

QSFP-100G-ZR4-SO

QSFP28, 100G Ethernet ZR4, SM 1296/1300/1305/1309nm, 80km, 31dB, LC

OVERVIEW

The QSFP-100G-ZR4-SO is a QSFP28 form-factor transceiver for 100 Gbps Ethernet applications. It is intended for use in interconnect applications between data centers between switches, routers, storage equipment etc.

QSFP-100G-ZR4-SO is tested by Cisco in selected systems in multiple Cisco platforms to operate as 3rd party transceiver in “unsupported” mode.

QSFP-100G-ZR4-SO has an optical performance enabling distances of up to 80km over a SingleMode (SM) G.652 fiber-pair cable. Forward Error Correction (FEC) is required to be implemented by the host to ensure reliable system operation. The FEC type shall be as defined in IEEE802.3bj, i.e. Reed Solomon RS(528,514). The optical parameters will provide a bit error ratio (BER) of 5×10^{-5} . FEC will render in the required BER of better than 1×10^{-12} .

QSFP-100G-ZR4-SO uses four LANWDM channels/lanes @ 25.78 Gbps to transport the Ethernet signal. Digital diagnostics functions (DDM) are available via an I2C interface, as specified by the QSFP28 MSA.

TECHNICAL DATA

Parameter	Value
Technology	Grey QSFP28
Transmission media	SM (2x LC)
Typical reach	80km
Nominal wavelengths	1295.56 nm 1300.05 nm 1304.58 nm 1309.14 nm
Interface standards	100GBASE-ZR4
Bit rate support	103.12 Gbps ¹⁾ 25.78 Gbps ²⁾
Protocol support	100GbE
Power budget	2.5 – 31.0 dB
Dispersion penalty	1.0 dB
Power consumption	Max < 5W ⁵⁾
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

¹⁾ Aggregated line rate 100GbE

²⁾ Line rate per 25.78Gbps lane

³⁾ Average power, per lane

⁴⁾ Per 25.78Gbps lane. Measured with PRBS31 (2³¹-1) @ BER 5E-5

⁵⁾ Max is worst case at high temp limit

Safety/regulatory compliance:

TUV/UL/FDA (contact Smartoptics for latest certification information)

RoHS compliance

Parameter	Value
Transmitter data:	
Output power, total	Max: +13.0 dBm
Diff in power betw lanes	Max: 3.6 dB
Output power, per lane	Min: +2.0 dBm ³⁾ Max: +7.0 dBm ³⁾
Transmit wavelengths	1294.53 - 1296.59 nm 1299.02 - 1301.09 nm 1303.54 - 1305.63 nm 1308.09 - 1310.19 nm
Receiver data:	
Minimum input power	-29.0 dBm ^{3) 4)}
Overload (max power)	+4.5 dBm ^{3) 4)}
Wavelength range	1294.53 - 1296.59 nm 1299.02 - 1301.09 nm 1303.54 - 1305.63 nm 1308.09 - 1310.19 nm
DDM	Yes
MSA compliance	QSFP28 MSA SFF-8636



Subject to change without notice.

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ORDERING INFORMATION

Ordering number	Description
QSFP-100G-ZR4-SO	QSFP28, 100G Ethernet ZR4, SM 1296/1300/1305/1309nm, 80km, 31dB, for CISCO in "unsupported" mode, LC

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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