

# SO-QSFP28-LR4

QSFP28, 100GBASE-LR4, OTU4, 1310nm, SM, DDM, 6.3dB, 10km

## OVERVIEW

The SO-QSFP28-LR4 is a QSFP28 form-factor transceiver for 100 Gbps Ethernet (100GBASE-LR4) and OTN (OTU4) 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 in accordance with the 100GBASE-LR standard, i.e. for optical distances up to 10km over a SingleMode (SM) fiber.

SO-QSFP28-LR4 uses four LANWDM channels/lanes @ 25.78 Gbps and 27.95 Gbps to transport an Ethernet and OTN signal, respectively.

Digital diagnostics functions are available via an I<sup>2</sup>C interface, as specified by the QSFP28 MSA.

## TECHNICAL DATA

Parameter	Value
Technology	Grey QSFP28
Transmission media	SM (2x LC)
Typical reach	10km
Nominal wavelength	Lane 1: 1295.56nm Lane 2: 1300.05nm Lane 3: 1304.58nm Lane 4: 1309.14nm
Interface standards	100GBASE-LR4 OTU4 4I1-9D1F
Bit rate support	103.12 / 111.81 Gbps <sup>1)</sup> 25.78 / 27.95 Gbps <sup>2)</sup>
Protocol support	100GbE OTU4
Power budget	0 – 6.3dB (100GbE/OTU4)
Optical path penalty	2.2dB (100GbE) 1.5dB (OTU4)
Power consumption	< 4.5W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

<sup>1)</sup> Aggregated line rate 100GbE / OTU4

<sup>2)</sup> Per lane

<sup>3)</sup> Average power

<sup>4)</sup> Specified at BER 5x10<sup>-5</sup>

Parameter	Value
<b>Transmitter data:</b>	
Output power, total	Max +10.5dBm <sup>3)</sup> (100GbE) Max +8.9dBm <sup>3)</sup> (OTU4)
Output power, per lane 100GbE	Min: -4.3dBm <sup>3)</sup> Max: +4.5dBm <sup>3)</sup>
Output power, per lane OTU4	Min: -2.5dBm <sup>3)</sup> Max: +2.9dBm <sup>3)</sup>
Transmit wavelength	1294.53 – 1296.59nm 1299.02 – 1301.09nm 1303.54 – 1305.63nm 1308.09 – 1310.19nm
<b>Receiver data:</b>	
Minimum input power	-10.6dBm <sup>2) 3) 4)</sup> (100GbE) -8.8dBm <sup>2) 3) 4)</sup> (OTU4)
Overload (max power)	+4.5dBm <sup>2) 3) 4)</sup> (100GbE) +2.9dBm <sup>2) 3) 4)</sup> (OTU4)
Wavelength range	1294.53 – 1296.59nm 1299.02 – 1301.09nm 1303.54 – 1305.63nm 1308.09 – 1310.19nm
DDM	Yes
MSA compliance	QSFP28 MSA



### Safety/regulatory compliance:

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

RoHS compliance

Subject to change without notice.

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## ORDERING INFORMATION

Ordering number	Description
SO-QSFP28-LR4	QSFP28, 100GBASE-LR4, OTU4, 1310nm, SM, DDM, 6.3dB, 10km

## GENERAL 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 stipulated Bit Error Rate (BER) and at a given bit rate.
Temperature range:	Max operating case temperature range. Commercial 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 <sup>-12</sup> .
Receiver max input power:	Maximum average input power giving a BER, normally 1E <sup>-12</sup> .
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.

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