

SO-QSFP28-ZR4

QSFP28, 100G Ethernet ZR4, SM 1296/1300/1305/1309nm, 80km, 34dB, LC

OVERVIEW

The SO-QSFP28-ZR4 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.

SO-QSFP28-ZR4 has an optical performance enabling distances of up to 80km over a SingleMode (SM) fiber-pair cable. Forward Error Correction (FEC) is required to be implemented by the host in order 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} .

SO-QSFP28-ZR4 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

Technology	Grey QSFP28
Transmission media	SM (2x LC)
Typical reach	80km
Nominal wavelength	1295.56 nm 1300.05 nm 1304.58 nm 1309.14 nm
Interface standards	100GBASE-ZR4
Bit rate range	103.12 Gbps ¹⁾ 25.78 Gbps ²⁾
Protocols Eth:	100GbE
Power budget	2.5 – 32.0 dB
Dispersion penalty	1.0dB
Temperature range	0°C to +70°C
Power consumption	< 5.5 W

¹⁾ Aggregated line rate 100GbE

²⁾ Line rate per lane

³⁾ Average power, per lane

Transmitter data	Output power, total:	Max: +13.0 dBm
	Diff in power betw lanes:	Max: 3.6dB
	Output power, per lane:	Min: +3.0 dBm ³⁾ Max: +7.0 dBm ³⁾
	Tx 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:	-31.0 dBm ³⁾
	Overload (max power):	+4.5 dBm ³⁾
	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	

Safety	EN 60950-1 EN/IEC 60825-1:2007, Edition 2 EN/IEC 60825-1:2014, Edition 3 EN/IEC 60825-2:2004+A1:2006+A2:2010
RoHS	EU Directive 2011/65/EU

Storage temp.	-40°C to +85°C
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ORDERING INFORMATION

Part number	Description
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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 (DAC). 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.
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.