

# SO-QSFP-DD-2C-10-4

QSFP-DD 2x 100G Ethernet, 1295.56nm/1300.05nm/1304.58nm/1309.14nm, 10km, 7.3dB, Dual CS

## OVERVIEW

The SO-QSFP-DD-2C-10 is a QSFP-DD form-factor transceiver for 2x 100Gbps Ethernet applications. It is intended for use in data center interconnect between switches, routers, storage equipment etc. for optical distances up to 10km over a SingleMode (SM) fiber cable.

The transceiver has a dual CS connector interface which means that there are two singlemode fiber pairs connected to the transceiver, each transporting a 100Gbps signal. The SO-QSFP-DD-2C-10 is thus intended for 200G to 2x 100G breakout configurations using two 100G QSFP-28 transceivers on the 100G Ethernet side. The SO-QSFP28-LR4-10L has matching optical performance and is a recommended option for this.

The electrical interface consists of eight 25.78G NRZ signals (SFF-8679) that are converted to eight channels/lanes (four per fiber-pair) to transport the Ethernet signal.

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

## TECHNICAL DATA

Parameter	Value
Technology	Grey QSFP-DD
Transmission media	SM (Dual CS)
Typical reach	10km
Nominal wavelengths	1295.56nm 1300.05nm 1304.58nm 1309.14nm
Interface standards	100GBASE-LR4
Bit rate support	2x 103.12Gbps <sup>1)</sup> 25.78Gbps <sup>2)</sup>
Protocol support	2x 100GbE
Power budget	0 – 7.3dB
Power consumption	< 8W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

<sup>1)</sup> Aggregated line rate 200GbE

<sup>2)</sup> Line rate per lane

<sup>3)</sup> Average power, per lane

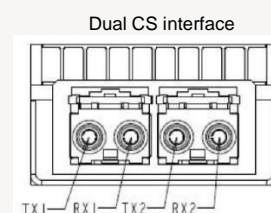
<sup>4)</sup> Specified at BER 1x10<sup>-12</sup>

### Safety/regulatory compliance:

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

RoHS compliance

Parameter	Value
<b>Transmitter data:</b>	
Output power, per lane	Min: -0.7dBm <sup>3)</sup> Max: +4.5dBm <sup>3)</sup>
Transmit wavelengths	1294.53 - 1296.59nm 1299.02 - 1301.09nm 1303.54 - 1305.63nm 1308.09 - 1310.19nm
<b>Receiver data:</b>	
Minimum input power, per lane	-8.0dBm <sup>3) 4)</sup>
Overload (max power), per lane	+4.5dBm <sup>3) 4)</sup>
Wavelength range	1294.53 - 1296.59nm 1299.02 - 1301.09nm 1303.54 - 1305.63nm 1308.09 - 1310.19nm
DDM	Yes
MSA compliance	QSFP-DD MSA CMIS4.0



## APPLICATION CODE LIST

CMIS Application Code	Host format	Electrical interface	Payload	FEC	MSA
1	2x100GBASE-R	2x CAUI-4 (4x 25G)	200G	No FEC	100GBASE-LR4 (Clause 88)

## ORDERING INFORMATION

Ordering number	Description
SO-QSFP-DD-2C-10-4	QSFP-DD 2x100G Ethernet 10km 7.3dB CMIS4 Dual CS

## 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 <sup>-12</sup> . Note that some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally 1E <sup>-12</sup> .
DDM	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.