACE CIRCUIT

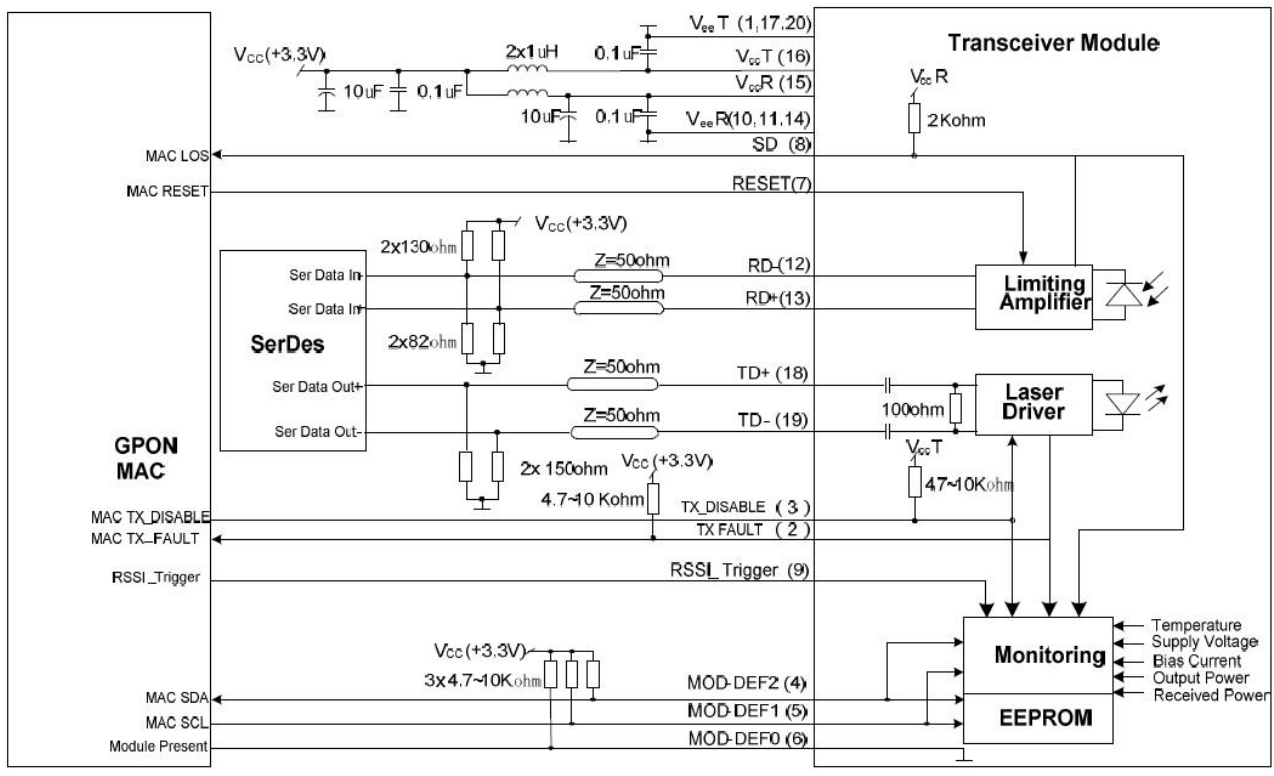


Figure 7 Typical Interface Circuit

PACKAGE OUTLINE

Unit: mm

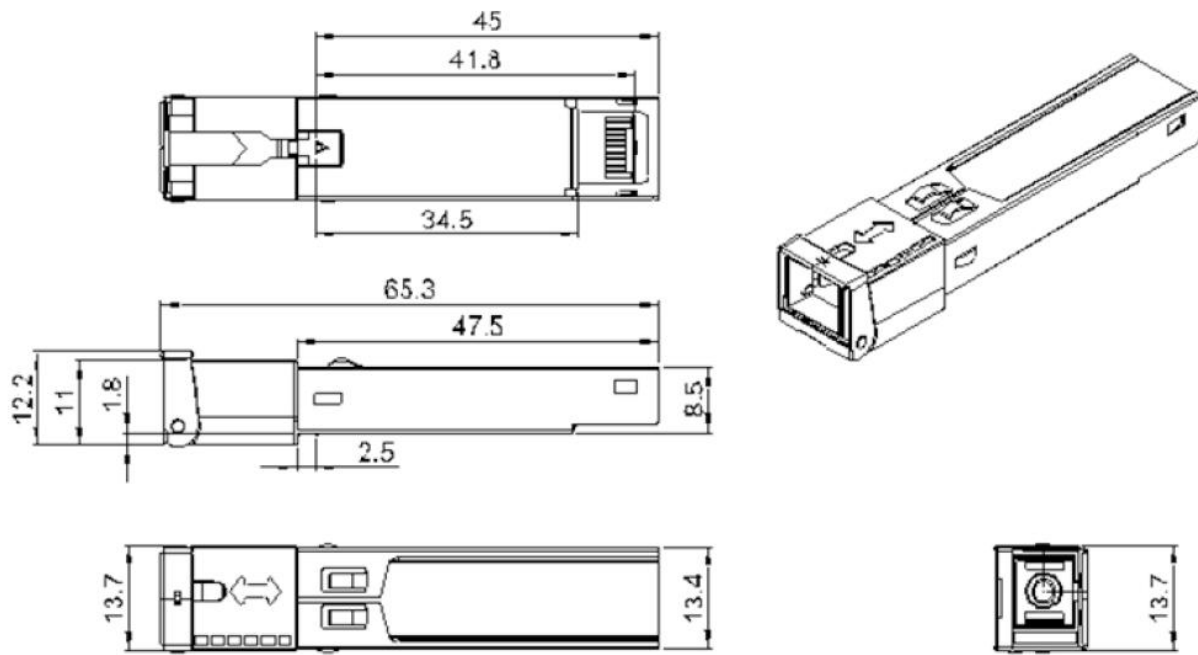


Figure 8 Package Outline

Parameter	Range	Accuracy	Calibration	Notes
Temperature	0 to 70°C	±3°C	Internal	1LSB = 1/256°C
Voltage	0 to 6.55V	±3%	Internal	1LSB = 0.1mV
Bias Current	0 to 100mA	±10%	Internal	1LSB = 2uA
TX Power	0 to 8dBm	±2dB	Internal	1LSB = 0.1uW
RX Power monitor	-30 to -10dBm	±2dB@25°C ±3dB@0~70°C	External	1LSB = 0.1uW

Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can be compatible with many mainstream brand switches, such as Cisco, Juniper, Extreme, Brocade, IBM, H3C, HP, Huawei, D-Link, Mikrotik, ZTE, TP-Link...

Our test equipment: VOLKTEK MEN-4110, HP 2530-8G, CRS226-24G-25+RM, Catalyst 2960G Series, Catalyst 3850 XS 10G SFP+, Catalyst 3750-E Series, HUAWEI S5700Series, H3C S3100V2 Series, Juniper-EX4200, etc.



Cisco Catalyst 3850



HUAWEI S5700



H3C S3100V2



HP J9264AR



Juniper EX 4200



