

SF-MM31002D-GP

Multi-Mode 1310nm GBE/FC/FE
Duplex SFP Transceiver
RoHS6 Compliant

Features

- ◆ Operating data rate up to 1.25Gbps
- ◆ 1310nm FP laser transmitter
- ◆ 2km with 62.5/125µm MMF
- ◆ 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 case temperature
Standard: 0°C~+70°C
Industrial:-40°C~+85°C
- ◆ Compliant with SFP MSA
- ◆ Compliant with SFF-8472

Applications

- ◆ Fiber Channel Links
- ◆ Gigabit Ethernet Links
- ◆ Fast Ethernet Links
- ◆ Other Optical Links

Ordering Information

Part No.	Description
SF-MM31002D-GP	SFP 1.25Gbps SX+ 1310nm LC DDM MMF 2km

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 Case Temperature	T_c SF-MM31002D-GP	0		+70	°C
	SF-MM31002DI-GP	-40		+85	
Power Supply Voltage	V_{CC}	3.15	3.3	3.45	V
Power Supply Current	I_{CC}			300	mA
Data Rate				1250	Mbps

Performance Specifications - Electrical

Parameter		Symbol	Min.	Typ.	Max	Unit	Notes
Transmitter							
LVPECL Inputs(Differential)		Vin	500		2400	mVpp	AC coupled inputs*(Note4)
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	370		2000	mVpp	AC coupled outputs*(Note4)
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	

Performance Specifications – Optical

Parameter	Symbol	Min.	Typical	Max.	Unit
50µm Core Diameter MMF	L	0.5			m
Data Rate			1.25		Gbps
Transmitter					
Center Wavelength	λ_c	1260	1310	1360	nm
Spectral Width (RMS)	$\Delta\lambda$			5	nm
Average Output Power*(Note5)	P _{out}	-9		-3	dBm
Extinction Ratio*(Note6)	ER	8.2			dB
Rise/Fall Time(20%~80%)	tr/tf			0.26	ns
Total Jitter*(Note6)	TJ			0.43	UI
Output Optical Eye*(Note6)	IEEE802.3ah-2004 Compliant*(Note8)				
TX_Disable Assert Time	t _{off}			10	us
Receiver					
Center Wavelength	λ_c	1260		1600	nm
Receiver Sensitivity*(Note7)	P _{min}			-21	dBm
Receiver Overload	P _{max}	-3			dBm
Return Loss		12			dB
LOS De-Assert	LOSD			-22	dBm
LOS Assert	LOSA	-45			dBm
LOS Hysteresis*(Note9)		0.5			dB

Note4: LVPECL logic, internally AC coupled.

Note5: Output is coupled into a 62.5/125 mm multi-mode fiber.

Note6: Filtered, measured with a PRBS 2⁷-1 test pattern @1.25Gbps

Note7: Minimum average optical power measured at BER less than 1E-12, with a 2⁷-1 PRBS and ER=9 dB.

Mechanical Specifications

