

SO-SFP-1000BASE-BX160D-5157 & -5751

SFP BiDi, 100Mbps - 1.25Gbps, 1510/1570nm, SM, DDM, 34dB, 160km, C-temp & E-temp

OVERVIEW

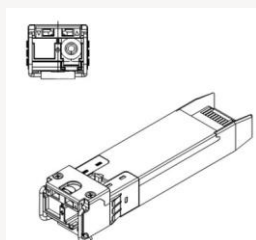
The SO-SFP-1000BASE-BX160D is a bi-directional transceiver solution operating directly on a single-fiber without the need for a separate optical filter. This is achieved by having two transceivers that inject different wavelengths into the same single-fiber. The solution thus consists of two transceivers; SO-SFP-1000BASE-BX160D-5157 and SO-SFP-1000BASE-BX160D-5751, operating at 1510nm and 1570nm respectively. Using a single-fiber solution provides a cost-efficient solution for interconnect and it simplifies the patching since no separate transmit/receive direction has to be taken into account.

The transceiver pair supports the bit rate range from 100Mbps to 1.25Gbps, i.e. Fast Ethernet (FE), Gigabit Ethernet (GbE) and 1Gbps Fiberchannel (1G FC) services. The optical performance of the transceiver pair provides a bridgeable distance of up to 160km.

The transceiver solution is available in two temperature range options, one being an extended temperature range of -20°C to +85°C (-4°F to +185°F). The transceivers provide digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

TECHNICAL DATA

Parameter	Value
Technology	BiDi SFP
Transmission media	SM (1x LC)
Typical reach	160km
Nominal wavelength Tx/Rx	1510nm/1570nm & 1570nm/1510nm
Bit rate support	100Mbps to 1.25Gbps
Protocol support	FE, GbE 1G FC
Power budget	13 – 34dB
Dispersion penalty	Max 1dB
Power consumption	< 1.0W
Operating temperature	0°C to +70°C -20°C to +85°C (-E)
Storage temperature	-40°C to +85°C



Safety/regulatory compliance:

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

RoHS compliance

Parameter	Value
Transmitter data:	
Output power	Min: +1.0dBm ³⁾ Max: +5.0dBm ³⁾
Transmit wavelength	1504 – 1517nm ¹⁾ 1564 – 1577nm ²⁾
Receiver data:	
Minimum input power	-33.0dBm ^{3) 4)}
Overload (max power)	-8.0dBm ^{3) 4)}
Wavelength range	1550 – 1590nm ¹⁾ 1490 – 1530nm ²⁾
LOS Assert	Min -45dBm
LOS De-assert	Max -34dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	SFF-8431, -8432, -8472

¹⁾ SO-SFP-1000BASE-BX160D-5157.

²⁾ SO-SFP-1000BASE-BX160D-5751.

³⁾ Average power.

⁴⁾ @ 1.25Gbps, BER ≤ 1x10⁻¹², PRBS 2⁷-1, back-to-back.

ORDERING INFORMATION

Ordering code	Description
SO-SFP-1000Base-BX160D-5157	SFP, BiDi, 1G/100M Ethernet, 1G FC, TX/RX=1510/1570nm, SM, 160km, 34dB, LC
SO-SFP-1000Base-BX160D-5751	SFP, BiDi, 1G/100M Ethernet, 1G FC, TX/RX=1570/1510nm, SM, 160km, 34dB, LC
SO-SFP-1000Base-BX160D-5157-E	SFP, BiDi, 1G/100M Ethernet, 1G FC, TX/RX=1510/1570nm, SM, 160km, 34dB, E-temp, LC
SO-SFP-1000Base-BX160D-5751-E	SFP, BiDi, 1G/100M Ethernet, 1G FC, TX/RX=1570/1510nm, SM, 160km, 34dB, E-temp, LC

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.

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