

# SO-SFP-10GE-BX40D-2733/-3327

SFP+, BiDi, 10G Multirate, 1270/1330nm, SM, DDM, 16dB, 40km

## OVERVIEW

The SO-SFP-10GE-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-10GE-BX40D-2733 and SO-SFP-10GE-BX40D-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 up to 40km for 10GbE-LAN (10GBASE-ER) and 10GbE-WAN (10GBASE-EW) 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

<b>Technology</b>	BiDi SFP+
<b>Transmission media</b>	SM (1x LC)
<b>Typical reach</b>	40 km
<b>Nominal wavelength</b>	1270 nm <sup>1)</sup> & 1330 nm <sup>2)</sup>
<b>Interface standards</b>	10GBASE-ER 10GBASE-EW
<b>Bit rate range</b>	0.6 - 11.3 Gbps
<b>Protocols</b>	Eth: 10GbE-LAN 10GbE-WAN GbE
	OTN: OTU2 OTU2e OTU1
	SDH/SONET: STM-64/OC-192 STM-16/OC-48 STM-4/OC-12
	FC: 10G FC 8G FC 4G FC 1G FC
	CPRI: Opt 1 (0.6144 Gbps) Opt 2 (1.2288 Gbps) Opt 3 (2.4576 Gbps) Opt 4 (3.0720 Gbps) Opt 5 (4.9152 Gbps) Opt 6 (6.1440 Gbps) Opt 7 (9.8304 Gbps) Opt 7A (8.11008 Gbps) Opt 8 (10.1376 Gbps)
	OBSAI: 1x (0.768 Gbps) 2x (1.536 Gbps) 4x (3.0720 Gbps) 8x (6.1440 Gbps)
<b>Power budget</b>	4.5 - 16.0 dB
<b>Temperature range</b>	0°C to +70°C -40°C to +85°C (-I)
<b>Power consumption</b>	< 1.5W

<b>Transmitter data</b>	Output power:	Min: +1.0 dBm Max: +5.0 dBm
	Tx wavelength:	1260 - 1280 nm <sup>1)</sup> 1320 - 1340 nm <sup>2)</sup>
<b>Receiver data</b>	Minimum input power:	-15.0 dBm <sup>3)</sup>
	Overload (max power):	+0.5 dBm
	Wavelength range:	1320 - 1340 nm <sup>1)</sup> 1260 - 1280 nm <sup>2)</sup>
<b>DDM</b>		Yes
<b>MSA compliance</b>		SFF-8431 SFF 8472

<sup>1)</sup> SO-SFP-10GE-BX10D-2733

<sup>2)</sup> SO-SFP-10GE-BX10D-3327

<sup>3)</sup> @ 10.3Gbps

### 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

<b>Storage temp.</b>	-40°C to +85°C
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Note! See "Definitions" below.

Note: IEEE 802.3ae 10GBASE-ER/EW is defined only at 1550 nm. The standard is referred to from bridgeable distance perspective.

Subject to change without notice.

For more information visit [smaroptics.com](http://smaroptics.com).

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## ORDERING INFORMATION

Part number	Description
SO-SFP-10GE-BX40D-2733	SFP+, BiDi, 10G Multirate, TX/RX=1270/1330nm, SM, DDM, 16dB, 40km
SO-SFP-10GE-BX40D-3327	SFP+, BiDi, 10G Multirate, TX/RX=1330/1270nm, SM, DDM, 16dB, 40km
SO-SFP-10GE-BX40D-2733-I	SFP+, BiDi, 10G Multirate, TX/RX=1270/1330nm, SM, DDM, 16dB, 40km, I-temp
SO-SFP-10GE-BX40D-3327-I	SFP+, BiDi, 10G Multirate, TX/RX=1330/1270nm, SM, DDM, 16dB, 40km, 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.
Transmission Media:	DAC: Direct Attach Cable. Electrical or optical cable with attached connectors. 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.