

Light Optics

Building a brighter future

LO-SG3D5-20LD
100/1000Mbps Bi-Directional SFP Transceiver
20km 1000BASE-BX-U

Product Features

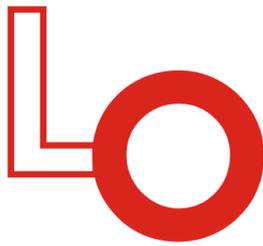
- Compliant with IEEE Std 802.3-2005 1000BASE-BX10-U
- Digital Diagnostic Monitoring available
- Specifications according to SFF-8074i and SFF-8472, revision 9.5
- Uncooled 1310nm Fabry-Perot (FP) Laser
- Up to 1.25Gb/s bi-directional data links
- Up to 20km on 9/125µm SMF
- Simplex LC connector compliant
- Single +3.3V DC power supply
- Hot-pluggable SFP footprint
- Class 1 laser safety certified
- Operating temperature Options
 - (Commercial) -10°C to +70°C
- RoHS Compliant

Applications

- 1000BASE-BX10-U
- Point to Point FTTH
- Fast Ethernet

Ordering Information

Part Number	Transmitter	Output Power	Receiver	Sensitivity	Reach	Temp	DDM	RoHS
LO-SG3D5-20LD	1310nm FP	-9 ~ -3dBm	1550nm PIN	< -23dBm	20km	-10 ~ 70 °C	Available	Compliant



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Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	T _s	-40	85	°C
Relative Humidity	RH	5	95	%
Supply Voltage	V _{CC}	-0.5	4.0	V

Recommended Operating Conditions

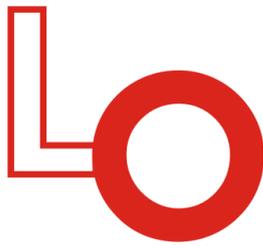
Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	LO-SG3D5-20LD T _C	-10	25	70	°C
Supply Voltage	V _{CC}	3.135	3.3	3.465	V
Data Rate	-	-	1250 125	-	Mb/s

Transceiver Electrical Characteristics

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Module Supply Current	I _{cc}	-	-	220	mA	-
Transmitter Differential Input Voltage (TD +/-)	-	300	-	2200	mV _{P-P}	1
Receiver Differential Output Voltage (RD +/-)	-	600	-	1200	mV _{P-P}	2
Low speed output: Transmitter Fault(TX_FAULT) / Loss of Signal (LOS)	VOH	2.0	-	V _{CC}	V	3
	VOL	0	-	0.8	V	-
Low speed iutput: Transmitter Disable (TX_DISABLE), MOD_DEF 1, MOD_DEF 2	VIH	2.0	-	V _{CC}	V	4
	VIL	0	-	0.8	V	-

Notes:

- Internally AC coupled and terminated to 100Ω differential load.
- Internally AC coupled, but requires a 100Ω differential termination or internal to Serializer/Deserializer.
- Pulled up externally with a 4.7KΩ-10KΩ resistor on the host board to V_{CCT,R}.
- Mod_Def1 and Mod_Def2 must be pulled up externally with a 4.7KΩ-10KΩ resistor on the host board to V_{CCT,R}.



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Transmitter Optical Characteristics

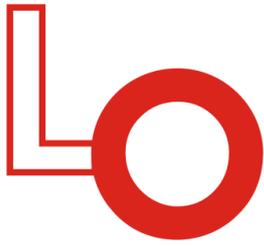
Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Launch Optical Power	P _o	-9	-6	-3	dBm	-
Center Wavelength Range	λ _c	1260	1310	1360	nm	-
Extinction Ratio	EX	9	-	-	dB	-
Spectral Width (RMS)	1260nm	-	-	2.09	nm	-
	1270nm	-	-	2.52		-
	1280nm	-	-	3.13		-
	1286nm~1343nm	-	-	3.50		-
	1350nm	-	-	3.06		-
	1360nm	-	-	2.58		-
Optical Rise/Fall Time	T _{rise} /T _{fall}	-	-	260	ps	-
P _{out} @TX-Disable Asserted	P _{off}	-	-	-45	dBm	-
Eye Diagram	IEEE Std 802.3-2005 1000BASE-BX10-U compatible					

Receiver Optical Characteristics

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Wavelength Range	-	1480	-	1600	nm	-
Receiver Sensitivity@1490nm	S	-	-	-23	dBm	1
	S	-	-	-24	dBm	2
Receiver Sensitivity@1550nm	S	-	-	-23	dBm	1
	S	-	-	-24	dBm	2
Receiver Overload	P _{OL}	-3	-	-	dBm	1,2
Optical Return Loss	ORL	12	-	-	dB	-
LOS De-Assert	LOS _D	-	-	-25	dBm	-
LOS Assert	LOS _A	-35	-	-	dBm	-
LOS Hysteresis	-	0.5	3	5	dB	-

Notes:

1. Measured with PRBS 2⁷-1 test pattern, 1.25Gb/s, EX=9dB, BER<10⁻¹⁰.
2. Measured with PRBS 2⁷-1 test pattern, 125Mb/s, EX=9dB, BER<10⁻¹⁰.

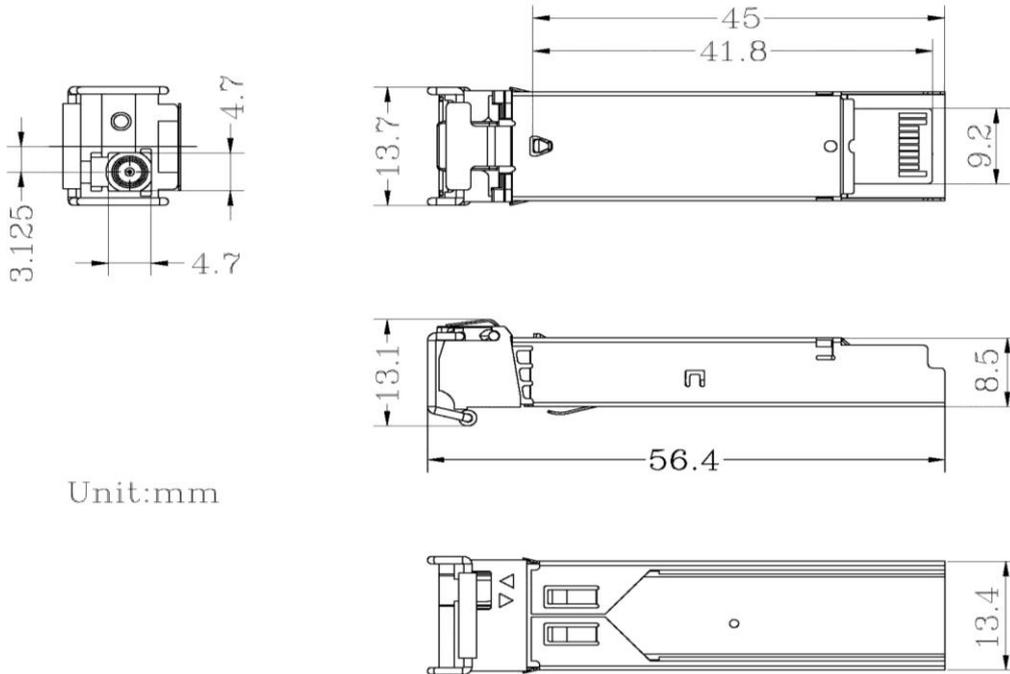


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Mechanical specifications



Unit:mm

Figure 5. Outline Drawing