

100BASE-LX SFP SGMII 1310nm 10km DOM LC SMF Transceiver

GLC-GE-100LX



Applications

- Compliant to IEEE 802.3z Gigabit Ethernet
- Class 1 Laser Safety and RoHS Compliant
- Digital Optical Monitoring Capability for Strong Diagnostic Capabilities

Features

- Built-in PHY supporting SGMII Interface
- Built-in high performance MCU supporting easier configuration
- Support more link status monitor, such as CRC error counter, package counter
- 1310nm FP laser and PIN photo-detector
- Up to 10km transmission with SMF
- Standard serial ID information Compatible with SFP MSA
- SFP MSA package with duplex LC connector
- With Spring-Latch for high density application
- +3.3V single power supply
- Operating case temperature: I-temp: -40 to +85°C; C-temp: -5 to 70°C
- 100BASE-LX operation

Description

SPGLC-GE-100LX compatible SFP transceivers supports up to 10km link lengths over Single-mode fiber (SMF) using a wavelength of 1310nm via Duplex LC connector. Each SFP transceiver module is individually tested to be used on a series of Cisco switches, routers, servers, network interface card (NICs) etc.

Featuring low power consumption, the hot swappable 100BASE SFP transceiver is ideal for Internet Service Provider (ISP) Fast Ethernet communication links, Enterprise LAN & SAN Networks, Data Center LAN & SAN Networks and other optical links.

Product Specifications

I.Absolute Maximum Ratings

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	Ts	-40		+85	°C	
Supply Voltage	Vcc	-0.5		+3.6	V	
Operating Relative Humidity	RH	5		+95	%	
Power Consumption				1.2	W	

II. Recommended Operating Conditions

Table 2 – Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	I-temp	Tc	-40	-	+85	°C
	C-temp	Tc	-5	-	+70	°C
Power Supply Voltage	Vcc	3.10	3.3	3.50	V	
Power Supply Current	Icc	-	-	350	mA	1
Date Rate			125		Mbps	

Note 1: The max. power supply current after module work stable.

III. Electrical Characteristics

Table 3 – Electrical Characteristics

Parameter		Symbol	Min.	Typical	Max.	Unit	Note
Transmitter							
Data Input Swing Differential(SGMII Series interface)		V _{IN}	200		2100	mV	1
Input Differential Impedance		Z _{IN}	80	100	120	Ω	
TX Disable	Disable		2.0		V _{CC}	V	
	Enable		V _{EE}		V _{EE} +0.8	V	
TX Fault	Fault		2.0		V _{CC}	V	
	Normal		V _{EE}		V _{EE} +0.5	V	
Receiver							
Data Output Swing Differential (SGMII Series Interface)		V _{OUT}	370		2000	mV	1
LOS	High		2.0		V _{CC} +0.3	V	
LOS	High		V _{EE}		V _{EE} +0.5	V	

Notes:
1.PECL logic, internally AC coupled.

IV.Optical Parameters

Table 4 – Optical Parameters

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Centre Wavelength	λ_c	1260	1310	1360	nm	
Average Output Power	P_{out}	-15		-8	dBm	1
P0ut@TX Disable Asserted	P_{out}			-45	dBm	1
Spectral Width(RMS)	σ			7.7	nm	
Extinction Ratio	EX	9			dB	
Rise/Fall Time (20%~80%)	t_r/t_f			3	ns	2
Output Optical Eye	Compatible with IEEE 802.3-2002					3
Receiver						
Centre Wavelength	λ_c	1260	1310	1570	nm	
Receiver Sensitivity				-31.5	dBm	4
Receiver Overload		-8			dBm	4
Return Loss		12			dB	
LOS De-Assert	LOS_D			-32.5	dBm	
LOS Assert	LOS_A	-45			dBm	
LOS Hysteresis		0.5		4.5	dB	
Total Jitter (SGMII Series Interface)	T_J			0.43	UI	

Notes:

- 1.The optical power is launched into 9/125um SMF.
- 2.Unfiltered, measured with 4B/5B code for 125Mbps
- 3.Measured with 4B/5B code for 125Mbps.
- 4.Measured with 4B/5B code for 125Mbps, worst-case extinction ratio, and BER $\leq 1 \times 10^{-10}$.

