

SO-XFP-8G-ZR-Cxx

XFP, 8.5 Gbps, CWDM, SM, DDM, 24dB, 70km

OVERVIEW

The SO-XFP-8G-ZR-CXX series single mode transceiver is small form factor pluggable module for duplex optical data communications up to 10G. 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 wavelength. There are eight center wavelengths available from 1470nm to 1610nm, with each step 20nm. A guaranteed optical link budget of 15dB is offered. The transmitter section uses an EML laser, which is class 1 laser compliant according to International Safety Standard IEC-60825. The receiver section uses an integrated InGaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC.

PRODUCT FEATURES

- 8-Wavelengths CWDM EML transmitter from 1470 nm to 1610 nm, with step 20 nm
- Supports 8.5Gb/s bit rates
- Hot-Pluggable XFP footprint
- Power budget 24dB
- Temperature-stabilized DWDM rated EML transmitter
- Duplex LC connector
- Built-in digital diagnostic functions
- Support CDR function
- Support line side loopback
- Support XFI loopback
- Auxiliary 1 monitoring laser temperature
- Auxiliary 2 monitoring 3.3V supply
- Temperature range -5°C to 70°C

APPLICATIONS

- 800-SM-LC-L Fiber Channel
- Other optical links

ORDERING INFORMATION

Part Number	Description
SO-XFP-8G-ZR-Cxx*	XFP, 8/4/2 Gbps, CWDM, 1470nm-1610nm, SM, DDM, 24dB, 70km

*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
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	TOP	-5	70	°C
Maximum Input Power	Pm		-8	dBm

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Typ	Max.	Unit
Operating Case Temperature	TOP	-5		70	°C
Supply Voltage 1	Vcc3	3.13	3.3	3.45	V
Supply Voltage 2	Vcc5	4.75	5	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			350	mA	
Supply Current – Vcc3 supply	Icc3			520	mA	
Module Total Power	P			3.5	W	

ELECTRICAL CHARACTERISTICS TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
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	
LOS Fault	VLOS Fault	Vcc – 0.5		VccHOST	V	
LOS Normal	VLOS Normal	GND		GND+0.5	V	

Subject to change without notice.

For more information, visit smaroptics.com.

OPTICAL CHARACTERISTICS TRANSMITTER

Parameter	Symbol	Min.	Typ	Max.	Unit
Optical Modulation Amplitude	P_{OMA}	-1		+4.4	dBm
Output Opt. Pwr: 9/125 SMF	P_{out}	-0.9		+4.0	dBm
Optical Extinction Ratio	ER	8.2			dB
Optical Wavelength	λ	$\lambda_c - 5.5$	λ_c	$\lambda_c + 7.5$	nm
-20dB Spectrum Width	$\Delta\lambda$			1	nm
Side Mode Suppression Ratio	$SMSR$	30			dB
Path Penalty	P_p			2.5	dB
Average Launch Power of OFF Transmitter	P_{OFF}			-30	dBm
TX Jitter	T_{Xj}		Per 802.3ae requirements		
Relative Intensity Noise	RIN			-128	dB/Hz
Optical Modulation Amplitude	P_{OMA}	-1		+4.4	dBm

OPTICAL CHARACTERISTICS RECEIVER

Parameter	Symbol	Min.	Typ	Max.	Unit
Optical Centre Wavelength	λ_c	1260		1620	nm
Receive Sensitivity @ 10.5Gbps	PIN			-25	dBm
Receive Overload @ 10.5Gbps		-10			dBm
Receiver Reflectance	R_{rx}			-27	dB
Path Penalty				2	dB
LOS De-Assert	$LOSD$			-30	dBm
LOS Assert	$LOSA$	-37			dBm
LOS Hysteresis		0.5			dB

