

Rev	Date	Modified by	Description
A0	2023		

## Product Specifications

### XGPON ONU SFP+ TX 2.488Gbps/RX9.953Gbps 20KM

**PN: EGP25X-3SCDN2**

#### Features

- Single fiber bi-directional data links asymmetric TX 2.488Gbps/RX9.953Gbps application
- 0 to 70°C or -40 to 85°C operating case temperature
- Single 3.3V power supply
- SFP+ package with SC/UPC Receptacle connector
- Hot-pluggable capability
- High power 1270nm DML DFB LD and high sensitivity 1577nm APD
- Support 20km transmission distance with SMF
- CML compatible data input/output interface
- Low power dissipation
- Low EMI and excellent ESD protection
- Digital diagnostic monitor interface
- RoHS 2.0 compliance

#### Applications

- 10-Gigabit-capable passive optical networks(XG-PON1) ONU (ODN:N1 or N2a class)

#### Standards

- Complies with SFP+ MSA (SFF-8431)
- Complies with ITU-T G.987.2
- Complies with SFF-8472
- Complies with FCC 47 CFR Part 15, Class B
- Complies with FDA 21 CFR 1040.10 and 1040.11, Class I
- Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Storage Ambient Temperature	T <sub>STG</sub>	-40	85	°C	
Operating Case Temperature	T <sub>c</sub>	0	70	°C	
	T <sub>c</sub>	-40	85	°C	
Operating Humidity	OH	5	95	%	
Power Supply Voltage	V <sub>CC</sub>	-0.5	3.6	V	

## RECOMMENDED OPERATING CONDITION

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	V <sub>CC</sub>	3.15	3.3	3.45	V	
Power Supply Current	I <sub>CC</sub>			450	mA	
Nominal upstream line rate			2.48832		Gbps	
Nominal downstream line rate			9.95328		Gbps	

## Transmitter Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Average Launch Optical Power	P <sub>out</sub>	2		7	dBm	
Extinction Ratio	ER	8.2			dB	
Center Wavelength	λ	1260	1270	1280	nm	
Spectral Width (-20dB)	Δλ			1	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Burst on time	T <sub>on</sub>			32	ns	
Burst off time	T <sub>off</sub>			32	ns	
Tx-SD Assert	SD-on			100	ns	
Tx-SD De-Assert	SD-off			100	ns	
Transmitter dispersion penalty	TDP			0.5	dB	

Transmitter tolerance to reflected optical power		-15			dB	
Transmitter reflectance of TX, measured at TX wavelength				-6	dB	
Eye Diagram	Compliant With ITU-T G.987.2					PRBS 2 <sup>23</sup> -1 test pattern @2.48832Gbit/s

## Transmitter Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Input Differential Impedance	ZIN	90	100	110	Ω	
Data Input Swing Differential	VIN	200		1600	mV	
Burst Disable		2.0		Vcc	V	
Burst Enable		0		0.8	V	
Tx-Fault Voltage - Low		0		0.4	V	
Tx-Fault Voltage - High		2.4		Vcc	V	

## Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Optical Center Wavelength	$\lambda_c$	1575		1580	nm	
Receiver Sensitivity				-28	dBm	Measured with PRBS 2 <sup>31</sup> -1 test pattern@9.953Gbit/s, BER $\leq 1 \times 10^{-3}$ .
Receiver Overload		-8			dBm	
Receiver reflectance				-20	dB	
LOS De-Assert				-29	dBm	
LOS Assert		-44			dBm	
LOS Hysteresis		0.5		5	dB	
Data Output Swing Differential	V <sub>OUT</sub>	340		850	mV	

