

SO-SFP-10GE-BX10D-2733/-3327

SFP+, BiDi, 10G Multirate, 1270/1330nm, DDM, 9dB, 10km, C-temp & I-temp

OVERVIEW

The SO-SFP-10GE-BX10D 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-10GE-BX10D-2733 and SO-SFP-10GE-BX10D-3327, operating at 1270nm and 1330nm 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 distance performance of the transceiver pair is in accordance with the IEEE 802.3ae standard, providing a bridgeable distance of 10km for 10GbE-LAN (10GBASE-LR) and 10GbE-WAN (10GBASE-LW) services.

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).

This transceiver provides 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 | 10km |
| Nominal wavelength Tx/Rx | 1270nm/1330nm & 1330nm/1270nm |
| Bit rate support | 0.6Gbps to 11.3Gbps |
| Interface standards | 10GBASE-LR, 10GBASE-LW |
| Protocol support | GbE, 10GbE-LAN, 10GbE-WAN OTU1, OTU2, OTU2e STM-64/OC192 STM-16/OC48, STM-4/OC12 1G, 2G, 4G, 8G, 10G FC CPRI Opt, 1, 2, 3, 4, 5, 6, 7, 7A, 8 OBSAI 1x, 2x, 4x, 8x |
| Power budget | 0 – 9dB |
| Power consumption | < 1.5W |
| Operating temperature | 0°C to +70°C -40°C to +85°C (-I) |
| Storage temperature | -40°C to +85°C |

| Parameter | Value |
|--------------------------|--|
| Transmitter data: | |
| Output power | Min: -5.0dBm ³⁾ Max: 0.0dBm ³⁾ |
| Transmit wavelength | 1260 – 1280nm ¹⁾ 1320 – 1340nm ²⁾ |
| Receiver data: | |
| Minimum input power | -14.0dBm ^{3) 4)} |
| Overload (max power) | +0.5dBm ^{3) 4)} |
| Wavelength range | 1320 – 1340nm ¹⁾ 1260 – 1280nm ²⁾ |
| LOS assert | Min -30dBm |
| LOS de-assert | Max -18dBm |
| DDM | Yes |
| MSA compliance | SFF-8431, -8432, -8472 |

¹⁾ SO-SFP-10GE-BX10D-2733.

²⁾ SO-SFP-10GE-BX10D-3327.

³⁾ Average power.

⁴⁾ @ 10.3Gbps, BER ≤ 1x10⁻¹², PRBS 2³¹-1, back-to-back.

Safety/regulatory compliance:

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

RoHS compliance

Note: IEEE 802.3ae 10GBASE-LR/LW is defined only at 1310 nm. The standard is referred to from bridgeable distance perspective.

Subject to change without notice.

For more information visit smartoptics.com.

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ORDERING INFORMATION

| Ordering code | Description |
|--------------------------|--|
| SO-SFP-10GE-BX10D-2733 | SFP+, BiDi, 10G Multirate, TX/RX=1270/1330nm, SM, DDM, 9dB, 10km |
| SO-SFP-10GE-BX10D-3327 | SFP+, BiDi, 10G Multirate, TX/RX=1330/1270nm, SM, DDM, 9dB, 10km |
| SO-SFP-10GE-BX10D-2733-I | SFP+, BiDi, 10G Multirate, TX/RX=1270/1330nm, SM, DDM, 9dB, 10km, I-temp |
| SO-SFP-10GE-BX10D-3327-I | SFP+, BiDi, 10G Multirate, TX/RX=1330/1270nm, SM, DDM, 9dB, 10km, I-temp |

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 100G4WDM-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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