DS-8G-ZR-Dxxxx

SFP+, 8/4/2 Gbps FC/FICON, DWDM 100GHz, DDM, 23dB, 80km, D200 - D600 (41ch)

OVERVIEW

The DS-8G-ZR-Dxxx is a versatile DWDM transceiver in SFP+ form-factor supporting a wide range of Fiber Channel (FC) services (2G to 8G). The transceiver has been layer-1 tested and approved by Cisco.

The transceiver is provided in 41 channel versions at the 100GHz DWDM grid as specified in the ITU-T 694.1 standard. The transceiver can also be used in 1550/1530nm CWDM applications by selecting wavelength versions that match these.

The optical performance provides a bridgeable distance of up to 80km (without dispersion compensation) for 8G FC.
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

Parameter	Value
Technology	DWDM SFP 100GHz
Transmission media	SM (2x LC)
Typical reach	80km
Nominal wavelength	192.00 - 196.00THz (41ch)
	1561.42 – 1529.55nm
Bit rate support	2.125Gbps to 8.5Gbps
Protocol support	8G, 4G, 2G FC
Power budget	10 – 23dB
Dispersion penalty	Max 3dB
Dispersion tolerance	-500 to +1600ps/nm
Power consumption	< 1.7W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power	Min: -1.0dBm [1]
	Max: +3.0dBm [1]
Transmit wavelength	192.00 - 196.00THz (G.694.1)
	1561.42 – 1529.55nm
Receiver data:	
Minimum input power	-24.0dBm [1] [2]
Overload (max power)	-7.0dBm [1] [2]
Wavelength range	1480nm – 1580nm
LOS assert	Min -35dBm
LOS de-assert	Max -27dBm
DDM	Yes
MSA compliance	SFF-8431, -8432, -8472

[1] Average power.

[2] @ 8.5Gbps, BER 1x10^{-12}, PRBS 2^{31}-1, back-to-back.

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

For a 1550nm CWDM channel the DWDM channels D250 – D410 can be used.
For a 1530nm CWDM channel the DWDM channels D500 – D600 can be used.
(The ITU G.694.2 channel grid states 1551/1531nm ± 7nm)

For 1550nm single-channel applications, the ITU-T G.959 states 1500nm – 1565nm, which means any channel between D200 – D600.

ORDERING INFORMATION

Part number	Freq. THz	λ nm
DS-8G-ZR-D6142	192.00	1561.42
DS-8G-ZR-D6061	192.10	1560.61
DS-8G-ZR-D5979	192.20	1559.79
DS-8G-ZR-D5898	192.30	1558.98
DS-8G-ZR-D5817	192.40	1558.17
DS-8G-ZR-D5736	192.50	1557.36
DS-8G-ZR-D5655	192.60	1556.55
DS-8G-ZR-D5575	192.70	1555.75
DS-8G-ZR-D5494	192.80	1554.94
DS-8G-ZR-D5413	192.90	1554.13
DS-8G-ZR-D5333	193.00	1553.33
DS-8G-ZR-D5252	193.10	1552.52
DS-8G-ZR-D5172	193.20	1551.72
DS-8G-ZR-D5092	193.30	1550.92
DS-8G-ZR-D5012	193.40	1550.12
DS-8G-ZR-D4932	193.50	1549.32
DS-8G-ZR-D4851	193.60	1548.51
DS-8G-ZR-D4772	193.70	1547.72
DS-8G-ZR-D4692	193.80	1546.92
DS-8G-ZR-D4612	193.90	1546.12
DS-8G-ZR-D4532	194.00	1545.32

Part number	Freq. THz	λ nm
DS-8G-ZR-D4453	194.10	1544.53
DS-8G-ZR-D4373	194.20	1543.73
DS-8G-ZR-D4294	194.30	1542.94
DS-8G-ZR-D4214	194.40	1542.14
DS-8G-ZR-D4135	194.50	1541.35
DS-8G-ZR-D4056	194.60	1540.56
DS-8G-ZR-D3977	194.70	1539.77
DS-8G-ZR-D3898	194.80	1538.98
DS-8G-ZR-D3819	194.90	1538.19
DS-8G-ZR-D3740	195.00	1537.40
DS-8G-ZR-D3661	195.10	1536.61
DS-8G-ZR-D3582	195.20	1535.82
DS-8G-ZR-D3504	195.30	1535.04
DS-8G-ZR-D3425	195.40	1534.25
DS-8G-ZR-D3347	195.50	1533.47
DS-8G-ZR-D3268	195.60	1532.68
DS-8G-ZR-D3190	195.70	1531.90
DS-8G-ZR-D3112	195.80	1531.12
DS-8G-ZR-D3033	195.90	1530.33
DS-8G-ZR-D2955	196.00	1529.55

Please note that the part number contains a wavelength coding. Use the table to perform conversion between the ITU-T channels in THz.

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.

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