

# SO-SFP-1000BASE-BX40D-35 & -53

SFP BiDi, 1.25 Gbps GbE, 1310/1550nm, SM, DDM, 18dB, 40km

## OVERVIEW

The SO-SFP-1000BASE-BX40D 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-BX40D-35 and SO-SFP-1000BASE-BX40D-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 40km.

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

<b>Technology</b>	BiDi SFP
<b>Transmission media</b>	SM (1x LC)
<b>Typical reach</b>	40 km
<b>Nominal wavelength</b>	1310 nm <sup>1)</sup> & 1550 nm <sup>2)</sup>
<b>Bit rate range</b>	1.063 / 1.25 Gbps
<b>Protocols</b>	Eth: GbE FC: 1G FC
<b>Power budget</b>	5.0 - 20.0 dB <sup>1)</sup> 3.0 - 18.0 dB <sup>2)</sup>
<b>Dispersion penalty</b>	1 dB <sup>1) + 2)</sup>
<b>Temperature range</b>	0°C to +70°C -40°C to +85°C (-I)
<b>Power consumption</b>	< 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.

<b>Transmitter data</b>	<b>Output power:</b>	Min: -3.0 dBm <sup>1)</sup> Max: +2.0 dBm <sup>1)</sup> Min: -5.0 dBm <sup>2)</sup> Max: 0.0 dBm <sup>2)</sup>
	<b>Tx wavelength:</b>	1290 - 1330 nm <sup>1)</sup> 1480 - 1580 nm <sup>2)</sup>
<b>Receiver data</b>	<b>Minimum input power:</b>	-23.0 dBm <sup>1) + 2) + 3)</sup>
	<b>Overload (max power):</b>	-3.0 dBm <sup>1) + 2)</sup>
	<b>Wavelength range:</b>	1480 - 1580 nm <sup>1)</sup> 1290 - 1330 nm <sup>2)</sup>
<b>DDM</b>		Yes
<b>MSA compliance</b>		SFP MSA SFF 8472

<sup>1)</sup> SO-SFP-1000Base-BX40D-35 (1310nm direction)

<sup>2)</sup> SO-SFP-1000Base-BX40D-53 (1550nm direction)

<sup>3)</sup> GbE

### Regulatory compliance

<b>EMC CE</b>	EN 55022:2010 EN 55024:2010
<b>UL/Safety</b>	UL 60950-1
<b>FCC</b>	47 CFR PART 15 OCT, 2013
<b>RoHS</b>	RoHS 6
<b>TUV</b>	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-BX40D-35	SFP BiDi, 1.25 Gbps GbE, TX/RX=1310/1550nm, SM, DDM, 20dB, 20km
SO-SFP-1000Base-BX40D-53	SFP BiDi, 1.25 Gbps GbE, TX/RX=1550/1310nm, SM, DDM, 18dB, 20km
SO-SFP-1000Base-BX40D-35-I	SFP BiDi, 1.25 Gbps GbE, TX/RX=1310/1550nm, SM, DDM, 20dB, 20km, I-temp
SO-SFP-1000Base-BX40D-53-I	SFP BiDi, 1.25 Gbps GbE, TX/RX=1550/1310nm, SM, DDM, 18dB, 20km, 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.