V. Recommended Host Board Power Supply Circuit

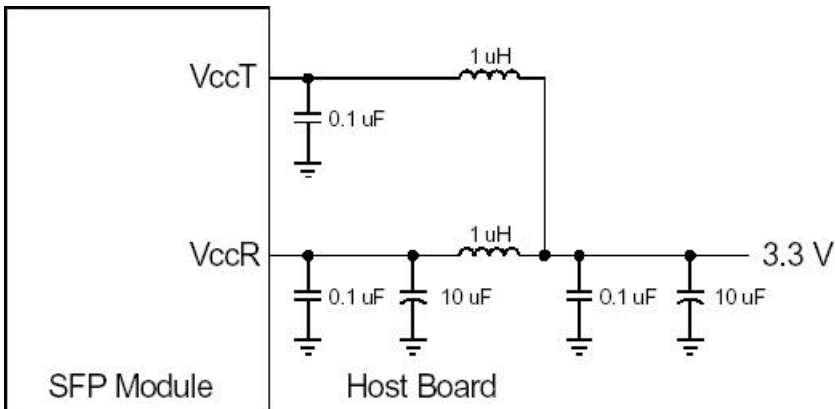


Figure 1, Recommended Host Board Power Supply Circuit

VI. Recommended Interface Circuit

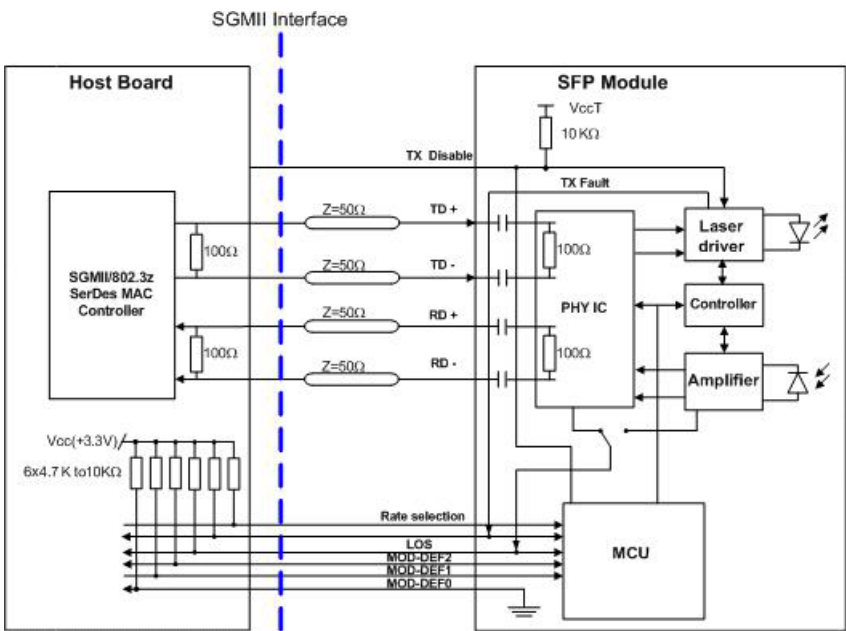


Figure 2, Recommended Interface Circuit

VII. Pin Definitions

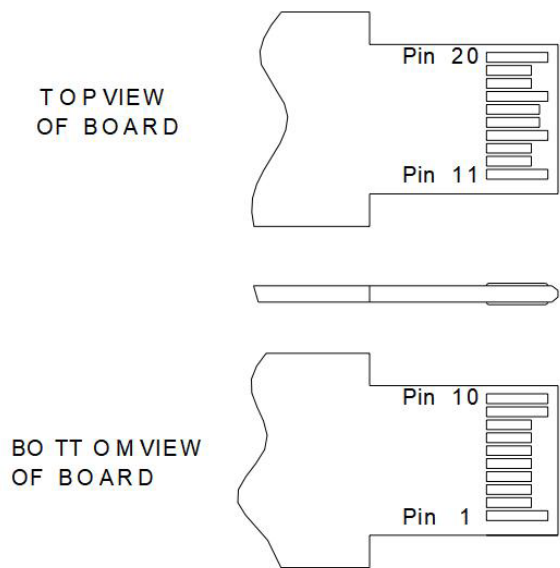


Figure 3, Pin View

Table 5 – Pin Function Definitions

Pin No	Name	Function	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	
2	TXFault	Transmitter Fault Indication	3	Note 1
3	TXDisable	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
7	RateSelect	Not Use	3	

Pin No	Name	Function	PlugSeg	Notes
8	LOS	Loss of Signal	3	Note 4
9	VeeR	Receiver Ground	1	
10	VeeR	Receiver Ground	1	
11	VeeR	Receiver Ground	1	
12	RD-	Inv. Received Data Out	3	Note 5
13	RD+	Received Data Out	3	Note 5
14	VeeR	Receiver Ground	1	
15	VccR	Receiver Power	2	
16	VccT	Transmitter Power	2	
17	VeeT	Transmitter Ground	1	
18	TD+	Transmit DataIn	3	Note 6
19	TD-	Inv. Transmit Data In	3	Note 6
20	VeeT	Transmitter Ground	1	

Notes:

- 1.TX Fault is an open collector output, which should be pulled up with a 4.7k~10k resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
- 2.TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7k~10k resistor. Its states are:
Low (0~0.8V): Transmitter on
(>0.8V, <2.0V): Undefined
High (2.0~3.465V): Transmitter Disabled
Open: Transmitter Disabled

Notes:

3. MOD-DEF 0, 1, 2 are the module definition pins. They should be pulled up with a 4.7k~10k Ω resistor on the host board. The pull-up voltage shall be VccT or VccR.

