

Alpha Bridge SFP ASFP-1G-LX Datasheet

Features

- SFP Multi-Source Agreement compliance
- Compliant with Fiber Channel 100-SM-LC-L standard
- Compliant with IEEE802.3z Gigabit Ethernet standard
- Industry standard small form pluggable (SFP) package
- Duplex LC connector
- Differential LVPECL inputs and outputs
- Single power supply 3.3V
- TTL signal detect indicator
- Hot Pluggable
- Class 1 laser product complies with EN 60825-1
- RoHS compliant



Application

- Distributed multi-processing
- Switch to switch interface
- High speed I/O for file server
- Bus extension application
- Channel extender, data storage

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units	Note
Storage Temperature	Ts	-40	85	°C	
Supply Voltage	Vcc	-0.5	4	V	
Input Voltage	VIN	-0.5	Vcc	V	
Output current	Io	---	50	mA	
Operating current	IOP	---	400	mA	

Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Units	Note
Case operating Temperature	Tc	0	70	°C	Abtpl-S10-13-C
		-40	85	°C	Abtpl-S10-13-I
Supply Voltage	Vcc	3.1	3.5	V	
Supply Current	ITX + IRX	---	250	mA	

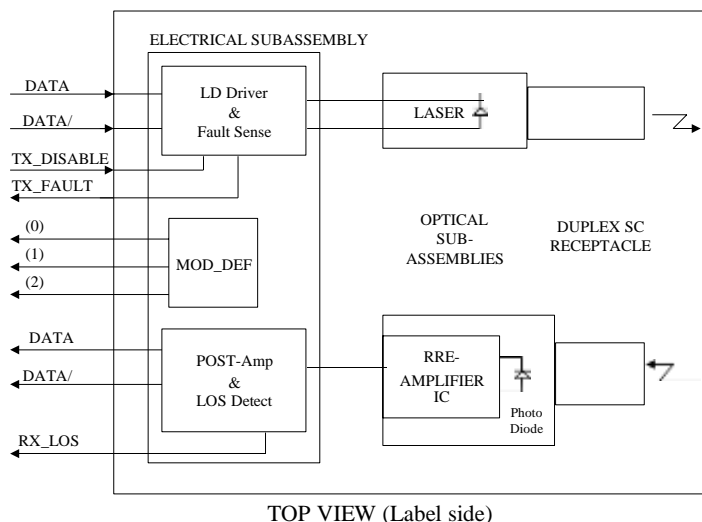
Transmitter Electro-optical Characteristics
V_{cc} = 3.1 V to 3.5 V, TC = 0 °C to 70 °C (-40 °C to 85 °C)

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Output Optical Power ^{9/125 mm fiber}	P _{out}	-9.5	---	-3	dBm	Average
Extinction Ratio	ER	9	---	---	dB	
Center Wavelength	λ _C	1270	1310	1355	nm	
Spectral Width (RMS)	Δλ	---	---	2.5	nm	
Rise/Fall Time, (20-80%)	T _{r, f}	---	---	260	ps	
Relative Intensity Noise	RIN	---	---	-120	dB/Hz	
Total Jitter	TJ	---	---	227	ps	
Output Eye	Compliant with IEEE802.3z					
Max. P _{out} TX-DISABLE Asserted	P _{OFF}	---	---	-45	dBm	
Differential Input Voltage	V _{DIFF}	0.4	---	2.0	V	

Receiver Electro-optical Characteristics
V_{cc} = 3.1 V to 3.5 V, TC = 0 °C to 70 °C (-40 °C to 85 °C)

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Optical Input Power-maximum	P _{IN}	-3	---	---	dBm	BER < 10-12
Optical Input Power-minimum (Sensitivity)	P _{IN}	---	---	-20	dBm	BER < 10-12
Operating Center Wavelength	λ _C	1260	---	1610	nm	
Optical Return Loss	ORL	12	---	---	dB	
Signal Detect-Asserted	P _A	---	---	-20	dBm	
Signal Detect-Deasserted	P _D	-35	---	---	dBm	
Differential Output Voltage	V _{DIFF}	0.5	---	1.2	V	
Data Output Rise, Fall Time (20-80%)	T _{r, f}	---	---	0.35	ns	
Receiver Loss of Signal Output Voltage-Low	RX_LOS _L	0	---	0.5	V	
Receiver Loss of Signal Output Voltage-High	RX_LOS _H	2.4	---	V _{cc}	V	

Block Diagram of Transceiver



Transmitter Section

The transmitter section consists of a 1310 nm InGaAsP laser in an eye safe optical subassembly (OSA) which mate to the fiber cable. The laser OSA is driven by a LD driver IC which converts differential input LVPECL logic signals into an analog laser driving current.

TX_DISABLE

The TX_DISABLE signal is high (TTL logic “1”) to turn off the laser output. The laser will turn on within 1ms when TX_DISABLE is low (TTL logic “0”).

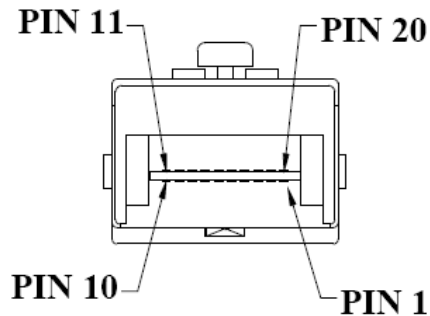
Receiver Section

The receiver utilizes a MSM detector integrated with a trans-impedance preamplifier in an OSA. This OSA is connected to a circuit providing post-amplification quantization, and optical signal detection.

