

# SO-XFP-8G-L10D

XFP, 8/4/2 Gbps FC/FICON, 1310nm, SM, DDM, 8dB, 10km

## OVERVIEW

The SO-XFP-8G-L10D is a multi-purpose optical transceiver module for 8.5Gbit/s data transmission applications at 850nm. It is ideally suited for 8G storage area network (SAN/NAS) application based on the Fibre Channel standards designed for short range distances the transceiver module comprises a transmitter with a vertical cavity surface emitting laser (VCSEL) and a receiver with a PIN photodiode. Transmitter and receiver are separate within a wide temperature range and offers optimum heat dissipation and excellent electromagnetic shielding thus enabling high port densities for 10 GbE systems.

## PRODUCT FEATURES

- Supports Up to 8.5Gb/s bit rates
- Hot-pluggable XFP footprint
- Link length up to 10km
- Uncooled 1310nm DFB laser
- Duplex LC connector
- Power dissipation <2.5W
- Built-in digital diagnostic functions
- Case operating temperature:
  - Standard: 0C to +70C
  - Industrial: -40C to +85C
- Complaint with XFP MSA
- Complaint with 8GFC 800-SM-LL-L

## APPLICATIONS

- 800-SM-LC-L 8G Fibre Channel
- Other optical links

## ORDERING INFORMATION

Part Number	Description
SO-XFP-8G-L10D	XFP, 8/4/2 Gbps FC/FICON, 1310nm, SM, DDM, 8dB, 10km
SO-XFP-8G-L10D-I	XFP, 8/4/2 Gbps FC/FICON, 1310nm, SM, DDM, 8dB, 10km-ind.temp

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage 1	Vcc3	-0.5	4.0	V
Maximum Supply Voltage 2	Vcc5	-0.5	6.0	V
Storage Temperature	TS	-40	85	°C
Case Operating Temperature	SO-XFP-8G-L10D	0	70	°C
	SO-XFP-8G-L10D -I	-40	85	

## RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Typ	Max.	Unit
Supply Voltage 1	Vcc3	3.13		3.45	V
Supply Voltage 2	Vcc5	4.75		5.25	V

## ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Main Supply Voltage	Vcc5	4.75		5.25	V	
Supply Voltage #2	Vcc3	3.13		3.45	V	
Supply Current – Vcc5 supply	Icc5			250	mA	
Supply Current – Vcc3 supply	Icc3			500	mA	

## ELECTRICAL CHARACTERISTICS TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Module total power	P			2.5	W	
Input Impedance (Differential)	Rin		100		Ω	
Differential Data Input Swing	Vin, pp	120		820	mV	
Transmit Disable Voltage	VD	2.0		Vcc	V	
Transmit Enable Voltage	VEN	GND		GND+0.8	V	
Transmit Disable Assert Time				10	μs	

## ELECTRICAL CHARACTERISTICS RECEIVER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Differential Data Output Swing	Vout,pp	340	650	850	mV	
Data Output Rise Time	Tr			38	ps	
Data Output Fall Time	Tf			38	ps	20% – 80%
LOS Fault	VLOS Fault	Vcc – 0.5		VccHOST	V	20% – 80%
LOS Normal	VLOS Normal	GND		GND+0.5	V	

