

DATASHEET 5.0

# SO-XFP-ZR & -ZR-I

XFP, 10G Multirate, 1550nm, SM, DDM, 24dB, 80km

## OVERVIEW

The SO-XFP-ZR is a versatile 1550nm XFP transceiver for SingleMode fiber supporting a wide range of traffic formats. The optical 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 over a 1550nm wavelength.

This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification. The transceiver is available in two temperature range options, one being the Industrial temperature range (I-temp): -40°C to 85°C (-40°F to 185°F).

## TECHNICAL DATA

<b>Technology</b>	Grey XFP										
<b>Transmission Media</b>	SM (2x LC)										
<b>Typical reach</b>	80 km										
<b>Nominal wavelength</b>	1550 nm										
<b>Interface standards</b>	10GBASE-ZR 10GBASE-ZW P1L1-2D2 (G.959.1)										
<b>Bit rate range</b>	9.95 - 11.1 Gbps										
<b>Protocols</b>	<table border="0"> <tr> <td><b>Eth:</b></td> <td>10GbE-LAN, 10GbE-WAN</td> </tr> <tr> <td><b>OTN:</b></td> <td>OTU2e, OTU2</td> </tr> <tr> <td><b>SDH/SONET:</b></td> <td>STM-64/OC-192</td> </tr> <tr> <td><b>FC:</b></td> <td>10G FC</td> </tr> <tr> <td><b>CPRI:</b></td> <td>Opt 8 (10.1376 Gbps)</td> </tr> </table>	<b>Eth:</b>	10GbE-LAN, 10GbE-WAN	<b>OTN:</b>	OTU2e, OTU2	<b>SDH/SONET:</b>	STM-64/OC-192	<b>FC:</b>	10G FC	<b>CPRI:</b>	Opt 8 (10.1376 Gbps)
<b>Eth:</b>	10GbE-LAN, 10GbE-WAN										
<b>OTN:</b>	OTU2e, OTU2										
<b>SDH/SONET:</b>	STM-64/OC-192										
<b>FC:</b>	10G FC										
<b>CPRI:</b>	Opt 8 (10.1376 Gbps)										
<b>Power budget</b>	7.0 – 24.0 dB										
<b>Dispersion tolerance</b>	1600 ps/nm <sup>1)</sup>										
<b>Dispersion penalty</b>	3.0 dB <sup>1)</sup>										
<b>Temperature range</b>	0°C to +70°C (ZR)  -40°C to +85°C (ZR-I)										

<b>Power consumption</b>	< 3.5W	
<b>Transmitter data</b>	<b>Output power:</b>	Min: 0.0 dBm Max: +4.0 dBm
	<b>Tx wavelength:</b>	Min: 1530 nm Max: 1565 nm
<b>Receiver data</b>	<b>Minimum input power:</b>	-24.0 dBm <sup>1)</sup>
	<b>Overload (max power):</b>	-7.0 dBm
	<b>Wavelength range:</b>	1270 - 1600 nm
<b>DDM</b>	Yes	
<b>MSA compliance</b>		SFF-8431
		SFF-8432
		SFF-8472

<sup>1)</sup>@ 10.5Gbps

## 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
----------------------	----------------

Note! See "Definitions" below.

## ORDERING INFORMATION

Part number	Description
SO-XFP-ZR	XFP, 10G Multirate, 1550nm, SM, DDM, 24dB, 80km
SO-XFP-ZR-I	XFP, 10G Multirate, 1550nm, SM, DDM, 24dB, 80km, I-temp

## 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.