

SO-SFP-1000BASE-BX120D-5157/5751

SFP BIDI, 1.25 Gbps GigE, 1510/1570nm, SM, DDM, 33dB, 120km, LC

OVERVIEW

The SO-SFP-1000Base-BX120D series is small form factor pluggable module for GBE/FC single fiber communications. It is with the SFP 20-pin connector to allow hot plug capability. The SO-SFP-1000Base-BX120D series are designed to be compliant with SFF-8472.

PRODUCT FEATURES

- Up to 1.25Gbps data links
- 33dB power budget optional
- Tx/Rx Wavelength are compliant with ITU-T G.694.2, with wavelength spacing more than 60nm
- Single 3.3V power supply and TTL logic interface
- Hot-Pluggable SFP footprint simplex LC connector interface
- Class 1 FDA and IEC60825-1 laser safety compliant
- Operating temperature
 - Standard: 0 °C~+70 °C
 - Industrial: -40 °C~+85 °C
- Compliant with SFP MSA
- Compliant with SFF-8472

APPLICATIONS

- Fibre Channel links
- Gigabit Ethernet
- Fast Ethernet
- WDM Gigabit Ethernet links
- Other optical links

ORDERING INFORMATION

Part Number	Description
SO-SFP-1000Base-BX120D-5157	SFP BIDI, 1.25 Gbps GigE, TX/RX=1510/1570nm, SM, DDM, 33dB, 120km, LC
SO-SFP-1000Base-BX120D-5751	SFP BIDI, 1.25 Gbps GigE, TX/RX=1570/1510nm, SM, DDM, 33dB, 120km, LC
SO-SFP-1000Base-BX120D-5157-I	SFP BIDI, 1.25 Gbps GigE, TX/RX=1510/1570nm, SM, DDM, 33dB, 120km, LC, ind.temp
SO-SFP-1000Base-BX120D-5751-I	SFP BIDI, 1.25 Gbps GigE, TX/RX=1570/1510nm, SM, DDM, 33dB, 120km, LC, 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	TA	SO-SFP-1000BASE- BX120D-5157/5751			+70	°C
		SO-SFP-1000BASE- BX120D-5157/5751-I	-40		+85	
Power Supply Voltage	Vcc	3.15	3.3	3.45	V	
Power Supply Current	Icc			300	mA	
Data rate	FE		100		Mbps	
	FC		1.063		Gbps	
	GBE		1.25		Gbps	

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	R _{in} > 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)	V _{out}	370		2000	mVpp	AC coupled outputs
Output Impedance (Differential)	Z _{out}	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	

PERFORMANCE SPECIFICATIONS - OPTICAL

Parameter	Symbol	Min	Typ	Max	Unit
Power Budget	L	33			dB
Data Rate		100		1250	Mbps

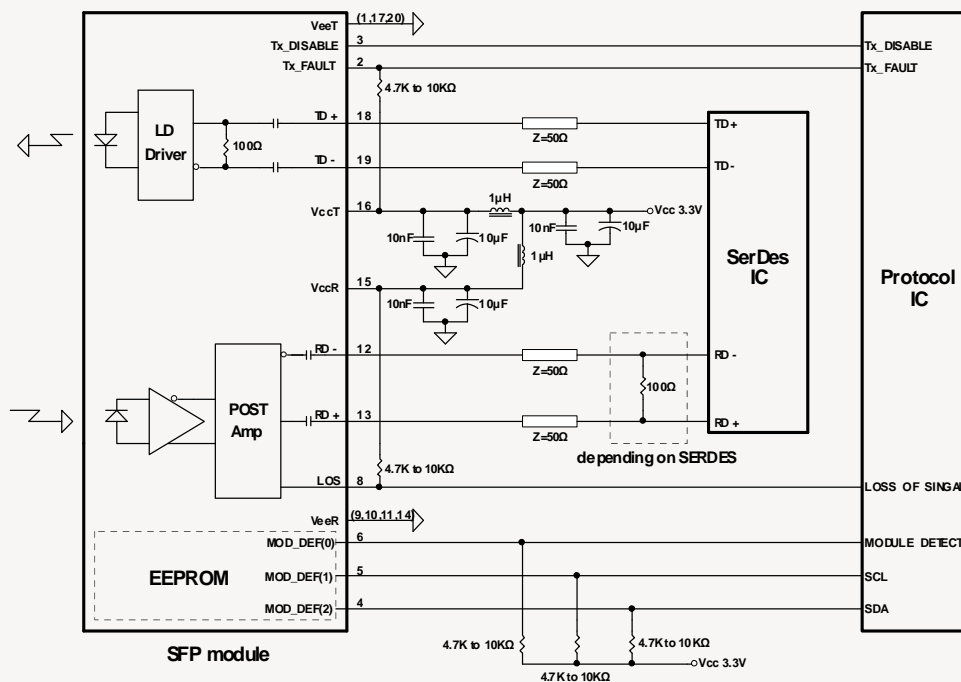
PERFORMANCE SPECIFICATIONS - OPTICAL TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit
Channel Centre Wavelength		$\lambda_c - 6.5$	λ_c	$\lambda_c + 7$	nm
Spectral Width (-20dB)	$\Delta\lambda$			1	nm
Average Output Power	P_{out}	0		+5	dBm
Extinction Ratio	ER	9			dB
Side Mode Suppression Ratio	SMSR	30			dB
Rise/Fall Time(20%~80%)	t_r/t_f			2	ns
Output Optical Eye		IUT-T G.957 Compliant			
TX Disable Assert Time	t_{off}			10	us

PERFORMANCE SPECIFICATIONS - OPTICAL RECEIVER

Parameter	Symbol	Min	Typ	Max	Unit
Channel Centre Wavelength		$\lambda - 20$	λ	$\lambda + 20$	nm
Receiver Sensitivity	P_{min}			-33	dBm
Receiver Overload	P_{max}	-8			dBm
Return Loss		12			dB
Optical Path Penalty				1	dB
LOS De-Assert	LOSD			-34	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

