DATASHEET

# SO-QSFP28-100G-LR

QSFP28, 100G Ethernet LR, SM, 1x 1311nm, PAM4, 10km, 6.3dB, LC

#### **OVERVIEW**

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

SO-QSFP28-100G-LR has an optical performance enabling distances of up to 10km over a SingleMode (SM) G.652 fiber-pair cable. The module includes FEC coding Forward Error Correction (KP4 FEC) to ensure reliable system operation. The host system shall thus not have FEC activated. The optical parameters will provide a bit error ratio (BER) of  $2.4 \times 10^{-4}$ . FEC will render in the required BER of better than  $1 \times 10^{-12}$ .

SO-QSFP28-100G-LR uses a single 1311nm channel/lane @ 50Gbaud using PAM4 modulation to transport the Ethernet signal. The electrical interface is 4x 25.78Gbps and compliant with OIF CEI-28G-VSR. Digital diagnostics functions (DDM) are available via an I2C interface, as specified by the QSFP28 MSA.

### **TECHNICAL DATA**

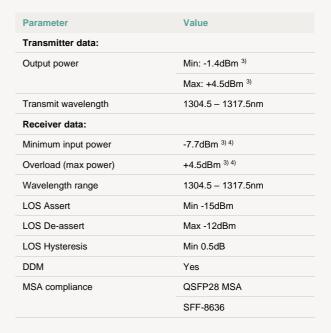
Parameter	Value
Technology	Grey QSFP28
Transmission media	SM (2x LC)
Typical reach	10 km
Nominal wavelength	1x 1311nm
Interface standards	100GBASE-LR
Bit rate support	103.12Gbps <sup>1)</sup>
	53.125Gbd <sup>2)</sup>
Protocol support	100GbE
Power budget	0 – 6.3dB
Power consumption	< 4W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

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

#### Safety/regulatory compliance:

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

RoHS compliance





<sup>2)</sup> Line baud rate

<sup>3)</sup> Average power

<sup>4)</sup> Specified at BER 2.4x10<sup>-4</sup>

DATASHEET 5.2

## ORDERING INFORMATION

Ordering number	Description
SO-QSFP28-100G-LR	QSFP28, 100G Ethernet LR, SM, 1x 1311nm, PAM4, 10km, 6.3dB, LC

## **GENERAL DEFINITIONS**

Description  Crow Transcolver type for pan WDM applications. Flactrical or antical
Cray, Transcoiver type for non WDM applications. Electrical or optical
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.
Type of fiber, e.g. Multimode (MM) or Singlemode (SM). Number of and connector type within brackets (e.g. 2x LC, 1x MPO).
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.
Supported bit rate range in Gigabit or Megabit per second (Gbps or Mbps).
Protocols within supported bit rate range.
Typical wavelength(s) from transmitter.
Referenced interface standards or MSA's, e.g. IEEE 802.3 standard for 10GbE services or 100G 4WDM-10 etc.
Min and max power budget between Transmitter and Receiver w/o optical path penalties.
Maximum amount of tolerated dispersion and required reduction of power budget to maintain stipulated Bit Error Rate (BER) and at a given bit rate.
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)
Worst case power consumption. Will vary over temperature.
Average output power. Provided in min and max values.
Minimum average input power at specified BER, normally 1E <sup>-12</sup> . Note that some protocols require FEC to achieve sufficient BER.
Maximum average input power giving a BER, normally 1E <sup>-12</sup> .
Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.

Smartoptics makes no warranties or representations, expressed or implied, of any kind relative to the information or any portion thereof contained in this document or its adaptation or use, and assumes no responsibility or liability of any kind, including, but not limited to, indirect, special, consequential or incidental damages, for any errors or inaccuracies contained in the information or arising from the adaptation or use of the information or any portion thereof. The information in this document is subject to change without notice.

