

# SO-QSFP-LR4-PSM

QSFP+, 40GBase, 1310nm, SM, DDM, 6.6dB, 10km, MPO (APC)

## OVERVIEW

The SO-QSFP-LR4-PSM is a QSFP+ (Quad Small Form-factor Pluggable Plus) transceiver for 40 Gbps applications where the transport is made using four channels at 10 Gbps. It is intended for use in inter- and intra-connect applications within and between data centers with switches, routers, storage equipment etc. The transceiver can also be used for 10GbE-LAN interconnect applications, providing a higher density as compared to four individual 10G connections using e.g. SFP+ transceivers.

The SO-QSFP-LR4-PSM provides transport over an MPO/MTP 12 or 8 ribbon fiber cable up to 10 km over a SingleMode (SM) fiber.

## TECHNICAL DATA

<b>Technology</b>	Grey QSFP+
<b>Transmission media</b>	SM (1x MPO/APC)
<b>Typical reach</b>	10 km
<b>Nominal wavelength</b>	1310 nm
<b>Interface standards</b>	40GBASE-LR4
<b>Bit rate range</b>	4x 10.3125 Gbps
<b>Protocols</b>	Eth: 40GbE
	Infiniband: 4x 10GbE-LAN
	QDR, DDR, SDR
<b>Power budget</b>	0 - 6.6 dB <sup>1)</sup>
<b>Temperature range</b>	0°C to +70°C
<b>Power consumption</b>	< 3.5W

<b>Transmitter data</b>	<b>Output power per lane:</b>	Min: - 6.0 dBm <sup>1)</sup> Max: +1.5 dBm <sup>1)</sup>
	<b>Tx wavelength:</b>	Min: 1260 nm Max: 1355 nm
<b>Receiver data</b>	<b>Minimum input power:</b>	-12.6 dBm <sup>1)</sup>
	<b>Overload (max power):</b>	+2.3 dBm
	<b>Wavelength range:</b>	1260 - 1355 nm
<b>DDM</b>		Yes
<b>MSA compliance</b>		QSFP+ MSA SFF-8436

<sup>1)</sup> Per lane & 10.3125 Gbps

### Regulatory compliance

<b>UL/Safety</b>	UL 60950-1
<b>RoHS</b>	RoHS 6

<b>Storage temp.</b>	-40°C to +85°C
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**Note! See "Definitions" below.**



MPO (Multi-fiber Push On) is an optical connector for ribbon cables with four to twenty-four fibers.

MTP is a specific brand of an MPO connector.

Note: An MPO/MTP connector with 8-degree Angled Physical Contact (APC) shall be used with this product to minimize MPO/MTP connection induced reflections.

## ORDERING INFORMATION

Part number	Description
SO-QSFP-LR4-PSM	QSFP+, 40GBase, 1310nm, SM, DDM, 6.6dB, 10km, MPO

## 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. 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. 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)
Power consumption:	Worst case power consumption.
Transmitter Output power:	Average output power. Provided in min and max values.
Receiver minimum input power:	Minimum average input power at specified BER, normally $1E^{-12}$ .
Receiver max input power:	Maximum average input power at specified BER, normally $1E^{-12}$ .
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.