INDEPENDENT
DATA SOLUTIONS

smartoptics

DATASHEET 5.1

SO-QSFP-SR4

QSFP+, 40G Ethernet SR4, MM 850nm, 150m@OM4, 1.9dB, MPO

OVERVIEW

The SO-QSFP-SR4 is a 40GBASE-SR4 compliant 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 intra-connect applications in data centers between 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-SR4 provides transport over an MPO/MTP 12 or 8 ribbon fiber cable up to 150 m when using an OM4-grade MultiMode (MM) fiber.

TECHNICAL DATA

Parameter	Value
Technology	Grey QSFP+
Transmission media	MM (1x MPO8/MPO12)
Typical reach	150m (OM4), 100m (OM3)
Nominal wavelength	4x 850nm
Interface standards	40GBASE-SR4
Bit rate support	41.25Gbps [1)]
	4x 10.3125Gbps [2)]
Protocol support	40GbE / 4x 10GbE-LAN
Power budget	0 – 1.9dB
Power consumption	< 1.5W
Operating temperature	0°C to +70°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power, per lane	Min: -7.6dBm [3)]
	Max: +2.4dBm [3)]
Transmit wavelength	840 – 860nm
Receiver data:	
Minimum input power	-9.5dBm [2) 3) 4)]
Overload (max power)	+2.4dBm [2) 3) 4)]
Wavelength range	840 – 860nm
LOS Assert	Min -30dBm
LOS De-Assert	Max -7.5dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	QSFP+ MSA, SFF-8436

1). Aggregated line rate

2). Per lane

3). Average power

4). At BER less than 10^{-12}, with a 2^{31}-1 PRBS

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

** 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.

ORDERING INFORMATION

Ordering number	Description
SO-QSFP-SR4	QSFP+, 40G Ethernet SR4, MM 850nm, 150m@OM4, 1.9dB, MPO

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 (DAC). 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.
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 $1E^{-12}$.
Receiver max input power	Maximum average input power giving a BER, normally $1E^{-12}$.
DDM	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.