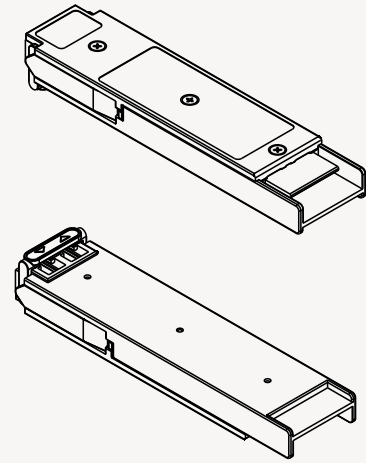
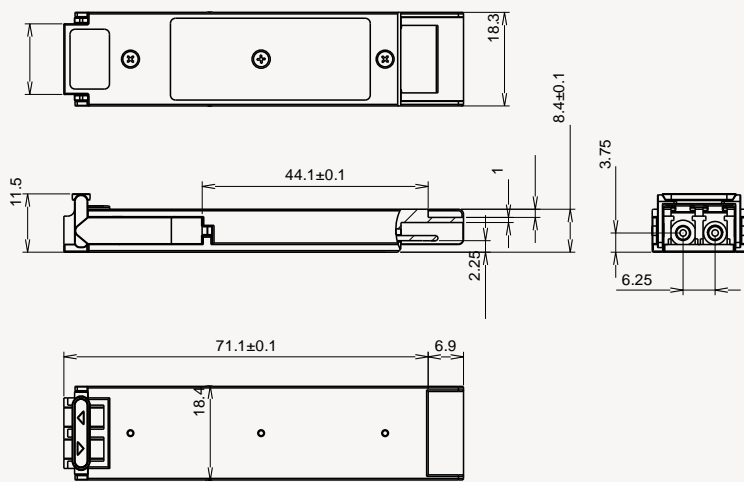
PIN FUNCTION DEFINITIONS

PIN	Signal Name	Description	PIN	Signal Name	Description
1	$V_{EE T}$	Transmitter Ground	11	$V_{EE R}$	Receiver Ground
2	TX_Fault	Transmitter Fault Indication	12	RD-	Inv. Received Data Out
3	TX_Disable	Transmitter Disable	13	RD+	Received Data Out
4	SDA	Module Definition 2	14	$V_{EE R}$	Receiver Ground
5	SCL	Module Definition 1	15	$V_{CC R}$	Receiver Power
6	MOD_ABS	Module Definition 0	16	$V_{CC T}$	Transmitter Power
7	RS0	RX Rate Select (LVTTTL).	17	$V_{EE T}$	Transmitter Ground
8	LOS	Loss of Signal	18	TD+	Transmit Data In
9	RS1	TX Rate Select (LVTTTL).	19	TD-	Inv. Transmit Data In
10	$V_{EE R}$	Receiver Ground	20	$V_{EE T}$	Transmitter Ground

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MECHANICAL SPECIFICATIONS



EXTENDED ORDERING INFORMATION

Part Number	Description
SO-XFP-8G-ZR-C47	XFP, 8/4/2 Gbps, CWDM, 1470nm, SM, DDM, 24dB, 70km
SO-XFP-8G-ZR-C49	XFP, 8/4/2 Gbps, CWDM, 1490nm, SM, DDM, 24dB, 70km
SO-XFP-8G-ZR-C51	XFP, 8/4/2 Gbps, CWDM, 1510nm, SM, DDM, 24dB, 70km
SO-XFP-8G-ZR-C53	XFP, 8/4/2 Gbps, CWDM, 1530nm, SM, DDM, 24dB, 70km
SO-XFP-8G-ZR-C55	XFP, 8/4/2 Gbps, CWDM, 1550nm, SM, DDM, 24dB, 70km
SO-XFP-8G-ZR-C57	XFP, 8/4/2 Gbps, CWDM, 1570nm, SM, DDM, 24dB, 70km
SO-XFP-8G-ZR-C59	XFP, 8/4/2 Gbps, CWDM, 1590nm, SM, DDM, 24dB, 70km
SO-XFP-8G-ZR-C61	XFP, 8/4/2 Gbps, CWDM, 1610nm, SM, DDM, 24dB, 70km