       smartoptics

DATASHEET 5.1

SO-QSFP-SR-BD

QSFP+, 40GBase, BiDi, duplex MM, 6.1dB, 100m@OM3, 150m@ OM4

OVERVIEW

The SO-QSFP-SR-BD is a QSFP+ (Quad Small Form-factor Pluggable Plus) transceiver for 40 Gbps applications.

The transceiver is a high-performance module for short-range duplex data communication and interconnect applications. It integrates four electrical data lanes in each direction into transmission over a single LC duplex fiber optic cable. Each electrical lane operates at 10.3125 Gbps and conforms to the 40GE XLPPI interface.

The transceiver internally multiplexes the four electrical 10Gbps flows into two 20Gbps optical channels over one simplex LC fiber using bi-directional optics. This results in an aggregate bandwidth of 40Gbps into a duplex LC cable. This allows reuse of the installed LC duplex cabling infrastructure for 40GbE application. Link distances up to 100 m using OM3 and 150m using OM4 optical fiber are supported.

SO-QSFP-SR-BD is designed to operate over multimode fiber systems using a nominal wavelength of 850nm and 900nm.

TECHNICAL DATA

Parameter	Value
Technology	Grey QSFP+
Transmission media	MM (2x LC)
Typical reach	150m (OM4), 100m (OM3)
Nominal wavelength	850 / 900nm
Bit rate support	2x 20.625 Gbps
Protocol support	40GbE
Power budget	$0 - 6.1dB$
Power consumption	< 3.5W
Operating temperature	+10°C to +70°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power, per lane	Min: -4.0dBm [1]
	Max: +5.0dBm [1]
Transmit wavelength	832 - 868nm / 882 - 918nm
Receiver data:	
Minimum input power	-10.1dBm [1][2]
Overload (max power)	+5.0dBm [1][2]
Wavelength range	$840 - 860nm$
LOS Assert	Min -30dBm / Max -9.1dBm
LOS De-Assert	Max -8.6dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	QSFP+ MSA, SFF-8436

[1] Average Power
[2] At BER less than 10^{-12}

Transmitter Center Wavelength
850nm 900nm
18.35 12.90 6.02
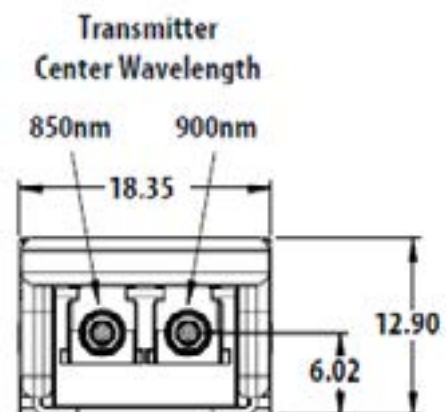
Safety/regulatory compliance:
TUV/UL/FDA (contact Smartoptics for latest certification information)
RoHS compliance

ORDERING INFORMATION

Ordering number	Description
SO-QSFP-SR-BD	QSFP+, 40GBase, BiDi, duplex MM, 6.1dB, 100m@OM3, 150m@OM4

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.
	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.