MOD-DEF 0 is grounded by the module to indicate that the module is present

MOD-DEF 1 is the clock line of two wire serial interface for serial ID

MOD-DEF 2 is the data line of two wire serial interface for serial ID

4. LOS is an open collector output, which should be pulled up with a 4.7k~10k Ω resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates loss of signal or link down with partner I. In the low state, the output will be pulled to less than 0.8V.

5. These are the differential receiver output. They are internally AC-coupled 100 Ω differential lines which should be terminated with 100 Ω (differential) at host with SGMII interface.

6. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 Ω differential termination inside the module.

VIII. Mechanical Diagram

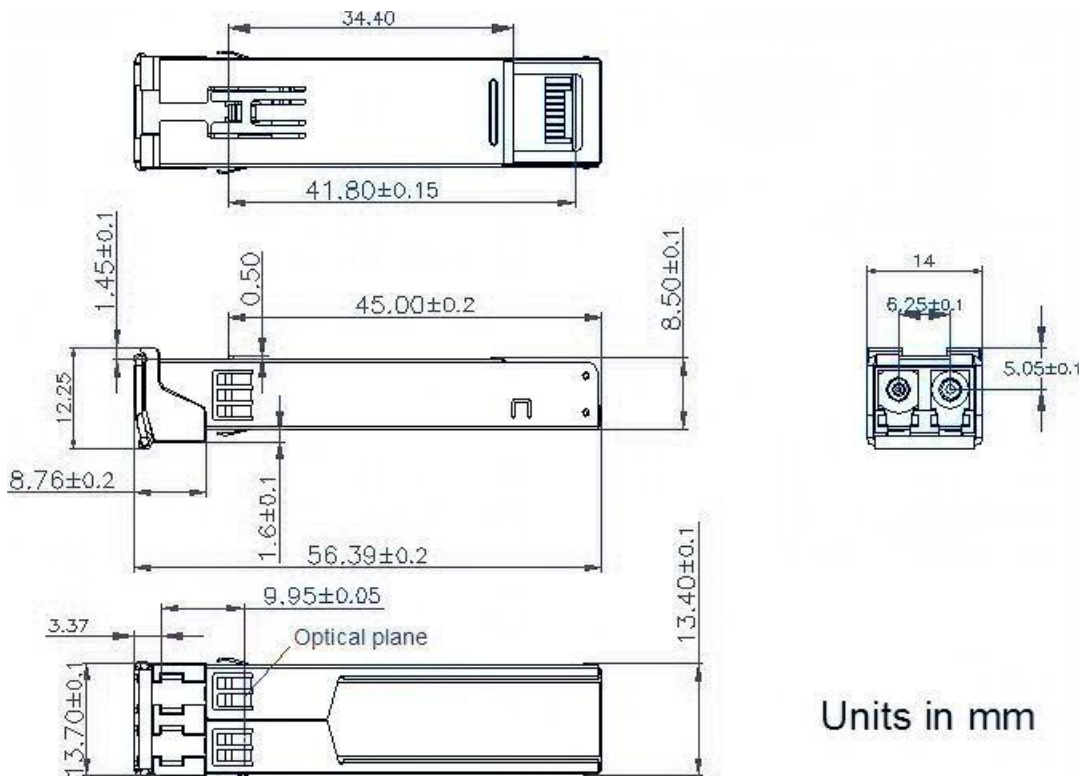


Figure 4, Mechanical Diagram of SFP

IX. Monitoring Specification

The digital diagnostic monitoring interface also defines another 256-byte memory map in EEPROM, which makes use of the 8 bit address 1010001X (A2h). Please see Figure 5. For detail EEPROM information, please refer to the related document of SFF-8472 Rev 9.5. The monitoring specification of this product is described in Table 6.