LOS	High		2.4		Vcc	V	
	Low		0		0.4		

## Pin Definitions and Functions

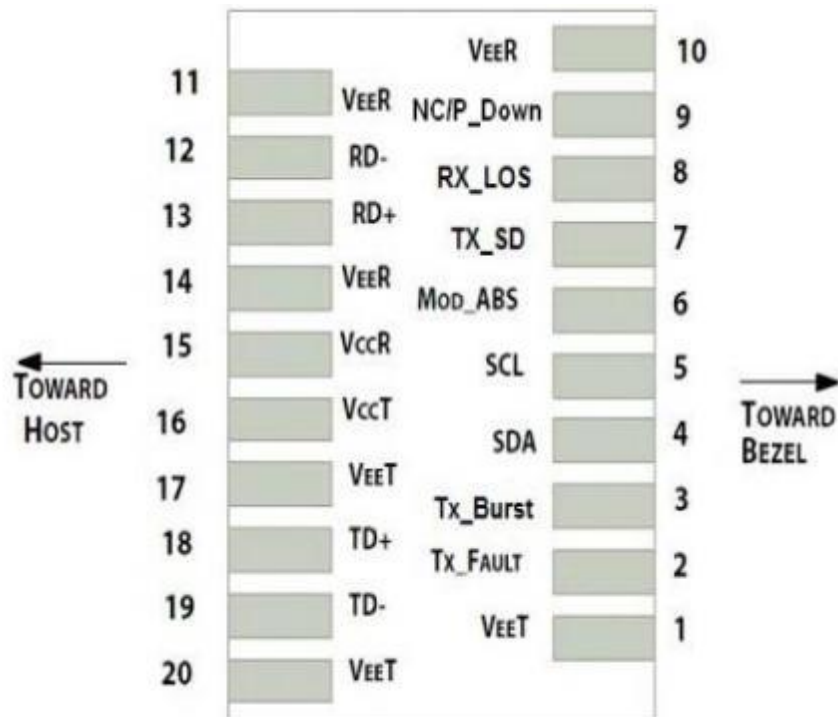


Fig. 1 Pin Out Drawing

Pin	Name	Description	Notes
1	VeeT	Module Transmitter Ground	
2	Tx_Fault	Module Transmitter Fault	Low: normal; High: abnormal
3	Tx_Burst	Transmitter Burst Enable	TTL Input, Low: transmitter on
4	SDA	Module Definition 2	2 wire serial ID interface, SDA
5	SCL	Module Definition 1	2 wire serial ID interface, SCL
6	MOD_ABS	Module Absent	Connected to VeeT or VeeR in the module
7	TX_SD	Tx Transmitter State Indication	TX_Indication Assert When Transmitter ON
8	Rx_LOS	Receiver Signal Indication	Low: signal detected; High: loss of signal
9	NC	Not Connect	NC
10	VeeR	Module Receiver Ground	

11	VeeR	Module Receiver Ground	
12	RD-	Inverted Received Data Out	AC-coupled,
13	RD+	Non-inverted Received Data Out	AC-coupled,
14	VeeR	Module Receiver Ground	
15	VCCR	Module Receiver 3.3 V Supply	
16	VCCT	Module Transmitter 3.3 V Supply	
17	VeeT	Module Transmitter Ground	
18	TD+	Non-Inverted Transmit Data in	AC-coupled
19	TD-	Inverted Transmit Data in	AC-coupled
20	VeeT	Module Transmitter Ground	

