

SO-SFP-1000BASE-MMXD

SFP, 1.25 Gbps GigE, 1310nm, MM, DDM, 12dB, 2km (50/125), 1km (62.5/125)

OVERVIEW

The SO-SFP-1000BASE-MMXD series multi-mode transceiver is small form factor pluggable module for bi-directional serial optical data communications such as IEEE 802.3z Gigabit Ethernet and SDH/SONET. It is with the SFP 20-pin connector to allow hot plug capability. This module is designed for multi-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 GaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC. The SO-SFP-1000BASE-MMXD series are designed to be compliant with SFF-8472 MSA.

PRODUCT FEATURES

- Operating data rate up to 1.25Gbps
- 1310nm FP laser transmitter
- 1km with 62.5/125µm MMF
- 2km with 50/125µm MMF
- Single 3.3V power supply and TTL logic interface
- Hot-pluggable SFP footprint duplex LC connector interface
- Operating case temperature
 - Standard: 0 °C~+70 °C
 - Industrial:-40 °C~+85 °C
- Compliant with SFP MSA
- Compliant with SFF-8472
- RoHS 6/6 compliant

APPLICATIONS

- Fibre Channel links
- Gigabit Ethernet links
- Fast Ethernet links
- Optical networking

ORDERING INFORMATION

Part Number	Description
SO-SFP-1000Base-MMXD	SFP, 1.25 Gbps GigE, 1310nm, MM, DDM, 12dB, 2km (50/125), 1km (62,5/125)
SO-SFP-1000Base-MMXD-I	SFP, 1.25 Gbps GigE, 1310nm, MM, DDM, 12dB, 2km (50/125), 1km (62,5/125), ind.temp.

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ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit
Storage Temperature	TS	-40	+85	°C
Supply Voltage	VCC	-0.5	3.6	V
Operating Relative Humidity			95	%

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Unit	
Case Operating Temperature	T_c	SO-SFP-1000Base-MMXD	0		+70	°C
		SO-SFP-1000Base-MMXD-I	-40		+85	
Power Supply Voltage	Vcc	3.15	3.3	3.45	V	
Power Supply Current	Icc			300	mA	
Data rate				1250	Mbps	

PERFORMANCE SPECIFICATIONS – ELECTRICAL TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
LVPECL Inputs(Differential)	V_{IN}	500		2400	mVpp	AC coupled inputs
Input Impedance (Differential)	Z_{IN}	85	100	115	ohms	Rin > 100 kohms @ DC
TX Disable	Disable	2		Vcc	V	
	Enable	0		0.8		
TX FAULT	Fault	2		Vcc+0.3	V	
	Normal	0		0.5		

PERFORMANCE SPECIFICATIONS – ELECTRICAL RECEIVER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
LVPECL Outputs (Differential)	Vout	370		2000	mVpp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage – High		2		Vcc+0.3	V	
Rx_LOS Output Voltage – Low		0		0.8	V	
MOD_DEF (2:0)	VoH	2.5			V	With Serial ID
	VoL	0		0.5	V	

OPTICAL AND ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
50µm Core Diameter MMF	L			2	km
Data Rate			1.25		Gbps

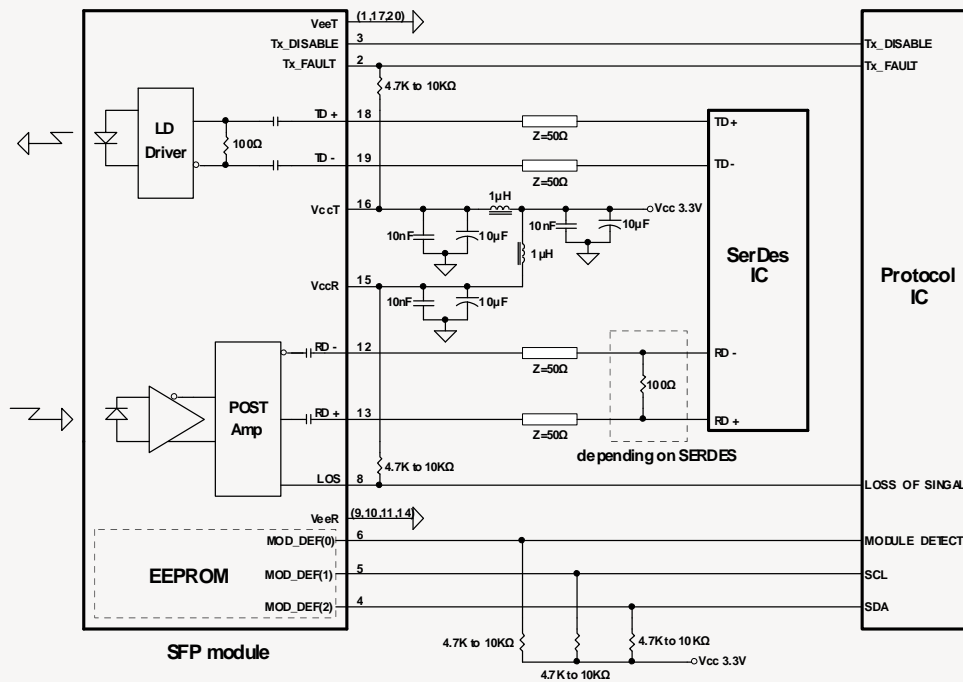
OPTICAL AND ELECTRICAL CHARACTERISTICS TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit
Centre Wavelength	λ_c	1260	1310	1360	nm
Spectral Width (RMS))	$\Delta\lambda$			5	nm
Average Output Power	P_{out}	-9		-3	dBm
Extinction Ratio	ER	8.2			dB
Rise/Fall Time(20%~80%)	t_r/t_f			0.26	ns
Total Jitter	TJ			0.43	UI
Output Optical Eye		IEEE802.3z and ANSI Fiber Channel Compliant			
TX Disable Assert Time	t_{off}			10	us