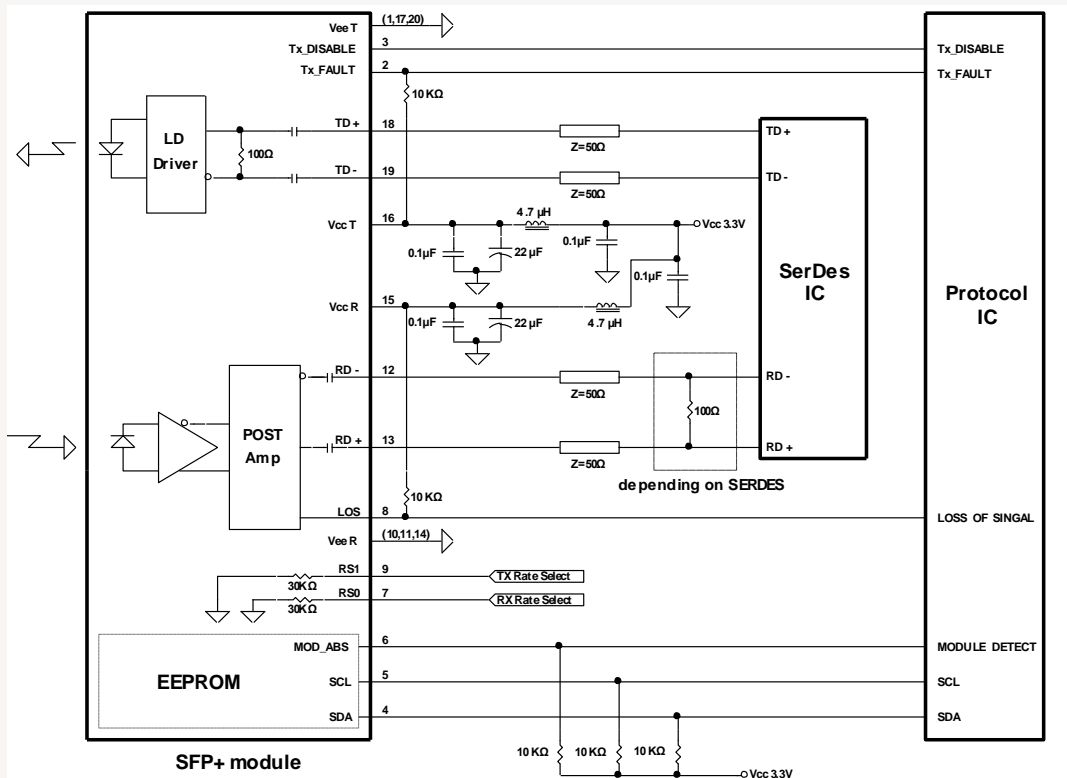
## OPTICAL CHARACTERISTICS TRANSMITTER

Parameter	Symbol	Min.	Typ	Max.	Unit
Optical output Power	$P_o$	-5		0	dBm
Optical Wavelength	$\lambda_c$	1290		1330	nm
Optical Extinction Ratio	$ER$	3.5			dB
Side Mode Suppression Ratio	$SSR_{min}$			30	dB
Average Launch power of OFF transmitter	$P_{off}$	-30			dBm
Tx Jitter	$TX_j$	Compliant with each standard requirements			

## OPTICAL CHARACTERISTICS RECEIVER

Parameter	Symbol	Min.	Typ	Max.	Unit
Receiver Sensitivity @ 10.7Gb/s	$P_{min}$			-13	dBm
Maximum Input Power	$P_{max}$	0.5			dBm
Optical Centre Wavelength	$\lambda_c$	1270		1600	nm
Receiver Reflectance	$R_{rx}$			-14	dB
LOS De-Assert	$LOSD$			-14	dBm
LOS Assert	$LOSA$	-32			dBm
LOS Hysteresis		1			dB

## FUNCTIONAL DIAGRAM OF TRANSCEIVER AND RECOMMENDED CIRCUIT SCHEMATIC



Subject to change without notice.

For more information, visit [smaroptics.com](http://smaroptics.com).

### PIN ASSIGNMENT ACCORDING TO MSA

PIN	Signal Name	Description	PIN	Signal Name	Description
1	V <sub>EE</sub> T	Transmitter Signal Ground	11	V <sub>EE</sub> 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 <sub>EE</sub> R	Receiver Signal Ground
5	SDL	Modulation Definition 1 – Two wires serial ID Interface	15	V <sub>CC</sub> R	Receiver Power – 3.3V±5%
6	MOD-ABS	Modulation Definition 0 – Ground in Module	16	V <sub>CC</sub> 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 <sub>EE</sub> 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 <sub>EE</sub> R	Receiver Signal Ground	20	V <sub>EE</sub> T	Transmitter Signal Ground

### MECHANICAL DIMENSIONS

