

**SMCBGLLCX1-A**  
 1.25Gbps SFP Transceiver

**Features**

- Operating data rate up to 1.25Gbps
- 1310nm FP LD Laser Transmitter
- 10Km with 50/125 μm SMF
- Singer 3.3V Power supply and TTL Logic interface
- Duplex LC Connector Interface
- Hot Pluggable
- Operating Temperature: 0°C ~+ 70°C
- Compliant with MSA SFP Specification
- Digital diagnostic monitor interface compatible with SFF-8472



**Product Description**

Approved Optics SMCBGLLCX1-A is a single-mode transceiver - a small form factor pluggable module for bi-directional serial optical data communications such as Gigabit Ethernet 1000BASE-LX and Fiber Channel 1x SM-LX-L FC-PI. This module is designed for single-mode fiber and operates at a nominal wavelength of 1310nm.

The transmitter section uses a multiple quantum well laser and is a class 1 laser compliant, according to International Safety Standard IEC-60825. The receiver section uses an integrated GaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC.

The SMCBGLLCX1-A is designed to be compliant with SFF-8272 SFP Multi-source Agreement (MSA).

**Regulatory Compliance**

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1(>500 V) Isolation with the case
Electromagnetic Interference (EMI)	FCC Part 15 Class B	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2	Compatible with Class I laser product. Compatible with TμV standards
Component Recognition	UL and CUL	UL file E317337
Green Products	RoHS	RoHS6

**Absolute Maximum Ratings**

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TST	-40	+85	°C
Supply Voltage	VCC	-0.5	3.6	V

**Recommended Operating Conditions**

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	TOP	0		+70	°C
Power Supply Voltage	VCC	3.15	3.3	3.45	V
Power Supply Current	ICC			300	mA
Surge Current	ISurge			+30	mA
Baud Rate			1.25		GBaud

**Performance Specifications - Electrical**

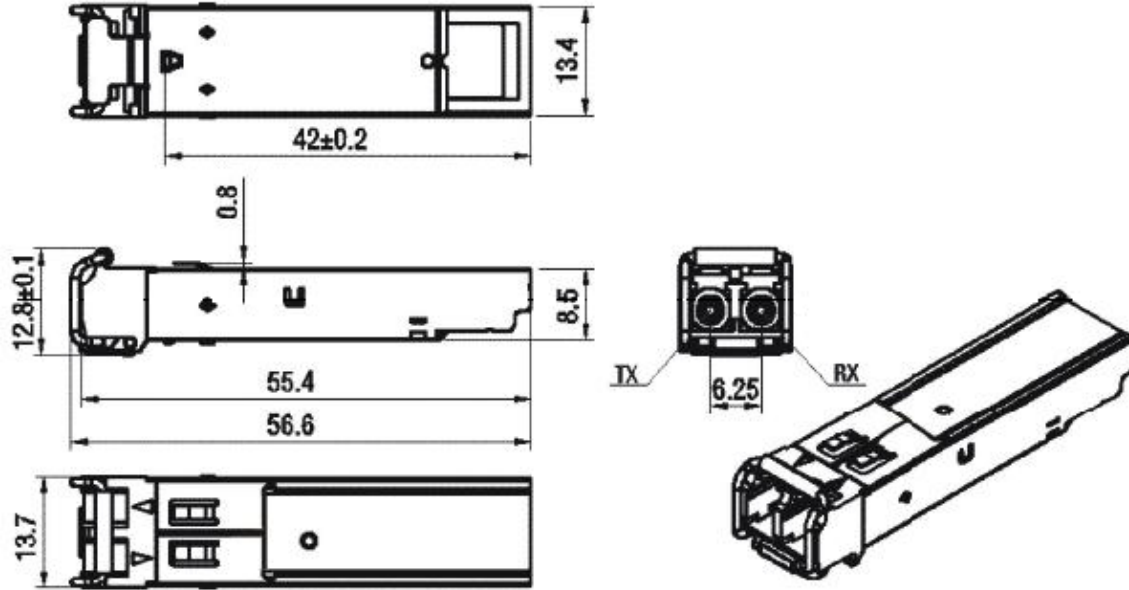
Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
<b>TRANSMITTER</b>						
LVPECL Inputs(Differential)	Vin	400		2500	mVp	AC coupled inputs
Input Impedance (Differential)	Zin	85	100	115	ohms	Rin > 100 kohms @ DC
Tx_DISABLE Input Voltage - High		2		3.45	V	
Tx_DISABLE Input Voltage -Low		0		0.8	V	
Tx_FAULT Output Voltage -- High		2		Vcc+0.3	V	Io = 400µA; Host Vcc
Tx_FAULT Output Voltage --Low		0		0.5	V	Io = -4.0mA
<b>RECEIVER</b>						
LVPECL Outputs (Differential)	Vout	400	800	1200	mVpp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage - High		2		Vcc+0.3	V	Io = 400µA; Host Vcc
Rx_LOS Output Voltage -Low		0		0.8	V	Io = -4.0mA

MOD_DEF ( 0:2 )	VoH	2.5			V	With Serial ID
	VoL	0		0.5	V	

**Optical and Electrical Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Unit
9µm Core Diameter SMF	L		10		Km
Data Rate			1.25		Gbps
<b>Transmitter</b>					
Centre Wavelength	$\lambda_C$	1260	1310	1360	nm
Spectral Width (RMS)	$\sigma$			3	nm
Average Output Power	P <sub>Out</sub>	-10		-3	dBm
Extinction Ratio	EX	9			dB
Rise/Fall Time(20%~~80%)	tr/tf			1.2	ns
Output Optical Eye	IUT-T G.957 Compliant				
Data Input Swing Differential	V <sub>IN</sub>	500		2000	mV
Input Differential Impedance	Z <sub>IN</sub>	90	100	110	$\Omega$
TX Disable	Disable		2.0	VCC+0.3	V
	Enable		0	0.8	
TX_Fault	Fault		2.0	VCC+0.3	V
	Normal		0	0.8	
TX_Disable Assert Time	t <sub>off</sub>			10	us
<b>Receiver</b>					
Centre Wavelength	$\lambda_C$	1100		1600	nm
Receiver Sensitivity	P <sub>IN</sub>			-20	dBm
Output Differential Impedance	P <sub>IN</sub>	90	100	110	$\Omega$
Data Output Swing Differential	V <sub>OUT</sub>	370		2000	mV
Rise/Fall Time	Tr/tf			2.2	ns
LOS De-Assert	LOSD			-24	dBm
LOS Assert	LOSA	-40			dBm
LOS	High		2.0	VCC+0.3	V
	Low		0	0.8	

**Mechanical Specifications**



**SMCBGLLCX1-A**  
1000Base-LX SFP Module  
1310nm, 10Km, SMF, LC RoHS6



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### **Contact Information**

Approved Optics is a leading supplier of Network Transceivers and Connectivity products to Channel Partners, Resellers, and OEMs. With more than 9 years of direct industry experience, our products are resident in the most demanding and mission critical functional networks Worldwide. We serve as a Master Distributor to the largest CM's in the world and deploy the most rigorous testing and firmware management programs to bring the highest level of functional product to the market at a cost that makes sense.

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