

# SO-CFP2-ER4

CFP2, 100GBASE-ER4, OTU4, 1310nm, SM, DDM, 18dB, 40km

## OVERVIEW

The SO-CFP2-ER4 is a CFP2 (C Form-factor Pluggable) transceiver for 100 Gbps Ethernet (100GBASE-ER4) 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-ER standard, i.e. for optical distances up to 40km over a SingleMode (SM) fiber.

SO-CFP2-ER4 uses four channels/lanes @ 25.78 Gbps and 27.95 Gbps to transport an Ethernet and OTN signal, respectively.

## TECHNICAL DATA

Parameter	Value
Technology	Grey CFP2
Transmission media	SM (2x LC)
Typical reach	40km
Nominal wavelength	Lane 1: 1295.56nm Lane 2: 1300.05nm Lane 3: 1304.58nm Lane 4: 1309.14nm
Interface standards	100GBASE-ER4 OTU4 4L1-9C1F
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 – 18dB
Dispersion penalty	Max 2.5dB
Power consumption	< 9W
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 100GbE / OTU4

<sup>3)</sup> Average power

<sup>4)</sup> Per lane 100GbE

<sup>5)</sup> Per lane OTU4

### Safety/regulatory compliance:

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

RoHS compliance

Parameter	Value
<b>Transmitter data:</b>	
Output power, total	Max +8.9dBm <sup>3)</sup>
Output power, per lane 100GbE	Min: -2.9dBm <sup>3)</sup> Max: +2.9dBm <sup>3)</sup>
Output power, per lane OTU4	Min: -2.7dBm <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	-20.9dBm <sup>3)4)</sup> -20.7dBm <sup>3)5)</sup>
Overload (max power)	+4.5dBm <sup>3)4)5)</sup>
Wavelength range	1294.53 – 1296.59nm 1299.02 – 1301.09nm 1303.54 – 1305.63nm 1308.09 – 1310.19nm
DDM	Yes
MSA compliance	CFP2 MSA

## ORDERING INFORMATION

Ordering number	Description
SO-CFP2-ER4	CFP2, 100GBASE-ER4, OTU4, 1310nm, SM, DDM, 18dB, 40km

## 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.
Transmission Media:	DAC: Direct Attach Cable (DAC). Electrical or 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).
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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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)
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