SO-XFP-ZR-Dxxxx

XFP, 10G Multirate, DWDM, 100GHz, DDM, 24dB, 80km, D9180-D9610 (44ch)

OVERVIEW

The SO-XFP-ZR-Dxxxx is a versatile DWDM transceiver supporting a wide range of traffic formats ranging from 9.95 to 11.3 Gbps. The transceiver is provided in 44 channel versions at the 100GHz DWDM C-band grid as specified in the ITU-T 694.1 standard.

The distance performance is in accordance with the -ZR/ZW industry standard, providing a bridgeable distance of up to 80km for 10GbE-LAN (10GBASE-ZR) and 10GbE-WAN (10GBASE-ZW) services.

This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the INF-8077i specification.

The transceiver module is compliant to RoHS-6/6.

TECHNICAL DATA

Parameter	Value
Technology	DWDM 100GHz XFP
Transmission media	SM (2x LC)
Typical reach	80km
Nominal wavelength	191.80 - 196.10THz (44ch)
Bit rate support	9.95Gbps to 11.1Gbps
Interface standards	10GBASE-ZR, 10GBASE-ZW
	1200-SM-LL-L (10G FC)
	P1L1-2D2 (G.959.1)
Protocol support	10GbE-LAN, 10GbE-WAN
	OTU2, OTU2e
	STM-64/OC192
	10G FC
	CPRI Opt, 8
Power budget	14 – 23dB
Dispersion tolerance	1600ps/nm
Dispersion penalty	Max 2dB
Power consumption	< 2W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power	Min: 0.0dB [1]
	Max: +4.0dBm [1]
Transmit wavelength	191.80 - 196.10THz, 100GHz (G.694.1)
Receiver data:	
Minimum input power	-23.0dBm [1] [2]
Overload (max power)	-10.0dBm [1] [2]
Wavelength range	1520nm – 1600nm
LOS assert	Min -38dBm
LOS de-assert	Max -26dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	INF-8077i, XFP-MSA

[1] Average power.

[2] @ 10.7Gbps, BER $1x10^{-12}$, PRBS 2^{31}-1.

Safety/regulatory compliance:
TUV/UL/FDA (contact Smartoptics for latest certification information)
RoHS compliance

Note: 10GBASE-ZR/ZW is defined only at 1550nm. The industry standard is referred to from bridgeable distance perspective for the other wavelengths within the DWDM band.

ORDERING INFORMATION

Part number	Freq. THz	λ nm
SO-XFP-ZR-D9180	191.80	1563.05
SO-XFP-ZR-D9190	191.90	1562.23
SO-XFP-ZR-D9200	192.00	1561.42
SO-XFP-ZR-D9210	192.10	1560.61
SO-XFP-ZR-D9220	192.20	1559.79
SO-XFP-ZR-D9230	192.30	1558.98
SO-XFP-ZR-D9240	192.40	1558.17
SO-XFP-ZR-D9250	192.50	1557.36
SO-XFP-ZR-D9260	192.60	1556.55
SO-XFP-ZR-D9270	192.70	1555.75
SO-XFP-ZR-D9280	192.80	1554.94
SO-XFP-ZR-D9290	192.90	1554.13
SO-XFP-ZR-D9300	193.00	1553.33
SO-XFP-ZR-D9310	193.10	1552.52
SO-XFP-ZR-D9320	193.20	1551.72
SO-XFP-ZR-D9330	193.30	1550.92
SO-XFP-ZR-D9340	193.40	1550.12
SO-XFP-ZR-D9350	193.50	1549.32
SO-XFP-ZR-D9360	193.60	1548.51
SO-XFP-ZR-D9370	193.70	1547.72
SO-XFP-ZR-D9380	193.80	1546.92
SO-XFP-ZR-D9390	193.90	1546.12

Part number	Freq. THz	λ nm
SO-XFP-ZR-D9400	194.00	1545.32
SO-XFP-ZR-D9410	194.10	1544.53
SO-XFP-ZR-D9420	194.20	1543.73
SO-XFP-ZR-D9430	194.30	1542.94
SO-XFP-ZR-D9440	194.40	1542.14
SO-XFP-ZR-D9450	194.50	1541.35
SO-XFP-ZR-D9460	194.60	1540.56
SO-XFP-ZR-D9470	194.70	1539.77
SO-XFP-ZR-D9480	194.80	1538.98
SO-XFP-ZR-D9490	194.90	1538.19
SO-XFP-ZR-D9500	195.00	1537.40
SO-XFP-ZR-D9510	195.10	1536.61
SO-XFP-ZR-D9520	195.20	1535.82
SO-XFP-ZR-D9530	195.30	1535.04
SO-XFP-ZR-D9540	195.40	1534.25
SO-XFP-ZR-D9550	195.50	1533.47
SO-XFP-ZR-D9560	195.60	1532.68
SO-XFP-ZR-D9570	195.70	1531.90
SO-XFP-ZR-D9580	195.80	1531.12
SO-XFP-ZR-D9590	195.90	1530.33
SO-XFP-ZR-D9600	196.00	1529.55
SO-XFP-ZR-D9610	196.10	1528.77

GENERAL DEFINITIONS

Parameter	Description
Technology	Grey; Transceiver type for non-WDM applications. Electrical or optical. CWDM; Transceiver type for CWDM applications using G.694.2 channel grid. DWDM; Transceiver type for DWDM applications using G.694.1 channel grid. BiDi; Transceiver pair using two different wavelength channels operating on a single-fiber. DAC: Direct Attach Cable. Electrical cable with attached connectors. AOC: Active Optical Cable. Optical cable with attached connectors.
Transmission Media	Type of fiber, e.g. Multimode (MM) or Singlemode (SM). Number of and connector type within brackets (e.g. 2x LC, 1x MPO).
Typical reach	Nominal distance performance based on typical fiber dispersion, fiber loss and power budget properties, i.e. w/o dispersion compensation and optical amplification. Actual distance is dependent on actual optical path loss and dispersion properties.
Bit rate range	Supported bit rate range in Gigabit or Megabit per second (Gbps or Mbps).
Protocols	Protocols within supported bit rate range.
Nominal wavelength	Typical wavelength(s) from transmitter.
Interface standards	Referenced interface standards or MSA's, e.g. IEEE 802.3 standard for 10GbE services or 100G 4WDM-10 etc.
Power budget	Min and max power budget between Transmitter and Receiver w/o optical path penalties.
Dispersion tolerance/penalty	Maximum amount of tolerated dispersion and required reduction of power budget to maintain stipulated Bit Error Rate (BER) and at a given bit rate.
Temperature range	Max operating case temperature range. Standard temperature range (C-temp): 0°C to +70°C (32°F to +158°F) Extended temperature range (E-temp): typically -20°C to +75°C (-4°F to +167°F) Industrial temperature range (I-temp): -40°C to +85°C (-40°F to +185°F)
Power consumption	Worst case power consumption. Will vary over temperature.
Transmitter Output power	Average output power. Provided in min and max values.
Receiver minimum input power	Minimum average input power at specified BER, normally $1E^{-12}$. Note that some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally $1E^{-12}$.
DDM	Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.