

SO-SFP-10GE-ZR-50GHZ-DXXXX

SFP+, 10G Multirate, DWDM 50GHz, SM, DDM, 23dB, 80km, D9200-D9595 (80ch)

OVERVIEW

The SO-SFP-10GE-ZR-50GHZ-Dxxxx is a versatile DWDM transceiver supporting a wide range of traffic formats ranging from 600 Mbps to 11.3 Gbps. The transceiver is provided in 80 channel versions at the 50GHz DWDM grid as specified in the ITU-T 694.1 standard.

The distance performance is in accordance with the industry ZR/ZW-standard, providing a bridgeable distance (without dispersion compensation) 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

Technology	DWDM 50GHz SFP+												
Transmission media	SM (2x LC)												
Typical reach	80 km												
Nominal wavelength	192.00 - 195.95 THz (80ch)												
Interface standards	10GBASE-ZR 10GBASE-ZW												
Bit rate range	0.614 - 11.3 Gbps												
Protocols	<table border="0"> <tr> <td>Eth:</td> <td>10GbE-LAN 10GbE-WAN GbE</td> </tr> <tr> <td>OTN:</td> <td>OTU2e OTU2 OTU1</td> </tr> <tr> <td>SDH/SONET:</td> <td>STM-64/OC-192 STM-16/OC-48 STM-4/OC-12</td> </tr> <tr> <td>FC:</td> <td>10G FC 8G FC 4G FC 1G FC</td> </tr> <tr> <td>CPRI:</td> <td>Opt 1 (0.6144 Gbps) Opt 2 (1.2288 Gbps) Opt 3 (2.4576 Gbps) Opt 4 (3.0720 Gbps) Opt 5 (4.9152 Gbps) Opt 6 (6.1440 Gbps) Opt 7 (9.8304 Gbps) Opt 7A (8.11008 Gbps) Opt 8 (10.1376 Gbps)</td> </tr> <tr> <td>OBSAI:</td> <td>1x (0.768 Gbps) 2x (1.536 Gbps) 4x (3.0720 Gbps) 8x (6.1440 Gbps)</td> </tr> </table>	Eth:	10GbE-LAN 10GbE-WAN GbE	OTN:	OTU2e OTU2 OTU1	SDH/SONET:	STM-64/OC-192 STM-16/OC-48 STM-4/OC-12	FC:	10G FC 8G FC 4G FC 1G FC	CPRI:	Opt 1 (0.6144 Gbps) Opt 2 (1.2288 Gbps) Opt 3 (2.4576 Gbps) Opt 4 (3.0720 Gbps) Opt 5 (4.9152 Gbps) Opt 6 (6.1440 Gbps) Opt 7 (9.8304 Gbps) Opt 7A (8.11008 Gbps) Opt 8 (10.1376 Gbps)	OBSAI:	1x (0.768 Gbps) 2x (1.536 Gbps) 4x (3.0720 Gbps) 8x (6.1440 Gbps)
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Power budget	13.0 - 23.0 dB												
Dispersion tolerance	-500 to +1600 ps/nm ¹⁾												
Dispersion penalty	3.5 dB @ 1600 ps/nm ¹⁾												
Temperature range	0°C to +70°C												
Power consumption	< 1.5W												

Transmitter data	Output power:	Min: 0.0 dBm Max: +5.0 dBm
	Tx wavelength:	192.00 - 195.95 THz in 50GHz steps (G.694.1)
Receiver data	Minimum input power:	-23.0 dBm ¹⁾
	Max input power:	-8.0 dBm
	Wavelength range:	1480 – 1580 nm
DDM		Yes
MSA compliance		SFF-8431 SFF-8432 SFF-8472

¹⁾ @ 10.3Gbps

Regulatory compliance

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

Storage temp.	-40°C to 85°C
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Note! See "Definitions" below.

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

Subject to change without notice.

For more information visit smaroptics.com.