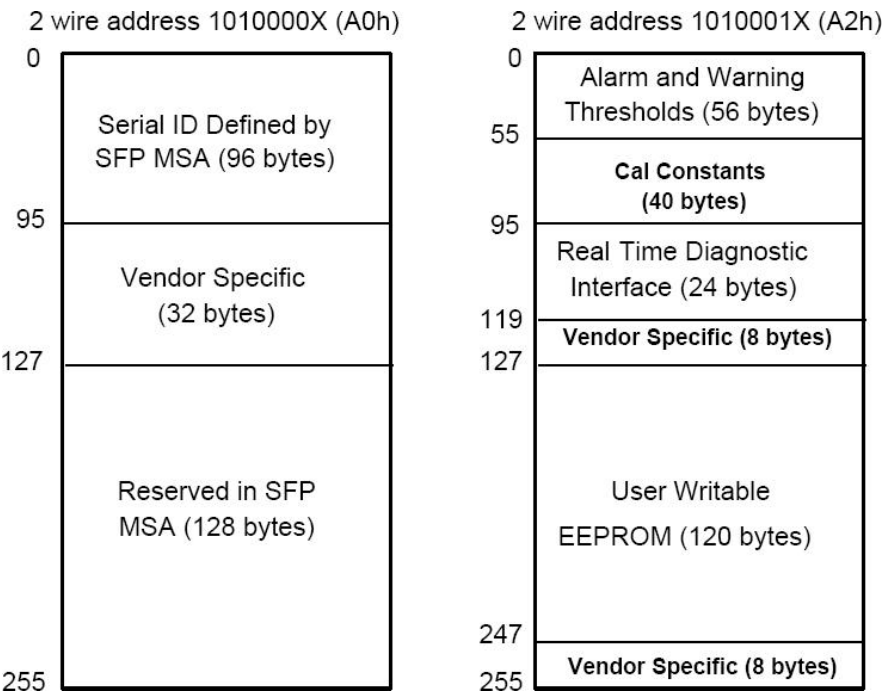


Figure 5, EEPROM Memory Map Specific Data Field Descriptions

Table 8- Monitoring Specification

Name		Function	PlugSeg	Notes
Temperature	I-temp	-40to95°C	±3°C	Internal
Temperature	C-temp	-10to80°C	±3°C	Internal
Voltage		2.97to3.63V	±3%	Internal
BiasCurrent		3to80mA	±10%	Internal
TXPower		-15to-8dBm	±3dB	Internal
RXPower		-32.5to-8dBm	±3dB	Internal

Test Center

FS.COM transceivers are tested to ensure connectivity and compatibility in our test center before shipped out FS COM test center is upported by a variety of mainstream original brand switches and groups of professional staff helping our customers make the most efficient use of our products in their systems network designs and deployments

The original switches could be found nowhere but at FS.COM test center, eg: Juniper MX960 & EX 4300 series, Cisco Nexus 9396PX & Cisco ASR 9000 Series, HP 5900 Series & HP 5406R ZL2 V3(J9996A), Arista 7050S-64, Brocade ICX7750-26Q & ICX6610-48, Avaya VSP 7000 MDA 2.



Cisco ASR 9000 Series(A9K-MPA-X40GE)



ARISTA 7050S-64(DCS-7050S-64)



JuniperMX960



Brocade ICX 7750-26Q



Extreme NetworksX670VIM-40G4X



MellanoxM3601Q



DellN4032F



HP 5406RZL2V3(J99 96A)



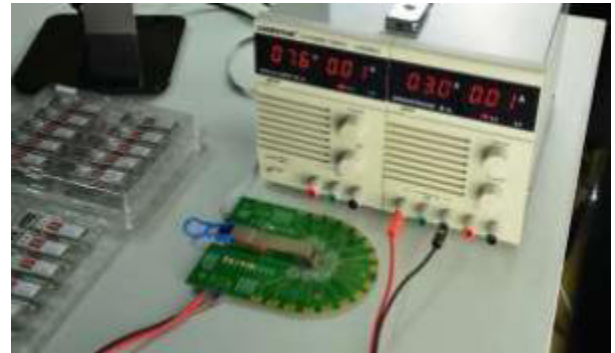
AVAYA 7024XLS(7002QQ-MDA)

Test Assured Program

FS.COM truly understands the value of compatibility and interoperability to each optics. Every module FS.COM provides must run through programming and an extensive series of platform diagnostic tests to prove its performance and compatibility. In our test center, we care of every detail from staff to facilities, professionally trained staff, advanced test facilities, and comprehensive original brand switches to ensure our customers to receive the optics with superior quality.



Our smart data system allows effective product management and quality control according to the unique serial number, properly tracking the order shipment and every part.



Our in-house coding facility programs all of our parts to standard OEM specs for compatibility on all major vendors and systems such as Cisco, Juniper, Brocade, HP, Dell, Arista, and so on.



With a comprehensive line of original brand switches, we can recreate an environment and test each optics in practical application to ensure quality and distance.



The last test-assured step to ensure our products to be shipped with perfect package.

Order Information

Part Number	Description
GLC-GE-100LX	100BASE-LX SFP SGMII 1310nm 10km DOM LC SMF Transceiver Module
SFP-GE-100FX	100BASE-FX SFP SGMII 1310nm 2km DOM Duplex LC MMF Transceiver Module
SFP-FB-GE-T	100BASE-T SFP SGMII Copper RJ-45 100m DOM Transceiver Module

Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.