SO-SFP-622M-L120DH-Cxx

SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km

OVERVIEW

The SO-SFP-622M-L120DH-Cxx series single mode transceiver is small form factor pluggable module for serial optical data communications such as SONET OC-12/SDH STM-4 and Fast Ethernet. 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 CWDM. There are eighteen center wavelengths available from 1270nm to 1610nm, with each step 20nm. The transmitter section uses a multiple quantum well CWDM DFB laser and is a class 1 laser compliant according to International Safety Standard IEC-60825. The receiver section uses an integrated InGaAs avalanche detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC. The SO-SFP-622M-L120DH-Cxx series are designed to be compliant with SFF-8472.

PRODUCT FEATURES

- Operating data rate up to 622Mbps
- 18-Wavelength CWDM DFB LD transmitter from 1270nm to 1610nm, with step 20nm
- Single 3.3V power supply and TTL logic interface
- Hot-Pluggable SFP footprint duplex LC connector interface
- Compliant with Class 1 FDA and IEC60825-1 laser safety
- Operating case temperature
  - Standard 0℃ to 70℃.
  - Extended -20℃ to +85℃.
- Compliant with SFP MSA
- Compliant with SFF-8472

APPLICATIONS

- SDH/SONET
- Fast Ethernet
- CWDM, Optical networking and equipment connectivity

ORDERING INFORMATION

Part Number	Description
SO-SFP-622M-L120DH-Cxx*	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km
SO-SFP-622M-L120DH-Cxx-E*	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, ext. temp

*xx = Refers to notation for frequency data. Please see extended order information on last page for additional information.

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
Operating Case Temperature	*Tc*	*SO-SFP-622M-L120DH-Cxx*	0		+70	°C
		SO-SFP-622M-L120DH-Cxx -I	-20		+85	°C
Power Supply Voltage		*Vcc*	3.15	3.3	3.45	V
Power Supply Current		*Icc*			300	mA
Data Rate	OC-12/STM-4			622		Mbps
	OC-3/STM-1			155		
	100M			100		

PERFORMANCE SPECIFICATIONS – ELECTRICAL TRANSMITTER

Parameter		Symbol	Min	Typ	Max	Unit	Notes
LVPECL Inputs(Differential)		V_{IN}	400		2000	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		0.8		

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		0.8	V	

PERFORMANCE SPECIFICATIONS – OPTICAL

Parameter	Symbol	Min	Typ	Max	Unit
Data Rate		100	622		Mbps

PERFORMANCE SPECIFICATIONS – OPTICAL TRANSMITTER

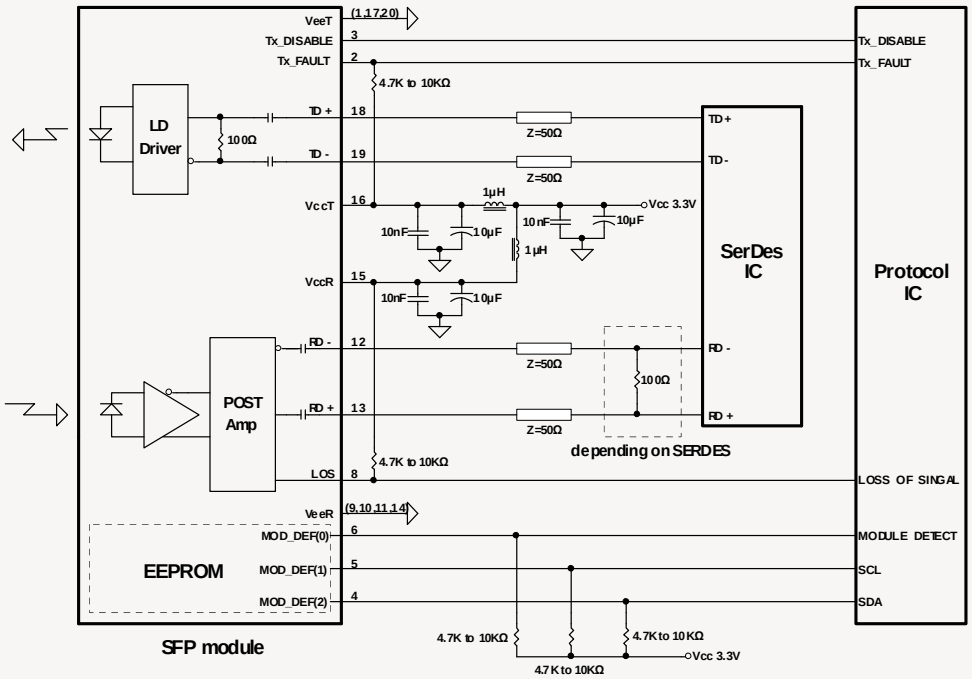
Parameter	Symbol	Min	Typ	Max	Unit
Centre Wavelength	*λc*	λc-5.5	λc	λc+7.5	nm

Spectral Width (RMS)	$\Delta\lambda$		1	nm
Average Output Power	P_{out}	2	7	dBm
Extinction Ratio	*ER*	8.2		dB
Side Mode Suppression Ratio	*SMSR*	30		dB
Rise/Fall Time(20%~80%)	*tr/tf*		2	ns
Output Optical Eye		IUT-T G.957 Complian		
TX Disable Assert Time	*t_off*		10	us