## EEPROM Information

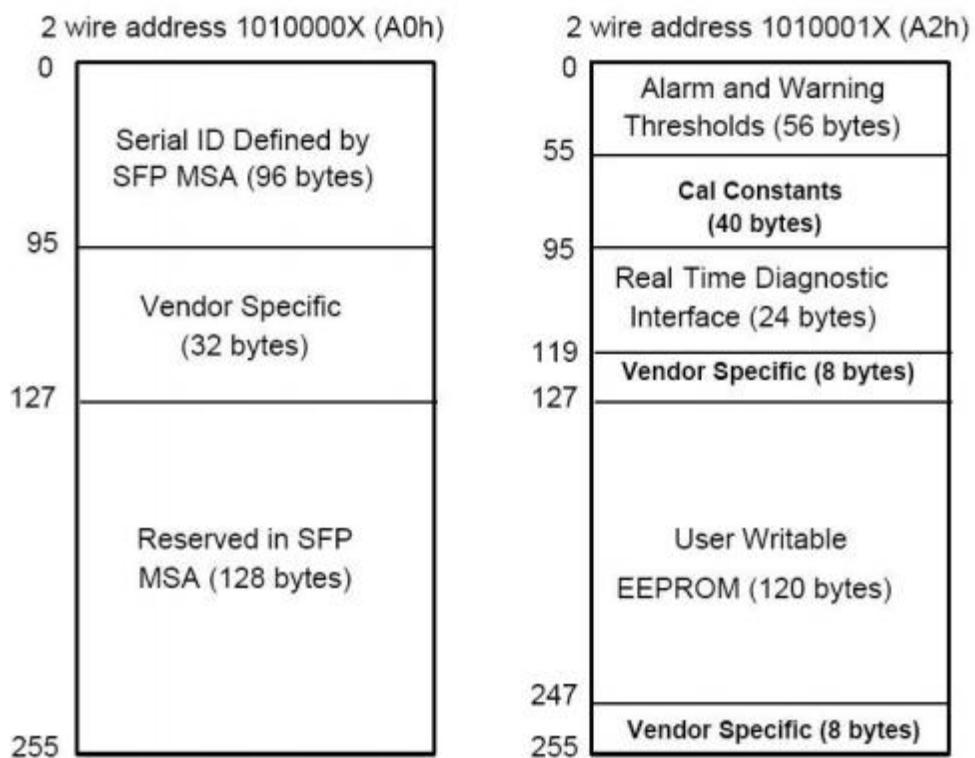


Fig. 2 EEPROM Memory Map

## DDM Interface

Five transceiver parameter values are monitored. The following table defines the monitored parameter's accuracy.

Parameter	Range	Accuracy	Calibration
Temperature	-40 to 85°C	±3°C	Internal
Voltage	3 to 3.6V	±3%	Internal
Bias Current	0 to 100mA	±10%	Internal
TX Power	0 to 9dBm	±3dB	Internal
RX Power monitor	-30 to -8dBm	±3dB	Internal

## Typical Interface Circuit

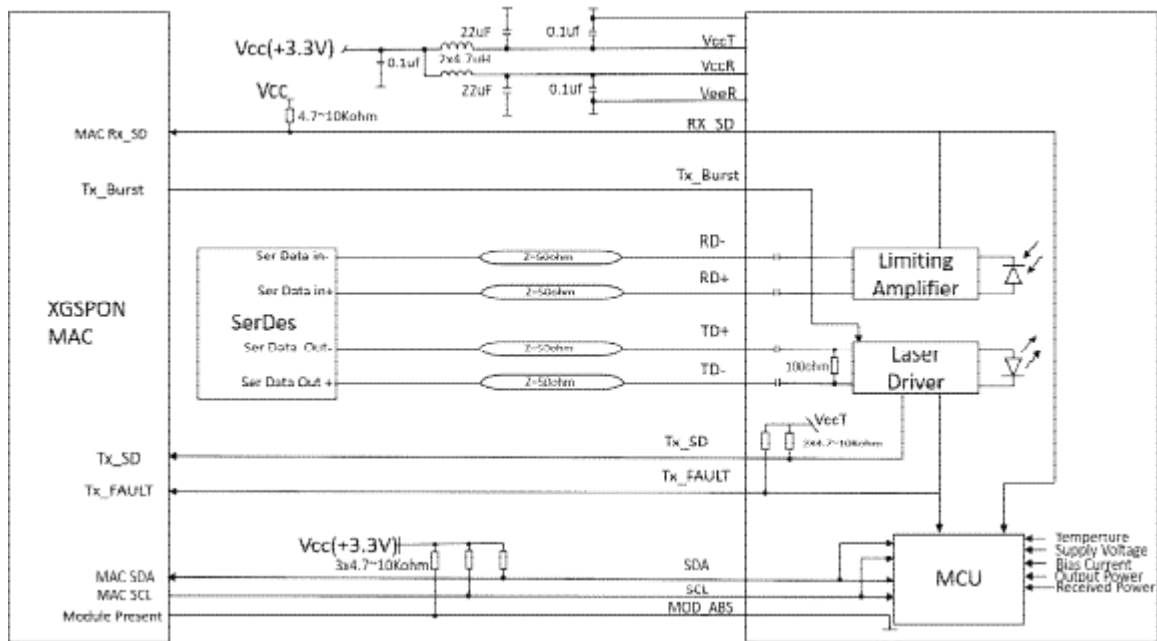
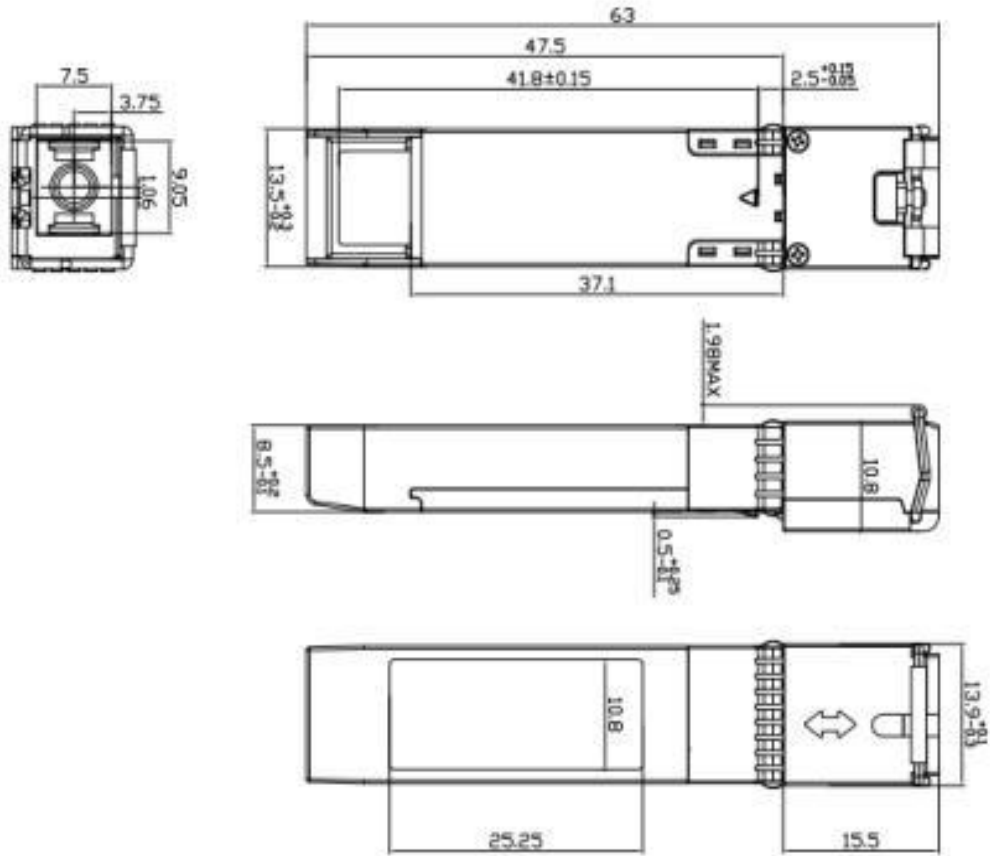