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ORDERING INFORMATION

Part number	ITU channel	λ nm	Part number	Freq. THz	λ nm
SO-SFP-10GE-ZR-50G-D9200	192.00	1561.42	SO-SFP-10GE-ZR-50G-D9400	194.00	1545.32
SO-SFP-10GE-ZR-50G-D9205	192.05	1561.01	SO-SFP-10GE-ZR-50G-D9405	194.05	1544.92
SO-SFP-10GE-ZR-50G-D9210	192.10	1560.61	SO-SFP-10GE-ZR-50G-D9410	194.10	1544.53
SO-SFP-10GE-ZR-50G-D9215	192.15	1560.20	SO-SFP-10GE-ZR-50G-D9415	194.15	1544.13
SO-SFP-10GE-ZR-50G-D9220	192.20	1559.79	SO-SFP-10GE-ZR-50G-D9420	194.20	1543.73
SO-SFP-10GE-ZR-50G-D9225	192.25	1559.39	SO-SFP-10GE-ZR-50G-D9425	194.25	1543.33
SO-SFP-10GE-ZR-50G-D9230	192.30	1558.98	SO-SFP-10GE-ZR-50G-D9430	194.30	1542.94
SO-SFP-10GE-ZR-50G-D9235	192.35	1558.58	SO-SFP-10GE-ZR-50G-D9435	194.35	1542.54
SO-SFP-10GE-ZR-50G-D9240	192.40	1558.17	SO-SFP-10GE-ZR-50G-D9440	194.40	1542.14
SO-SFP-10GE-ZR-50G-D9245	192.45	1557.77	SO-SFP-10GE-ZR-50G-D9445	194.45	1541.75
SO-SFP-10GE-ZR-50G-D9250	192.50	1557.36	SO-SFP-10GE-ZR-50G-D9450	194.50	1541.35
SO-SFP-10GE-ZR-50G-D9255	192.55	1556.96	SO-SFP-10GE-ZR-50G-D9455	194.55	1540.95
SO-SFP-10GE-ZR-50G-D9260	192.60	1556.55	SO-SFP-10GE-ZR-50G-D9460	194.60	1540.56
SO-SFP-10GE-ZR-50G-D9265	192.65	1556.15	SO-SFP-10GE-ZR-50G-D9465	194.65	1540.16
SO-SFP-10GE-ZR-50G-D9270	192.70	1555.75	SO-SFP-10GE-ZR-50G-D9470	194.70	1539.77
SO-SFP-10GE-ZR-50G-D9275	192.75	1555.34	SO-SFP-10GE-ZR-50G-D9475	194.75	1539.37
SO-SFP-10GE-ZR-50G-D9280	192.80	1554.94	SO-SFP-10GE-ZR-50G-D9480	194.80	1538.98
SO-SFP-10GE-ZR-50G-D9285	192.85	1554.54	SO-SFP-10GE-ZR-50G-D9485	194.85	1538.58
SO-SFP-10GE-ZR-50G-D9290	192.90	1554.13	SO-SFP-10GE-ZR-50G-D9490	194.90	1538.18
SO-SFP-10GE-ZR-50G-D9295	192.95	1553.73	SO-SFP-10GE-ZR-50G-D9495	194.95	1537.79
SO-SFP-10GE-ZR-50G-D9300	193.00	1553.33	SO-SFP-10GE-ZR-50G-D9500	195.00	1537.40
SO-SFP-10GE-ZR-50G-D9305	193.05	1552.93	SO-SFP-10GE-ZR-50G-D9505	195.05	1537.00
SO-SFP-10GE-ZR-50G-D9310	193.10	1552.52	SO-SFP-10GE-ZR-50G-D9510	195.10	1536.61
SO-SFP-10GE-ZR-50G-D9315	193.15	1552.12	SO-SFP-10GE-ZR-50G-D9515	195.15	1536.22
SO-SFP-10GE-ZR-50G-D9320	193.20	1551.72	SO-SFP-10GE-ZR-50G-D9520	195.20	1535.82
SO-SFP-10GE-ZR-50G-D9325	193.25	1551.32	SO-SFP-10GE-ZR-50G-D9525	195.25	1535.43
SO-SFP-10GE-ZR-50G-D9330	193.30	1550.92	SO-SFP-10GE-ZR-50G-D9530	195.30	1535.04
SO-SFP-10GE-ZR-50G-D9335	193.35	1550.52	SO-SFP-10GE-ZR-50G-D9535	195.35	1534.64
SO-SFP-10GE-ZR-50G-D9340	193.40	1550.12	SO-SFP-10GE-ZR-50G-D9540	195.40	1534.25
SO-SFP-10GE-ZR-50G-D9345	193.45	1549.72	SO-SFP-10GE-ZR-50G-D9545	195.45	1533.86
SO-SFP-10GE-ZR-50G-D9350	193.50	1549.32	SO-SFP-10GE-ZR-50G-D9550	195.50	1533.47
SO-SFP-10GE-ZR-50G-D9355	193.55	1548.91	SO-SFP-10GE-ZR-50G-D9555	195.55	1533.07
SO-SFP-10GE-ZR-50G-D9360	193.60	1548.51	SO-SFP-10GE-ZR-50G-D9560	195.60	1532.68
SO-SFP-10GE-ZR-50G-D9365	193.65	1548.11	SO-SFP-10GE-ZR-50G-D9565	195.65	1532.29
SO-SFP-10GE-ZR-50G-D9370	193.70	1547.72	SO-SFP-10GE-ZR-50G-D9570	195.70	1531.90
SO-SFP-10GE-ZR-50G-D9375	193.75	1547.32	SO-SFP-10GE-ZR-50G-D9575	195.75	1531.51
SO-SFP-10GE-ZR-50G-D9380	193.80	1546.92	SO-SFP-10GE-ZR-50G-D9580	195.80	1531.12
SO-SFP-10GE-ZR-50G-D9385	193.85	1546.52	SO-SFP-10GE-ZR-50G-D9585	195.85	1530.72
SO-SFP-10GE-ZR-50G-D9390	193.90	1546.12	SO-SFP-10GE-ZR-50G-D9590	195.90	1530.33
SO-SFP-10GE-ZR-50G-D9395	193.95	1545.72	SO-SFP-10GE-ZR-50G-D9595	195.95	1529.94

DEFINITIONS

Technology:	DWDM; Transceiver type for DWDM applications using G.694.1 channel grid.
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 giving a BER, normally $1E^{-12}$.
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.