GBC PHOTONICS
DRIVING OPTICAL NETWORKS

SF-SM31020-GP

Single-Mode 1310nm 1.25Gbps FC/GBE
Duplex SFP Transceiver
RoHS6 Compliant

Features

- Operating Data Rate up to 1.25Gbps

  20km with 9/125 μm SMF
- Single 3.3V Power Supply and TTL Logic Interface
- Hot-Pluggable SFP Footprint Duplex LC

  Connector Interface
- Class 1 FDA and IEC60825-1 Laser Safety Compliant
- Operating Temperature

  Standard: 0℃~+70℃

  Industrial: -40℃~+85℃
- Compliant with MSA SFP Specification
- Compliant with SFF-8472

Applications

- Gigabit Ethernet Switches and

  Routers
- Fiber Channel Switch Infrastructure
- Other Optical Links

Ordering information

Part No.	Description
SF-SM31020-GP	SFP 1.25Gbps LX 1310nm LC SMF 20km
SF-SM31020D-GP	SFP 1.25Gbps LX 1310nm LC DDM SMF 20km

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	T_S	-40	+85	°C
Supply Voltage	V_{CC}	-0.5	3.6	V
Operating Relative Humidity		-	95	%

*Exceeding any one of these values may destroy the device immediately.

Recommended Operating Conditions

Parameter		Symbol		Min.	Typical	Max.	Unit
Operating Temperature		T_c	SF-SM31020-GP	0		+70	°C
			SF-SM31020DI-GP	-40		+85	
Power Supply Voltage		V_{CC}		3.15	3.3	3.45	V
Power Supply Current		I_{CC}				300	mA
Date Rate	GBE				1.25		Gbps
	FC				1.063		

Performance Specifications - Electrical

Parameter		Symbol	Min.	Typ.	Max	Unit	Notes
Transmitter							
LVPECL Inputs(Differential)		Vin	400		2000	mVpp	AC coupled inputs*(Note6)
Input Impedance (Differential)		Zin	85	100	115	ohms	Rin > 100 kohms @ DC
Tx_Dis	Disable		2		Vcc	V	
	Enable		0		0.8		
Tx_FAULT	Fault		2		Vcc+0.3	V	
	Normal		0		0.5		
Receiver							
LVPECL Outputs (Differential)		Vout	400		2000	mVpp	AC coupled outputs*(Note6)
Output Impedance (Differential)		Zout	85	100	115	ohms	
Rx_LOS	LOS		2		Vcc+0.3	V	
	Normal		0		0.8	V	
MOD_DEF (0:2)		VoH	2.5			V	With Serial ID
		VoL	0		0.5	V	

(1310nm FP and PIN, 20km)

Parameter	Symbol	Min.	Typical	Max.	Unit
9μm Core Diameter SMF	L		20		km
Data Rate			1.063/1.25		Gbps
Transmitter					
Centre Wavelength	λ_C	1260	1310	1360	nm
Spectral Width (RMS)	Δλ			3	nm
Average Output Power*(Note4)	Pout	-8		-3	dBm
Extinction Ratio*(Note5)	ER	9			dB
Rise/Fall Time(20%～80%)	tr/tf			0.26	ns
Total Jitter	TJ			0.43	UI
Output Optical Eye*(Note5)	Compliant with IEEE 802.3ah-2004*(Note8)				
TX_Disable Assert Time	t_off			10	us
Pout@TX Disable Asserted	Pout			-45	dBm
Receiver					
Center Wavelength	λ	1260		1600	nm
Receiver Sensitivity*(Note7)	Pmin			-22	dBm
Receiver Overload	Pmax	-3			dBm
LOS De-Assert	LOSD			-23	dBm
LOS Assert	LOSA	-42			dBm
LOS Hysteresis*(note8)		0.5			dB

Mechanical Specifications