Fig. 3 Typical Interface Circuit

# Package Dimensions



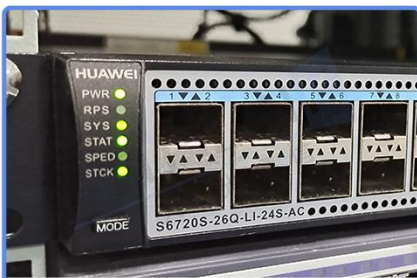
Unit:mm



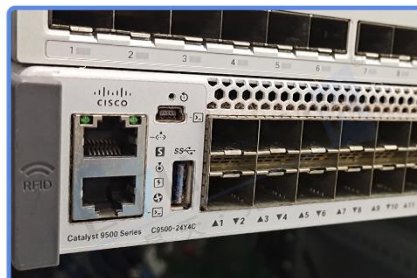
## Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can 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.



HUAWEI S6720S



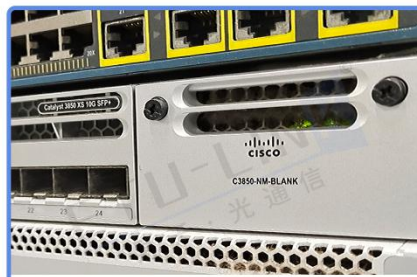
CISCO Catalyst 9500



DELL S5048F



H3C S3100V2



CISCO C3850



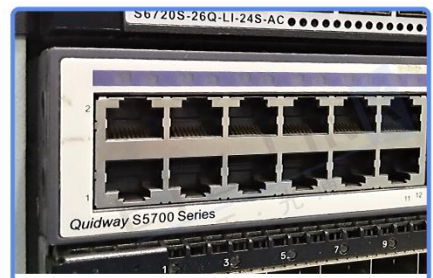
Aruba 2930F



Juniper EX 4200



HP J9264A



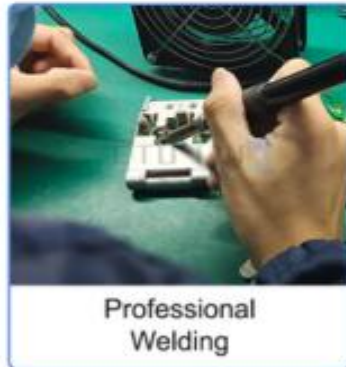
Quidway S5700



## 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.



## Packaging

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



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