

# 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 SFF-8472 specification.

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

## TECHNICAL DATA

<b>Technology</b>	DWDM 100GHz XFP
<b>Transmission media</b>	SM (2x LC)
<b>Typical reach</b>	80 km
<b>Nominal wavelength</b>	191.80 - 196.10 THz (44ch)
<b>Interface standards</b>	10GBASE-ZR 10GBASE-ZW 1200-SM-LL-L 10G FC P1L1-2D2 (G.959.1)
<b>Bit rate range</b>	9.95 - 11.1 Gbps
<b>Protocols</b>	Eth: 10GbE-LAN 10GbE-WAN  OTN: OTU2e OTU2  SDH/SONET: STM-64/OC-192 FC: 10G FC CPRI: Opt 8 (10.1376 Gbps)
<b>Power budget</b>	14.0 - 23.0 dB
<b>Dispersion tolerance</b>	+1600 ps/nm <sup>1)</sup>
<b>Dispersion penalty</b>	2.0 dB @ 1600 ps/nm <sup>1)</sup>
<b>Temperature range</b>	0°C to +70°C
<b>Power consumption</b>	< 2.0W

<b>Transmitter data</b>	Output power:	Min: 0.0 dBm Max: +4.0 dBm
	Tx wavelength:	191.80 - 196.10 THz in 100GHz steps (G.694.1)
<b>Receiver data</b>	Minimum input power:	-23.0 dBm <sup>1)</sup>
	Max input power:	-10.0 dBm
	Wavelength range:	1520 – 1600 nm
<b>DDM</b>		Yes
<b>MSA compliance</b>		SFF-8431 SFF-8432 SFF-8472

<sup>1)</sup> @ 10.3Gbps

### Regulatory compliance

<b>EMC CE</b>	EN 55022:2010 EN 55024:2010
<b>UL/Safety</b>	UL 60950-1
<b>FCC</b>	47 CFR PART 15 OCT, 2013
<b>RoHS</b>	RoHS 6
<b>TUV</b>	EN 60950-1:2006+A11+A1+A12+A2 EN 60825-1:2014 EN 60825-2:2004+A1+A2

<b>Storage temp.</b>	-40°C to +85°C
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Note! See "Definitions" below.

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

## ORDERING INFORMATION

Part number	Freq. THz	$\lambda$ nm	Part number	Freq. THz	$\lambda$ nm
SO-XFP-ZR-D9180	191.80	1563.05	SO-XFP-ZR-D9400	194.00	1545.32
SO-XFP-ZR-D9190	192.90	1562.23	SO-XFP-ZR-D9410	194.10	1544.53
SO-XFP-ZR-D9200	192.00	1561.42	SO-XFP-ZR-D9420	194.20	1543.73
SO-XFP-ZR-D9210	192.10	1560.61	SO-XFP-ZR-D9430	194.30	1542.94
SO-XFP-ZR-D9220	192.20	1559.79	SO-XFP-ZR-D9440	194.40	1542.14
SO-XFP-ZR-D9230	192.30	1558.98	SO-XFP-ZR-D9450	194.50	1541.35
SO-XFP-ZR-D9240	192.40	1558.17	SO-XFP-ZR-D9460	194.60	1540.56
SO-XFP-ZR-D9250	192.50	1557.36	SO-XFP-ZR-D9470	194.70	1539.77
SO-XFP-ZR-D9260	192.60	1556.55	SO-XFP-ZR-D9480	194.80	1538.98
SO-XFP-ZR-D9270	192.70	1555.75	SO-XFP-ZR-D9490	194.90	1538.18
SO-XFP-ZR-D9280	192.80	1554.94	SO-XFP-ZR-D9500	195.00	1537.40
SO-XFP-ZR-D9290	192.90	1554.13	SO-XFP-ZR-D9510	195.10	1536.61
SO-XFP-ZR-D9300	193.00	1553.33	SO-XFP-ZR-D9520	195.20	1535.82
SO-XFP-ZR-D9310	193.10	1552.52	SO-XFP-ZR-D9530	195.30	1535.04
SO-XFP-ZR-D9320	193.20	1551.72	SO-XFP-ZR-D9540	195.40	1534.25
SO-XFP-ZR-D9330	193.30	1550.92	SO-XFP-ZR-D9550	195.50	1533.47
SO-XFP-ZR-D9340	193.40	1550.12	SO-XFP-ZR-D9560	195.60	1532.68
SO-XFP-ZR-D9350	193.50	1549.32	SO-XFP-ZR-D9570	195.70	1531.90
SO-XFP-ZR-D9360	193.60	1548.51	SO-XFP-ZR-D9580	195.80	1531.12
SO-XFP-ZR-D9370	193.70	1547.72	SO-XFP-ZR-D9590	195.90	1530.33
SO-XFP-ZR-D9380	193.80	1546.92	SO-XFP-ZR-D9600	196.00	1529.55
SO-XFP-ZR-D9390	193.90	1546.12	SO-XFP-ZR-D9610	196.10	1528.77

## DEFINITIONS

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 or 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 dispersion and power budget properties, i.e. w/o dispersion compensation and optical amplification.
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 from transmitter.
Interface standards:	Referenced interface standards e.g. IEEE 802.3 standard for 10GbE services.
Power budget:	Min and max power budget between Transmitter and Receiver. Excluding any dispersion penalty.
Dispersion tolerance/penalty:	Maximum amount of tolerated dispersion and required reduction of power budget to maintain BER better than $1E^{-12}$ . Defined at a specific bit rate.
Temperature range:	Max operating case temperature range. Standard temperature range: Typically 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.
Transmitter Output power:	Average output power. Provided in min and max values.
Receiver minimum input power:	Minimum average input power at specified BER, normally $1E^{-12}$ .
Receiver max input power:	Maximum average input power at specified BER, normally $1E^{-12}$ .
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.