

# SO-QSFP28-LR4-2L

QSFP28, 100GBASE-LR4, 1310nm, SM, DDM, 6.3dB, 2km

## OVERVIEW

The SO-QSFP28-LR4-2L is a QSFP28 form-factor transceiver for 100 Gbps Ethernet applications. It is intended for use in inter- and intra-connect applications within and between data centers between switches, routers, storage equipment etc. The optical performance is based on the 100GBASE-LR4 standard, but due to dispersion properties limited to distances of up to 2km over a SingleMode (SM) fiber.

SO-QSFP28-LR4-2L uses four 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

<b>Technology</b>	Grey QSFP28
<b>Transmission media</b>	SM (2x LC)
<b>Typical reach</b>	2 km
<b>Nominal wavelength</b>	Lane 1: 1295.56 nm Lane 2: 1300.05 nm Lane 3: 1304.58 nm Lane 4: 1309.14 nm
<b>Interface standards</b>	100GBASE-LR4
<b>Bit rate range</b>	103.12 Gbps <sup>1)</sup> 25.78 Gbps <sup>2)</sup>
<b>Protocols</b> Eth:	100GbE
<b>Power budget</b>	0 - 6.3 dB
<b>Temperature range</b>	0°C to +70°C
<b>Power consumption</b>	< 3.5 W

<b>Transmitter data</b>	Output power, tot:	Max: +10.5 dBm <sup>3)</sup>
	Output power, per lane	Min: -4.3 dBm <sup>8)</sup> Max: +4.5 dBm <sup>8)</sup>
	Tx wavelength (nm):	1294.53 – 1296.59 <sup>4)</sup> 1299.02 – 1301.09 <sup>5)</sup> 1303.54 – 1305.63 <sup>6)</sup> 1308.09 – 1310.19 <sup>7)</sup>
<b>Receiver data</b>	Minimum input power:	-10.6 dBm <sup>8)</sup>
	Overload (max power):	+4.5 dBm <sup>8)</sup>
	Wavelength range:	1294.53 – 1296.59 <sup>4)</sup> 1299.02 – 1301.09 <sup>5)</sup> 1303.54 – 1305.63 <sup>6)</sup> 1308.09 – 1310.19 <sup>7)</sup>
<b>DDM</b>		Yes
<b>MSA compliance</b>		QSFP28 MSA

<sup>1)</sup> Aggregated line rate (100GbE)

<sup>2)</sup> Per lane line rate (100GbE)

<sup>3)</sup> Total power (all lanes)

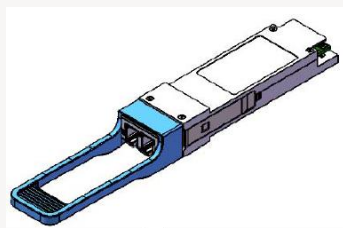
<sup>4)</sup> Lane 1

<sup>5)</sup> Lane 2

<sup>6)</sup> Lane 3

<sup>7)</sup> Lane 4

<sup>8)</sup> Per lane @ 25.78 Gbps (100GbE)



<b>EMC CE</b>	EN 55032:2012, EN 55032:2015 EN 55024:2010, EN 55024:2010+A1
<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
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Note! See "Definitions" below.

## ORDERING INFORMATION

Part number	Description
SO-QSFP28-LR4-2L	QSFP28, 100GBASE-LR4, 1310nm, SM, DDM, 6.3dB, 2km

## 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. 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.