Receive Loss (RX_LOS)

The RX_LOS is high (logic “1”) when there is no incoming light from the companion transceiver. This signal is normally used by the system for the diagnostic purpose. The signal is operated in TTL level.

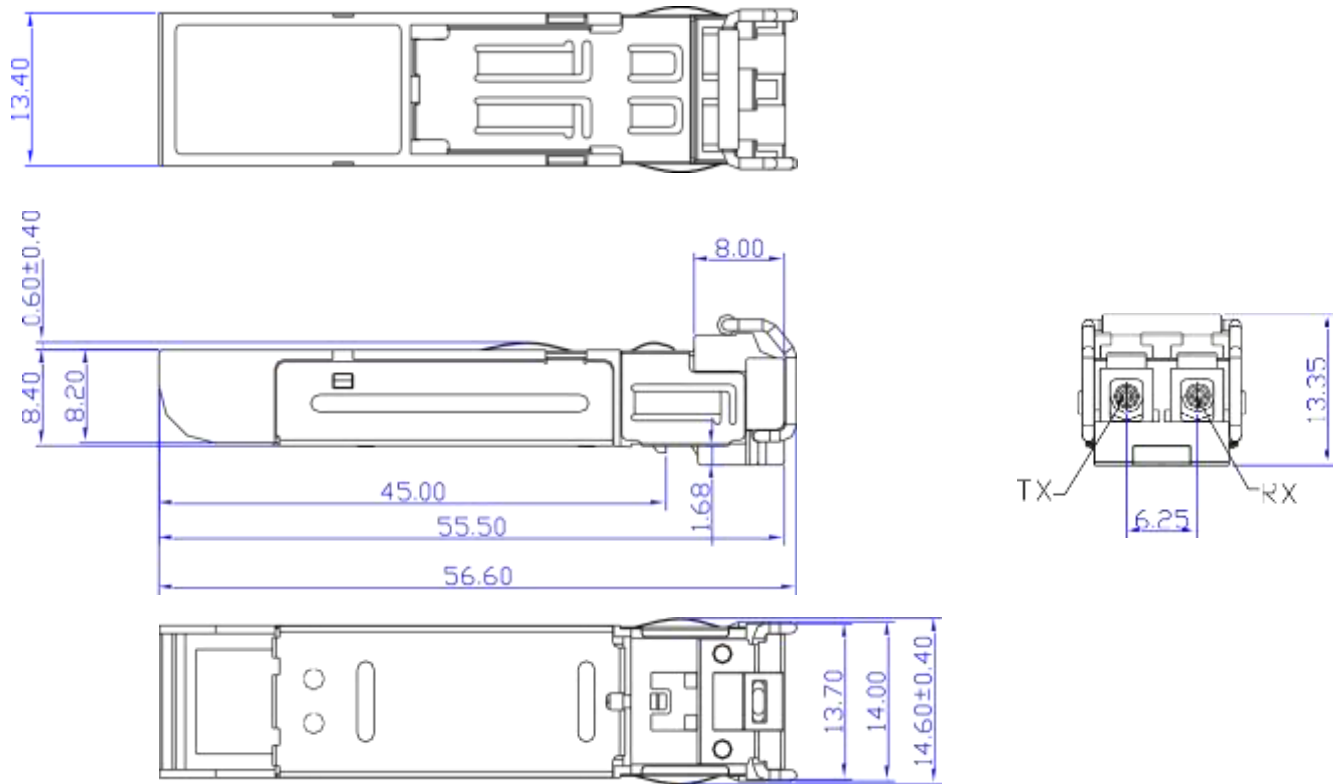
Pin Assignment



Pin Descriptions

Pin	Signal Name	Description
1	T _{GND}	Transmitter Ground
2	TX_FAULT	Transmit Fault
3	TX_DISABLE	Transmit Disable
4	MOD_DEF(2)	SDA Serial Data Signal
5	MOD_DEF(1)	SCL Serial Clock Signal
6	MOD_DEF(0)	TTL Low
7	RATE SELECT	Open Circuit
8	RX_LOS	Receiver Loss of Signal, TTL High, Open collector
9	R _{GND}	Receiver Ground
10	R _{GND}	Receiver Ground
11	R _{GND}	Receiver Ground
12	RX-	Receive Data Bar, Differential PECL, ac coupled
13	RX+	Receive Data, Differential PECL, ac coupled
14	R _{GND}	Receiver Ground
15	V _{CCR}	Receiver Power Supply
16	V _{CCT}	Transmitter Power Supply
17	T _{GND}	Transmitter Ground
18	TX+	Transmit Data, Differential PCEL, ac coupled
19	TX-	Transmit Data Bar, Differential PCEL, ac coupled
20	T _{GND}	Transmitter Ground

Dimensions



DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE +0.2mm UNLESS OTHERWISE SPECIFIED

Model Number	Part Number	Reach	Input/Out	Signal Detect	Voltage	Temperature
SFP-LX	OP6C-S10-13-C	10km	AC/AC	TTL	3.3V	0°C to 70 °C
SFP-LX-I	OP6C-S10-13-I	10km	AC/AC	TTL	3.3V	-40°C to 85 °C

Note: All information contained in this document is subject to change without notice.