OPTICAL AND ELECTRICAL CHARACTERISTICS RECEIVER

Parameter	Symbol	Min	Typ	Max	Unit
Centre Wavelength	λ_c	1260		1600	nm
Receiver Sensitivity	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		0.5			dB

RECOMMENDED CIRCUIT SCHEMATIC



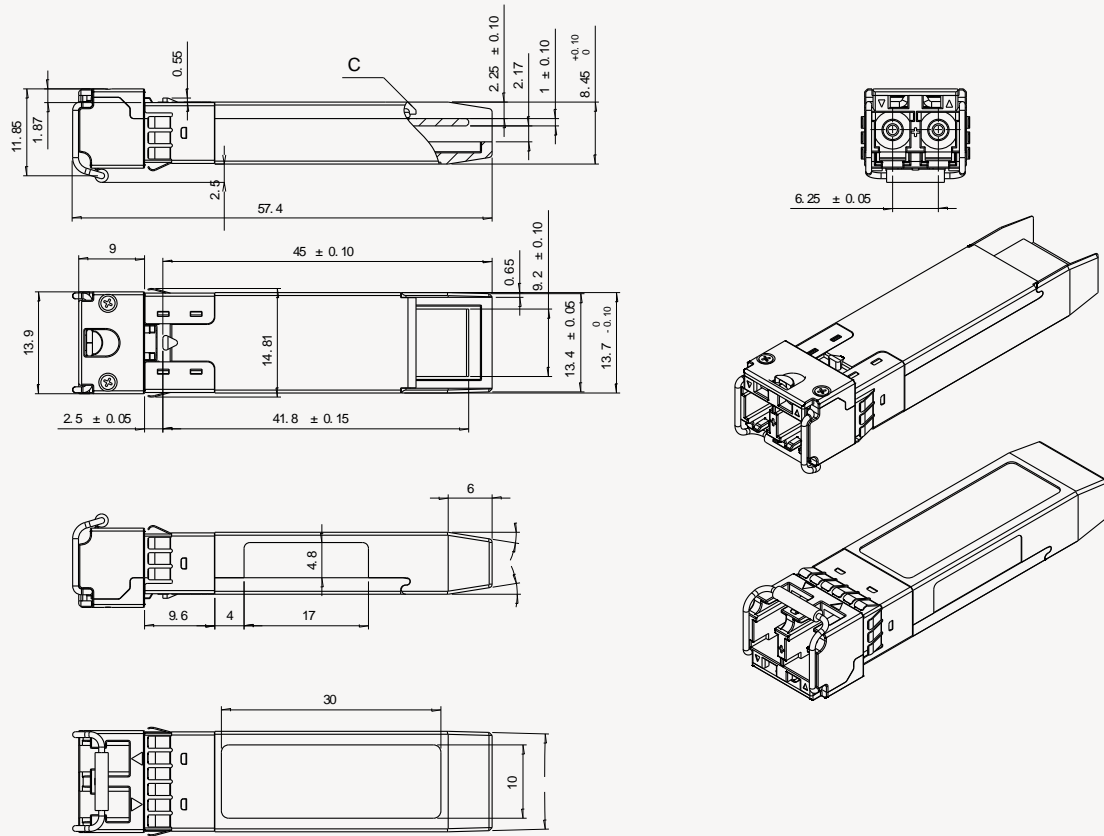
PIN FUNCTION DEFINITIONS

PIN	Signal Name	Description	PIN	Signal Name	Description
1	V _{EE} T	Transmitter Signal Ground	11	V _{EE} R	Receiver Signal Ground
2	TX_Fault	Transmitter Fault Indication. Logic "1" Output = Laser Fault. Logic "0" Output = Normal Operation	12	RD-	Inverse Receiver Data Out
3	TX_Disable	Logic "1" Input (or no connection) = Laser off, Logic "0" = Laser on.	13	RD+	Receiver Data Out
4	SDA	Modulation Definition 2 – Two wires serial ID Interface	14	V _{EE} R	Receiver Signal Ground
5	SDL	Modulation Definition 1 – Two wires serial ID Interface	15	V _{CC} R	Receiver Power – 3.3V±5%
6	MOD-ABS	Modulation Definition 0 – Ground in Module	16	V _{CC} T	Transmitter Power – 3.3V±5%
7	RS0	RX Rate Select (LVTTTL). This pin has an internal 30k pulldown to ground. A signal on this pin will not affect module performance.	17	V _{EE} T	Transmitter Signal Ground
8	RX_LOS	Loss of Signal Out (OC).	18	TD+	Transmitter Data In
9	RS1	TX Rate Select (LVTTTL). This pin has an internal 30k pulldown to ground. A signal on this pin will not affect module performance.	19	TD-	Inverse Transmitter Data In
10	V _{EE} R	Receiver Signal Ground	20	V _{EE} T	Transmitter Signal Ground

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MECHANICAL DRAWING



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