The SO-SFP-1000BASE-BX120D 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-BX120D-5157 and SO-SFP-1000BASE-BX120D-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

<table>
<thead>
<tr>
<th>Technology</th>
<th>BiDi SFP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission media</td>
<td>SM (1x LC)</td>
</tr>
<tr>
<td>Nominal wavelength</td>
<td>1510 nm (1) &amp; 1570 nm (2)</td>
</tr>
<tr>
<td>Bit rate range</td>
<td>100 Mbps – 1.25 Gbps</td>
</tr>
<tr>
<td>Protocols</td>
<td>Eth: FE, GbE, FC: 1G FC</td>
</tr>
<tr>
<td>Power budget</td>
<td>13.0 - 33.0 dB (3)</td>
</tr>
<tr>
<td>Dispersion tolerance</td>
<td>3400 ps/nm</td>
</tr>
<tr>
<td>Dispersion penalty</td>
<td>1dB (3)</td>
</tr>
<tr>
<td>Temperature range</td>
<td>0°C to +70°C (E) -20°C to +85°C (E)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>&lt; 1.0W</td>
</tr>
</tbody>
</table>

#### Transmitter

<table>
<thead>
<tr>
<th>Output power:</th>
<th>Min: 0.0 dBm Max: +5.0 dBm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tx wavelength:</td>
<td>1504 - 1517 nm (1) 1564 - 1577 nm (2)</td>
</tr>
</tbody>
</table>

#### Receiver

<table>
<thead>
<tr>
<th>Minimum input power:</th>
<th>-33.0 dBm (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overload (max power):</td>
<td>-8.0 dBm</td>
</tr>
<tr>
<td>Wavelength range:</td>
<td>1550 - 1590 nm (1) 1490 - 1530 nm (2)</td>
</tr>
</tbody>
</table>

Yes

Yes

SFP MSA SFF 8472

### 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

### Storage temp.

-40°C to +85°C

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### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO-SFP-1000Base-BX120D-5157</td>
<td>SFP BiDi, 1.25Gbps GbE, TX/RX=1510/1570nm, SM, DDM, 33dB, 120km</td>
</tr>
<tr>
<td>SO-SFP-1000Base-BX120D-5751</td>
<td>SFP BiDi, 1.25Gbps GbE, TX/RX=1570/1510nm, SM, DDM, 33dB, 120km</td>
</tr>
<tr>
<td>SO-SFP-1000Base-BX120D-5157-E</td>
<td>SFP BiDi, 1.25Gbps GbE, TX/RX=1510/1570nm, SM, DDM, 33dB, 120km, E-temp</td>
</tr>
<tr>
<td>SO-SFP-1000Base-BX120D-5751-E</td>
<td>SFP BiDi, 1.25Gbps GbE, TX/RX=1570/1510nm, SM, DDM, 33dB, 120km, E-temp</td>
</tr>
</tbody>
</table>

### 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.

**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.