SO-CFP-40GBASE-LR4

CFP, 40Gbps Ethernet LR4, SDH/SONET, OTN, SM, DDM, 6.7dB, 10km

OVERVIEW

The SO-CFP-40GBASE-LR4 is a CFP (C Form-factor Pluggable) transceiver for 40Gbps 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 40GBASE-LR standard, i.e. for optical distances up to 10km over a SingleMode (SM) fiber.

SO-CFP-40GBASE-LR4 uses four CWDM channels/lanes @ 10Gbps to transport an Ethernet, SDH/SONET or OTN signal.

TECHNICAL DATA

Parameter	Value
Technology	Grey CFP
Transmission media	SM (2x LC)
Typical reach	10km
Nominal wavelength	Lane 1: 1271nm
	Lane 2: 1291nm
	Lane 3: 1311nm
	Lane 4: 1331nm
Interface standards	40GBASE-LR4
Bit rate support	39.813 - 43.018Gbps [1]
	9.95 - 11.3Gbps [2]
Protocol support	40GbE
	STM-256/OC768
	OTU3
Power budget	0 – 6.7dB
Power consumption	< 8W
Operating temperature	-10°C to +75°C
Storage temperature	-40°C to +85°C

Parameter		Value
Transmitter data:		
Output power, total		Max +8.3dBm [3]
Output power, per lane		Min: -7.0Bm [3]
		Max: +2.3dBm [3]
Transmit wavelength,	Lane 1	1264.5 – 1277.5nm
	Lane 2	1284.5 – 1297.5nm
	Lane 3	1304.5 – 1317.5 nm
	Lane 4	1324.5 – 1337.5nm
Receiver data:		
Minimum input power		-13.7dBm [3] [4]
Overload (max power)		+2.3dBm [3] [4]
Wavelength range,	Lane 1	1264.5 – 1277.5nm
	Lane 2	1284.5 – 1297.5nm
	Lane 3	1304.5 – 1317.5 nm
	Lane 4	1324.5 – 1337.5nm
LOS Assert		Min -25dBm
LOS De-assert		Max -15dBm
LOS Hysteresis		Min 0.5dB
DDM		Yes
MSA compliance		CFP MSA's

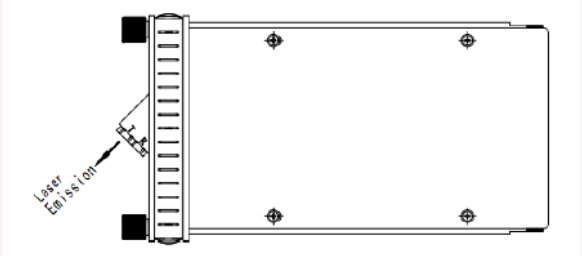
[1] Aggregated line rate

[2] Per lane

[3] Average power

[4] Specified at BER $1x10^{-12}$, PRBS 2^{31}-1 @ 10.31Gbps per lane

Safety/regulatory compliance:
TUV/UL/FDA (contact Smartoptics for latest certification information)
RoHS compliance



ORDERING INFORMATION

Ordering number	Description
SO-CFP-40GBASE-LR4	CFP, 40Gbps Ethernet LR4, SDH/SONET, OTN, SM, DDM, 6.7dB, 10km

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 $1E^{-12}$. Note that some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally $1E^{-12}$.
DDM	Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.