

Technical Specifications TL-1GSFP-SM20K

Features at a Glance

- 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
- Built-in digital diagnostic functions, including optical power monitoring
- Commercial Temperature Range: 0~+70°C
- Compliant with MSA SFP Specification
- Compliant with SFF-8472



The 1GSFP-SM20K single-mode transceivers are small form factor pluggable modules for bi-directional serial optical data communications such as Gigabit Ethernet 1000BASE-LX and Fiber Channel 1x SM-LC-L FC-PI. It is with the SFP 20-pin connector to allow hot plug capability. This module is designed for single mode fiber and operates at a nominal wavelength of 1310nm.

The transmitter section uses a multiple quantum well 1310nm laser and is a class 1 laser compliant according to International Safety Standard IEC-60825. The receiver section uses an integrated InGaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC. The 1GSFP-SM20K are designed to be compliant with SFF-8472 SFP Multi-Source Agreement (MSA).

Basic Specifications	
Form Type	SFP
Max Data Rate	1000Mbps
Wavelength	1310nm
Max Cable Distance	20km
Interface	LC duplex
Optical Components	FP 1310nm
Cable Type	SMF
DOM Support	Yes
TX Power	-9.5 ~ -3dBm
Receiver Sensitivity	< -23dBm
Commercial Temperature Range	0 to 70°C (32 to 158°F)
Protocols	SFF-8472 MSA, IEEE 802.3ah-2004

Specifications

General Product Characteristics					
Parameter	Symbol	Min	Typ.	Max	Unit
Bit Rate	BR			1.25	Gbps
Max. Supported Link Length	L _{MAX}			20	km
Absolute Maximum Ratings					
Parameter	Symbol	Min	Typ.	Max	Unit
Storage Temperature	T _S	-40		+85	°C
Supply Voltage	V _{CC}	-0.5		3.6	V
Operating Relative Humidity		-		95	%
Optical and Electrical Characteristics					
Parameter	Symbol	Min	Typ.	Max	Unit
9μm Diameter MMF	L		20		km
Power Supply Voltage	V _{CC}	3.15	3.3	3.45	V
Power Supply Current	I _{CC}			300	Ma
Data Rate GBE			1.25		Gbps
Data Rate FC			1.063		Gbps
Transmitter					
Parameter	Symbol	Min	Typ.	Max	Unit
Center Wavelength	λ _c	1260	1310	1360	nm
Spectral Width (RMS)	Δλ			4	nm
Average Output Power	P _{out}	-9		-3	dBm
Extinction Ratio	ER	9		Db	
Rise/Fall Time (20%~80%)	tr/tf			0.26	ps
Total Jitter	TJ			0.43	UI
Output Optical Eye	Compliant with IEEE 802.3ah-2004				
TX_Disable Assert Time	t _{off}			10	μs
Pout@TX Disable Asserted	P _{out}			-45	dBm
Receiver					
Parameter	Symbol	Min	Typ.	Max	Unit
Center Wavelength	λ	1260		1600	nm
Receiver Sensitivity	P _{MIN}			-21	dBm
Receiver Overload	P _{MAX}	-3			dBm
Return Loss		12			dBm
LOS De-Assert	LOSD			-22	dB
LOS Assert	LOSA	-35			dBm
LOS Hysteresis		0.5			dB
Other					
Warranty	Three years				

Dimensional Drawings

