

SO-XFP-ER

XFP, 10GBase-ER, Multirate 9.95-11.1 Gbps, 1550nm, SM, DDM, 16dB, 40km

OVERVIEW

The SO-XFP-ER 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 1550 nm. The transmitter section uses a 1550nm EML, 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

- 1550nm EML transmitter
- Distance up to 40km over SMF
- Single 3.3V power supply and TTL logic interface
- Duplex LC connector interface
- Hot-Pluggable
- Power dissipation < 1.5 W (Typical < 1W)
- Dispersion tolerance 800p s/nm
- Operating case temperature standard: 0°C ~+70°C
- Compliant with SFF-8431 MSA
- Compliant with SFF-8432 MSA
- Compliant with SFF-8472 MSA

APPLICATIONS

- 10GBASE-ER/EW
- 8G/10G FC
- Other optical links

ORDERING INFORMATION

Part Number	Description
SO-XFP-ER	XFP, 10GBase-ER, Multirate 9.95-11.1 Gbps, 1550nm, SM, DDM, 16dB, 40km

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TS	-40	+85	°C
Supply Voltage	VCC	-0.5	3.6	V

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Typ	Max.	Unit
Operating Case Temperature	TC	0		+70	°C
Power Supply Voltage	VCC	3.15	3.3	3.45	V
Power Supply Current	ICC			455	mA
Surge Current	ISurge			+30	mA
Baud Rate	EOLP-1596-40-N			10.3	Gbit/s

PERFORMANCE SPECIFICATIONS – ELECTRICAL TRANSMITTER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
CML Inputs(Differential)	Vin	150		1200	mVpp	AC coupled inputs
Input Impedance (Differential)	Zin	85	100	115	ohms	Rin > 100 kohms @ DC
Tx_DISABLE Input Voltage – High		2		Vcc+0.3	V	
Tx_DISABLE Input Voltage – Low		0		0.8	V	
Tx_FAULT Output Voltage – High		2		Vcc+0.3	V	Io = 400µA; Host Vcc
Tx_FAULT Output Voltage – Low		0		0.5	V	Io = -4.0Ma

PERFORMANCE SPECIFICATIONS – ELECTRICAL RECEIVER

Parameter	Symbol	Min	Typ	Max	Unit	Notes
CML Outputs (Differential)	Vout	350		700	mVpp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage – High		2		Vcc+0.3	V	Io = 400µA; Host Vcc
Rx_LOS Output Voltage – Low		0		0.8	V	Io = -4.0Ma
MOD_DEF (2:0	V _{oH}	2.5			V	With Serial ID
	V _{oL}	0		0.5	V	

PERFORMANCE SPECIFICATIONS – OPTICAL

Parameter	Symbol	Min.	Typ	Max.	Unit
9µm Core Diameter SMF			40		Km

PERFORMANCE SPECIFICATIONS – OPTICAL TRANSMITTER

Parameter	Symbol	Min.	Typ	Max.	Unit
Centre Wavelength	λ_c	1480	1550	1600	nm
Spectral Width (-20dB)	$\Delta\lambda$			1	nm
Average Output Power	$P_{out, AVG}$	-4.7	-1	4	dBm
Optical Modulation Amplitude	$P_{out, OMA}$	1			dBm
Extinction Ratio	ER	3.5			dB
Side Mode Suppression Ratio	$SMSR$	30			dB
Transmitter and Dispersion Penalty	TDP			2	dB
Average Power of OFF Transmitter				-30	dBm
Relative Intensity Noise	RIN			-128	dB/Hz
Input Differential Impedance	ZIN	90	100	110	Ω
TX Disable Assert Time	t_{off}			10	us

PERFORMANCE SPECIFICATIONS – OPTICAL RECEIVER

Parameter	Symbol	Min.	Typ	Max.	Unit
Centre Wavelength	λ_c	1260		1600	nm
Sensitivity	P_{min}			-15.8	dBm
Receiver Overload	P_{MAX}	-1			dBm
Output Differential Impedance	PIN	90	100	110	Ω
LOS De-Assert	$LOSD$			-16.5	dBm
LOS Assert	$LOSA$	-30			dBm
Low		0		0.8	

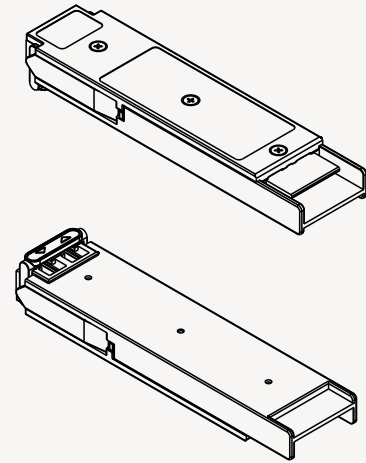
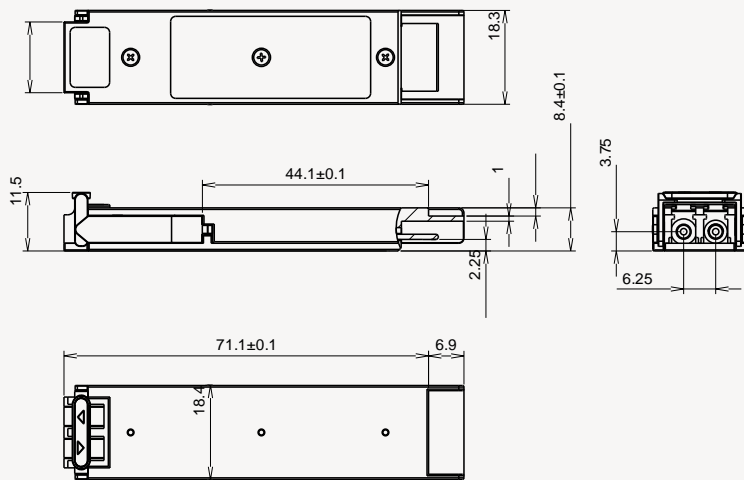
PIN FUNCTION DEFINITIONS

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

Subject to change without notice.

For more information, visit smaroptics.com.

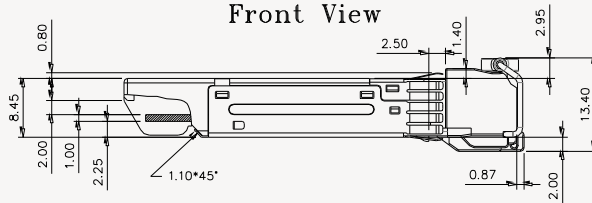
MECHANICAL DRAWINGS



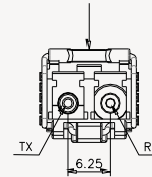
Top View



Front View



LATCH COLOR
White



Side View

Bottom View

