

SO-SFP-1000BASE-BX60D-35 & -53

SFP BiDi, 1.25 Gbps GbE, 1310/1550nm, SM, DDM, 22dB, 60km

OVERVIEW

The SO-SFP-1000BASE-BX60D 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-BX60D-35 and SO-SFP-1000BASE-BX60D-53, operating at 1310nm and 1550nm 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 1G Fiberchannel (1G FC) and 1G Ethernet (GbE) services, having an optical performance that provides a bridgeable distance of up to 60km.

The transceiver solution is available in two temperature range options, one being the Industrial temperature range (I-temp) of -40°C to +85°C (-40°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

Technology	BiDi SFP
Transmission media	SM (1x LC)
Typical reach	60 km
Nominal wavelength	1310 nm ¹⁾ & 1550 nm ²⁾
Bit rate range	1.063 / 1.25 Gbps
Protocols	Eth: GbE FC: 1G FC
Power budget	8.0 - 24.0 dB ¹⁾ 6.0 - 22.0 dB ²⁾
Dispersion penalty	1 dB ^{1) + 2)}
Temperature range	0°C to +70°C -40°C to +85°C (-I)
Power consumption	< 1.0W

Note that the power budget differs in 1310nm vs 1550nm direction. This has to be taken into account for links with high attenuation.

Transmitter data	Output power:	Min: 0.0 dBm ¹⁾ Max: +5.0 dBm ¹⁾ Min: -2.0 dBm ²⁾ Max: +3.0 dBm ²⁾
	Tx wavelength:	1290 - 1330 nm ¹⁾ 1480 - 1580 nm ²⁾
Receiver data	Minimum input power:	-24.0 dBm ^{1) + 2) + 3)}
	Overload (max power):	-3.0 dBm ^{1) + 2)}
	Wavelength range:	1480 - 1580 nm ¹⁾ 1290 - 1330 nm ²⁾
DDM		Yes
MSA compliance		SFP MSA SFF 8472

¹⁾ SO-SFP-1000Base-BX60D-35 (1310nm direction)

²⁾ SO-SFP-1000Base-BX60D-53 (1550nm direction)

³⁾ GbE

Regulatory compliance

EMC CE	EN 55022:2010 EN 55024:2010
UL/Safety	UL 60950-1
FCC	47 CFR PART 15 OCT, 2013
RoHS	RoHS 6
TUV	EN 60950-1:2006+A11+A1+A12+A2 EN 60825-1:2014 EN 60825-2:2004+A1+A2

Storage temp. -40°C to +85°C

Note! See "Definitions" below.

ORDERING INFORMATION

Part number	Description
SO-SFP-1000Base-BX60D-35	SFP BiDi, 1.25Gbps GbE, TX/RX=1310/1550nm, SM, DDM, 24dB, 60km
SO-SFP-1000Base-BX60D-33	SFP BiDi, 1.25Gbps GbE, TX/RX=1550/1310nm, SM, DDM, 22dB, 60km
SO-SFP-1000Base-BX60D-35-I	SFP BiDi, 1.25Gbps GbE, TX/RX=1310/1550nm, SM, DDM, 24dB, 60km, I-temp
SO-SFP-1000Base-BX60D-53-I	SFP BiDi, 1.25Gbps GbE, TX/RX=1550/1310nm, SM, DDM, 22dB, 60km, I-temp

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.