

## DATASHEET 5.0

# SO-XFP-10GE-BX60D-2733/-3327

**XFP, BiDi, 10G Multirate, 1270/1330nm, DDM, 21dB, 60km**

## OVERVIEW

The SO-XFP-10GE-BX60D 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-XFP-10GE-BX60D-2733 and SO-XFP-10GE-BX60D-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 optical performance of the transceiver pair exceeds the IEEE 802.3ae standard, providing a bridgeable distance of up to 60km for 10GbE-LAN (10GBASE-ER) and 10GbE-WAN (10GBASE-EW) services.

This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

## TECHNICAL DATA

Technology	BiDi XFP
Transmission media	SM (1x LC)
Typical reach	60 km
Nominal wavelength	1270nm <sup>1)</sup> & 1330nm <sup>2)</sup>
Interface standards	10GBASE-LR 10GBASE-LW 1200-SM-LL-L 10G FC
Bit rate range	9.95 - 11.1 Gbps
Protocols	Eth: 10GbE-LAN 10GbE-WAN
	OTN: OTU2 OTU2e
	SDH/SONET: STM-64/OC-192
	FC: 10G FC
	CPRI: Opt 8 (10.1376 Gbps)
Power budget	11.0 - 21.0 dB
Temperature range	0°C to +70°C
Power consumption	< 2W

<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>1)</sup>
<b>Receiver data</b>	Minimum input power:	-20.0 dBm <sup>3)</sup>
	Overload (max power):	-6.0 dBm
	Wavelength range:	1320 - 1340 nm <sup>1)</sup> 1260 - 1280 nm <sup>1)</sup>
<b>DDM</b>		Yes
<b>MSA compliance</b>		SFF-8431 SFF-8472

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

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

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

## Regulator compliance

<b>EMC CE</b>	EN 55022:2010 EN 55024:2010
<b>UL/Safety FCC</b>	UL 60950-1 47 CFR PART 15 OCT, 2013
<b>RoHS</b>	RoHS 6
TUV	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

### 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.

## 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.