SF-SM31020D-GP

- Single-Mode SFP Transceiver
- RoHS Compliant

Features

- Compliant with IEEE Std 802.3-2005, Gigabit Ethernet 1000Base-LX
- Compliant with SFF-8074i andSFF-8472, revision 9.5
- Compliant with SFP MSA Specification
- Digital Diagnostic Monitoring available
- Uncooled 1310nm Fabry-Perot (FP)Laser
- Up to 1.25Gb/s bi-directional data links
- Duplex LC connector compliant
- Single +3.3V DC power supply
- Hot-pluggable SFP footprint
- Class 1 and IEC60825-1 Laser Safety Compliant
- Operating temperature: -10°C to +70°C
- Up to 20km on 9/125μm SMF
- RoHS6 Compliant

Applications

- Gigabit Ethernet 1000Base-LX
- 1.0625Gb/s Fiber Channel
- Enterprise Router
- Switch to Switch Interface
- Other Optical Links

Ordering information

Part No.	Description
SF-SM31020D-GP	SFP 1.25Gbps LX 1310nm LC DDM SMF 20km

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	Minimum	Typical	Maximum	Unit
Operating Case Temperature	T_C	-10	25	70	°C
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V
Data Rate	-	0.1	-	1.25	Gb/s

Electrical Characteristics

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Module Supply Current	Icc	-	-	220	mA	-
Power dissipation	P_D	-	-	800	mW	-
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)	V_{OH}	2.0	-	Vcc	V	3
	V_{OL}	0	-	0.8	V	-
Low speed iutput: Transmitter Disable (TX_DISABLE), MOD_DEF 1, MOD_DEF 2	V_{IH}	2.0	-	Vcc	V	4
	V_{IL}	0	-	0.8	V	-

Notes:

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

Optical Characteristics

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Transmitter						
Launch Optical Power	Po	-9	-6	-3	dBm	-
Center Wavelength Range	λc	1260	1310	1360	nm	-
Extinction Ratio	EX	9	-	-	dB	-
Spectral Width(RMS)	Δλ	-	-	4	nm	-
Total Jitter	TJ	-	-	266	ps	-
Dispersion Penalty	-	-	-	1	dB	-
Optical Rise/Fall Time	T_{rise}/T_{fall}	-	-	260	ps	-
Pout @TX-Disable Asserted	P_{off}	-	-	-45	dBm	-
Eye Diagram	IEEE Std 802.3-2005 Gigabit Ethernet 1000Base-LX compatible					-
Receiver						
Receiver Sensitivity	S	-	-	-23	dBm	1
Receiver Overload	P_{OL}	-3	-	-	dBm	1
Optical Return Loss	ORL	12	-	-	dB	-
LOS De-Assert	LOS_D	-	-	-24	dBm	-
LOS Assert	LOS_A	-35	-	-	dBm	-
LOS Hysteresis	-	0.5	3	5	dB	-

Notes:

1. Measured with PRBS 2^7-1 test pattern, 1.25Gb/s, EX=9dB, BER<10^{-12}.

Mechanical specifications

Unit:mm