Alcatel 6850E-U24X



Mikrotik CR5226-24G-25+RM



Cisco Catalyst 2960G



Volktek MEN-4110

Product Production Process

Quality Assurance

Continuous introduction of new equipment, produced by strict standards, strict quality inspection, to guarantee the high quality standard of each product.



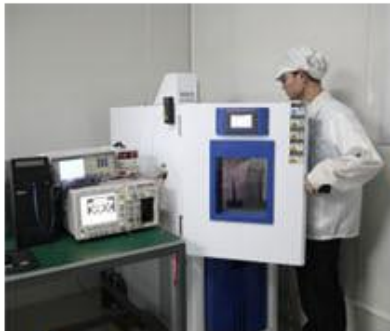
**Standardized
Production Line**



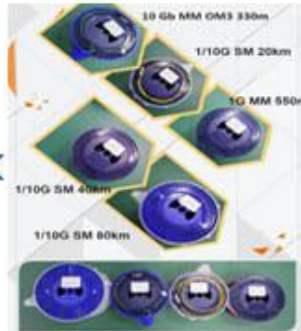
**Professional
Welding**



Assembling



Aging Testing



Distance Testing



Cleaning end face



Product Initial Test



Switch Testing



Product Final Test

Packaging

ETU-Link provides two kinds of packaging, 10pcs/Tray and individual package.



Company: ETU-Link Technology Co., LTD

Address: 4th Floor, C Building, JinBoLong Industrial Park, QingQuan Road, LongHua District, Shenzhen city, GuangDong

Tel: +86-755 2328 4603

Addresses and phone number also have been listed at www.etulinktechnology.com.

Please e-mail us at sales@etulinktechnology.com or call us for assistance.