INDEPENDENT
DATA SOLUTIONS

smartoptics

DATASHEET 5.1

SO-SFP28-BX40D-2731/3127-I

SFP28, BiDi, 25G, CPRI, 1270/1310nm, SM, DDM, 18dB, 40km, I-temp

OVERVIEW

The SO-SFP28-BX40D-2731/3127-I 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-SFP28-BX40D-2731 and SO-SFP28-BX40D-3127, operating at 1270nm and 1310nm 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 25GbE and CPRI option 10 services, having an optical performance that provides a bridgeable distance of up to 40km.

As stipulated by the 25G Ethernet standards, Forward Error Correction (FEC) is required to be implemented by the host equipment in order to ensure reliable system operation. The optical parameters below will provide a bit error ratio (BER) of 5 x 10^{-5} for 25G Ethernet. FEC will provide the required quality for secure service.

The transceiver solution is available in 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 SFP28
Transmission media	SM (1x LC)
Typical reach	40km
Nominal wavelength	1270nm [1] / 1310nm [2]
Bit rate support	25.78Gbps
	24.33Gbps
Protocol support	25GbE
	CPRI opt 10
Power budget	10 – 18dB
Dispersion penalty	Max 2.7dB
Power consumption	< 1.8W
Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +85°C

Parameter	Value
Transmitter data:	
Output power	Min: -1.0dBm [3]
	Max: +6.0dBm [3]
Transmit wavelength	1260 – 1280nm [1]
	1300 – 1320nm [2]
Receiver data:	
Minimum input power	-19.0dBm [3] [4]
Overload (max power)	-4.0dBm [3] [4]
Wavelength range	1300 – 1320nm [1]
	1260 – 1280nm [2]
LOS De-assert	Max -23dBm
LOS Assert	Min -35dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	SFP 8402

1). SO-SFP28-BX40D-2731

2). SO-SFP28-BX40D-3127

3). Average power

4). Specified at 25GE and BER $5x10^{-5}$

Safety/regulatory compliance:
TUV/UL/FDA (contact Smartoptics for latest certification information)
RoHS compliance

ORDERING INFORMATION

Ordering number	Description
SO-SFP28-BX40D-2731-I	SFP28, BiDi, 25G Ethernet, CPRI Opt10, Tx/Rx=1270/1310nm, 40km, 18dB, I-tmp, LC
SO-SFP28-BX40D-3127-I	SFP28, BiDi, 25G Ethernet, CPRI Opt10, Tx/Rx=1310/1270nm, 40km, 18dB, I-tmp, 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.