

SFP28 25GE BiDi 80km

SFP28, BiDi, 25G Eth, Tx/Rx=1309.14/1295.56nm, SM 80km, 31dB, C-/I-temp, LC

TS2015-Bxxy-SO

The TS2015-Bxxy-SO 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; TS2015-BUVI-SO and TS2015-BVUI-SO, operating at transmit wavelengths 1295.56nm and 1309.14nm 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.

TQ2015-Bxxy-SO has an optical performance enabling distances of up to 80km over a SingleMode (SM) G.652 single fiber. As stipulated by the 25G Ethernet standards, Forward Error Correction (FEC) is required to be implemented by the host equipment to ensure reliable system operation.

The electrical interface is 1x 25.78Gbps and compliant with OIF CEI-28G-VSR. Digital diagnostics functions (DDM) are available via an I2C interface, as specified by the SFP28 MSA.

The transceivers provide digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

TS2015-Bxxy-SO is provided in a C-temp version (TS2015-BxxC-SO) and I-temp version (TS2015-BxxI-SO)

TECHNICAL DATA

Parameter	Value
Technology	BiDi SFP28
Transmission media	SM (1x LC)
Typical reach	80km
Nominal wavelengths	Tx: 1295.56nm / Rx: 1309.14nm ¹⁾ Tx: 1309.14nm / Rx: 1295.56nm ²⁾
Interface standards	25GBASE 80km
Bit rate support	25.78Gbps
Protocol support	25GbE
Power budget	8 – 31.0dB
Power consumption	<2.5W for TS2015-BxxC-SO <3.3W for TS2015-BxxI-SO
Operating temperature	0°C to +70°C (TS2015-BxxC-SO) -40°C to +85°C (TS2015-BxxI-SO)
Storage temperature	-40°C to +85°C

¹⁾ TS2015-BUVy-SO

²⁾ TS2015-BVUy-SO

³⁾ Average power, per lane

⁴⁾ Specified at BER 5x10⁻⁵

Safety/regulatory compliance:

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

RoHS compliance

Parameter	Value
Transmitter data:	
Output power	Min: +2dBm ³⁾ Max: +7.0dBm ³⁾
Transmit wavelengths	1294.53 – 1296.59nm ¹⁾ 1308.09 – 1310.19nm ²⁾
Receiver data:	
Minimum input power	-29.0dBm ³⁾ ⁴⁾
Overload (max power)	-6.0dBm ³⁾ ⁴⁾
Wavelength range	1308.09 – 1310.19nm ¹⁾ 1294.53 – 1296.59nm ²⁾
LOS Assert	Min -32.5dBm
LOS De-assert	Max -29.5dBm
LOS hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	SFP28 MSA SFF-8472

Subject to change without notice.

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ORDERING INFORMATION

Ordering number	Description
TS2015-BUVC-SO	SFP28, BiDi, 25G Eth, Tx/Rx=1295.56/1309.14nm, SM, 80km, 31dB, LC
TS2015-BVUC-SO	SFP28, BiDi, 25G Eth, Tx/Rx=1309.14/1295.56nm, SM, 80km, 31dB, LC
TS2015-BUVI-SO	SFP28, BiDi, 25G Eth, Tx/Rx=1295.56/1309.14nm, SM, 80km, 31dB, I-temp, LC
TS2015-BVUI-SO	SFP28, BiDi, 25G Eth, Tx/Rx=1309.14/1295.56nm, SM, 80km, 31dB, I-temp, 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 $\leq 1 \times 10^{-12}$. Some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally $\leq 1 \times 10^{-12}$.
DDM	Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.

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