PERFORMANCE SPECIFICATIONS – OPTICAL RECEIVER

Parameter		Symbol	Min	Typ	Max	Unit
Centre Wavelength		λ	1100		1650	nm
Receiver Sensitivity	OC-12/STM-4	*Pmin*			-37	dBm
	OC-3/STM-1				-38	
	100M				-39	
Receiver Overload		P_{max}	-8			dBm
Return Loss			14			dB
Optical Path Penalty					1	dB
LOS De-Assert		*LOSD*			-38	dBm
LOS Assert		*LOSA*	-45			dBm
LOS Hysteresis			0.5			dB

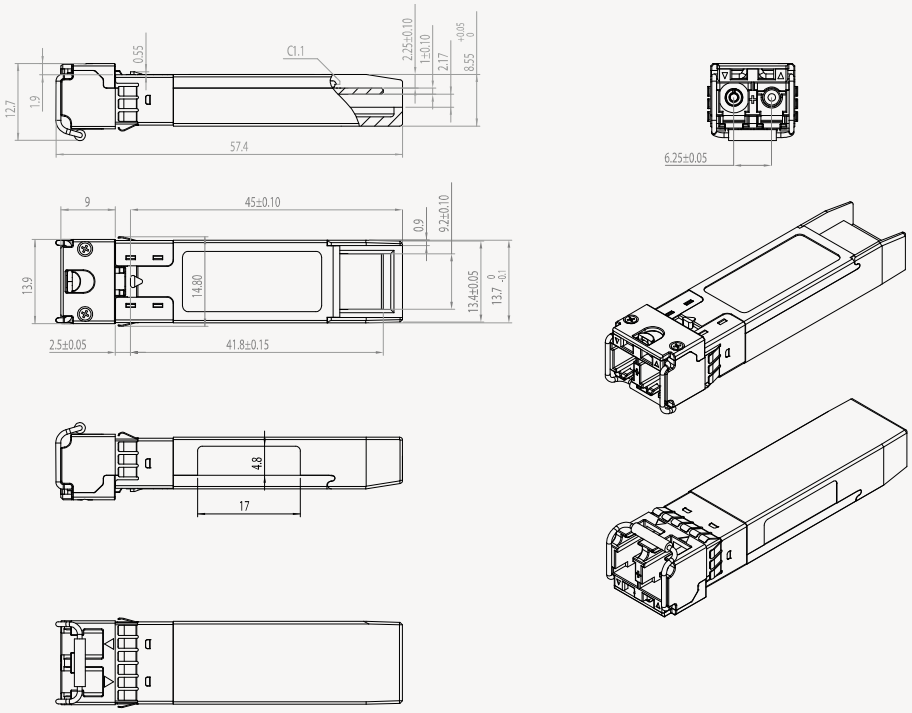
FUNCTIONAL DIAGRAM OF TRANSCEIVER



PIN ASSIGNMENT ACCORDING TO MSA

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 (LVTTL). 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 (LVTTL). 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

MECHANICAL DIMENSIONS



EXTENDED ORDERING INFORMATION, STANDARD

Part Number	Description
SO-SFP-622M-L120DH-C27	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1270nm
SO-SFP-622M-L120DH-C29	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1290nm
SO-SFP-622M-L120DH-C31	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1310nm
SO-SFP-622M-L120DH-C33	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1330nm
SO-SFP-622M-L120DH-C35	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1350nm
SO-SFP-622M-L120DH-C37	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1370nm
SO-SFP-622M-L120DH-C39	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1390nm
SO-SFP-622M-L120DH-C41	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1410nm
SO-SFP-622M-L120DH-C43	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1430nm
SO-SFP-622M-L120DH-C45	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1450nm
SO-SFP-622M-L120DH-C47	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1470nm
SO-SFP-622M-L120DH-C49	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1490nm
SO-SFP-622M-L120DH-C51	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1510nm
SO-SFP-622M-L120DH-C53	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1530nm
SO-SFP-622M-L120DH-C55	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1550nm
SO-SFP-622M-L120DH-C57	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1570nm
SO-SFP-622M-L120DH-C59	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1590nm
SO-SFP-622M-L120DH-C61	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1610nm

EXTENDED ORDERING INFORMATION, EXTENDED

Part Number	Description
SO-SFP-622M-L120DH-C27-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1270nm, ext. temp
SO-SFP-622M-L120DH-C29-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1290nm, ext. temp
SO-SFP-622M-L120DH-C31-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1310nm, ext. temp
SO-SFP-622M-L120DH-C33-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1330nm, ext. temp
SO-SFP-622M-L120DH-C35-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1350nm, ext. temp
SO-SFP-622M-L120DH-C37-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1370nm, ext. temp
SO-SFP-622M-L120DH-C39-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1390nm, ext. temp
SO-SFP-622M-L120DH-C41-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1410nm, ext. temp
SO-SFP-622M-L120DH-C43-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1430nm, ext. temp
SO-SFP-622M-L120DH-C45-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1450nm, ext. temp
SO-SFP-622M-L120DH-C47-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1470nm, ext. temp
SO-SFP-622M-L120DH-C49-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1490nm, ext. temp
SO-SFP-622M-L120DH-C51-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1510nm, ext. temp
SO-SFP-622M-L120DH-C53-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1530nm, ext. temp
SO-SFP-622M-L120DH-C55-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1550nm, ext. temp
SO-SFP-622M-L120DH-C57-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1570nm, ext. temp
SO-SFP-622M-L120DH-C59-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1590nm, ext. temp
SO-SFP-622M-L120DH-C61-E	SFP, 622 Mbps, CWDM, SM, DDM, 39dB, 120km, 1610nm, ext. temp