

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

SFP BiDi, 1.063/1.25Gbps, 1310/1550nm, SM, DDM, 20dB/18dB, 40km, C-temp & I-temp

OVERVIEW

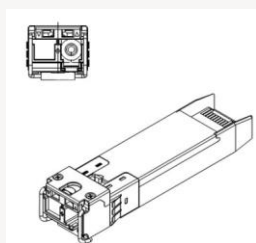
The SO-SFP-1000BASE-BX40D is a bi-directional transceiver solution operating directly on a single-fiber without the need for a separate optical filter. This is achieved by having two transceivers that inject different wavelengths into the same single-fiber. The solution thus consists of two transceivers; 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

| Parameter | Value |
|--------------------------|--|
| Technology | BiDi SFP |
| Transmission media | SM (1x LC) |
| Typical reach | 40km |
| Nominal wavelength Tx/Rx | 1310nm/1550nm & 1550nm/1310nm |
| Bit rate support | 1.063Gbps / 1.25Gbps |
| Protocol support | GbE 1G FC |
| Power budget | 5 – 20dB ¹⁾ / 3 – 18dB ²⁾ |
| Power consumption | < 1.0W |
| Operating temperature | 0°C to +70°C (-BxxC-) -40°C to +85°C (-BxxI-) |
| Storage temperature | -40°C to +85°C |



| Parameter | Value |
|--------------------------|--|
| Transmitter data: | |
| Output power | Min: -3.0dBm ^{1) 3)} Max: +2.0dBm ^{1) 3)} Min: -5.0dBm ^{2) 3)} Max: +0.0dBm ^{2) 3)} |
| Transmit wavelength | 1290 – 1330nm ¹⁾ 1480 – 1580nm ²⁾ |
| Receiver data: | |
| Minimum input power | -23.0dBm ^{3) 4)} |
| Overload (max power) | -3.0dBm ^{3) 4)} |
| Wavelength range | 1480 – 1580nm ¹⁾ 1290 – 1330nm ²⁾ |
| LOS Assert | Min -35dBm |
| LOS De-assert | Max -24dBm |
| LOS Hysteresis | Min 0.5dB |
| DDM | Yes |
| MSA compliance | SFF-8431, -8432, -8472 |

¹⁾ SO-SFP-1000Base-BX40D-35 (1310nm direction).

²⁾ SO-SFP-1000Base-BX40D-53 (1550nm direction).

³⁾ Average power.

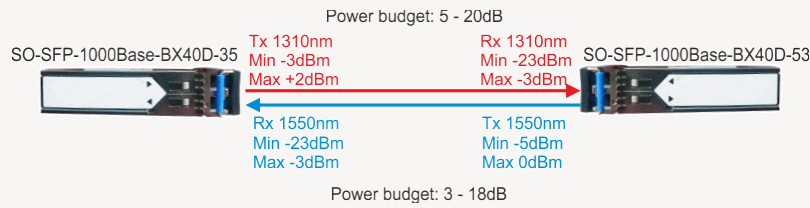
⁴⁾ @ 1.25Gbps, BER ≤ 1x10⁻¹², PRBS 2⁷-1, back-to-back.

Safety/regulatory compliance:

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

RoHS compliance

POWER BUDGET INFORMATION



Note that the power budget differs in 1310nm vs 1550nm direction. This has to be taken into account for links with high attenuation. Note also that the fiber attenuation is ~0.4dB/km in the 1310nm region and ~0.25dB/km in the 1550nm region.

ORDERING INFORMATION

| Ordering code | Description |
|----------------------------|--|
| SO-SFP-1000Base-BX40D-35 | SFP, BiDi, 1G Ethernet, 1G FC, TX/RX=1310/1550nm, SM, 40km, 20dB, LC |
| SO-SFP-1000Base-BX40D-53 | SFP, BiDi, 1G Ethernet, 1G FC, TX/RX=1550/1310nm, SM, 40km, 18dB, LC |
| SO-SFP-1000Base-BX40D-35-I | SFP, BiDi, 1G Ethernet, 1G FC, TX/RX=1310/1550nm, SM, 40km, 20dB, I-temp, LC |
| SO-SFP-1000Base-BX40D-53-I | SFP, BiDi, 1G Ethernet, 1G FC, TX/RX=1550/1310nm, SM, 40km, 18dB, I-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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