

**DATASHEET 5.2****SO-SFP28-LWDM-x-E****SFP28, 25GE, LANWDM, SM, DDM, 21dB, 30km, E-temp, LC****OVERVIEW**

The SO-SFP28-LWDM-x-E is an SFP28 form-factor transceiver for 25 Gbps Ethernet applications. The transceiver is intended for use in interconnect applications between data centers with switches, routers and in 5G mobile networks. The optical performance supports distances up to 30km over a SingleMode (SM) G.652 fiber. SO-SFP28-LWDM-x also supports the high data rate CPRI Option 10 for fronthaul applications having a bit rate of 24.33024 Gbps.

The SO-SFP28-LWDM-x is provided in eight different wavelength versions according to the LANWDM wavelength grid where the SM fiber has its lowest dispersion properties.

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  $5 \times 10^{-5}$  for 25G Ethernet. FEC will provide the required quality for secure service.

Digital diagnostics functions are available via an I2C interface, as specified by the MSA.

## TECHNICAL DATA

Parameter	Value
Technology	LANWDM SFP28
Transmission media	SM (2x LC)
Typical reach	30km
Nominal wavelengths	1295.56nm <sup>1)</sup>
	1300.05nm <sup>2)</sup>
	1304.58nm <sup>3)</sup>
	1309.14nm <sup>4)</sup>
	1277.89nm <sup>5)</sup>
	1282.26nm <sup>6)</sup>
	1286.66nm <sup>7)</sup>
	1291.10nm <sup>8)</sup>
Bit rate support	25.78Gbps
	24.33Gbps
Protocol support	25GbE
	CPRI opt 10
Power budget	10 – 21dB
Power consumption	< 2.2W
Operating temperature	-20°C to +85°C
Storage temperature	-40°C to +85°C

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|-----------------------|--|
| 1). SO-SFP28-LWDM-A-E | 6). SO-SFP28-LWDM-F-E  |
| 2). SO-SFP28-LWDM-B-E | 7). SO-SFP28-LWDM-G-E  |
| 3). SO-SFP28-LWDM-C-E | 8). SO-SFP28-LWDM-H-E  |
| 4). SO-SFP28-LWDM-D-E | 9). Average power  |
| 5). SO-SFP28-LWDM-E-E | 10). at 25.78Gbps (25GbE)<br>PRBS31 and BER 1x10 <sup>-5</sup> |

Parameter	Value
<b>Transmitter data:</b>	
Output power	Min: +1.0dBm <sup>9)</sup>
	Max: +6.0dBm <sup>9)</sup>
Transmit wavelengths	1294.53 – 1296.59nm <sup>1)</sup>
	1299.02 - 1301.09nm <sup>2)</sup>
	1303.54 - 1305.63nm <sup>3)</sup>
	1308.09 - 1310.19nm <sup>4)</sup>
	1276.86 - 1278.92nm <sup>5)</sup>
	1281.23 - 1283.29nm <sup>6)</sup>
	1285.65 - 1287.69nm <sup>7)</sup>
	1290.07 - 1292.12nm <sup>8)</sup>
<b>Receiver data:</b>	
Minimum input power	-20.0dBm <sup>9)) 10)</sup>
Overload (max power)	-4.0dBm <sup>9) 10)</sup>
Wavelength range	1260 – 1355nm
LOS Assert	Min -30dBm
LOS De-assert	Max -21dBm
LOS Hysteresis	Min 0.5dB
DDM	Yes
MSA compliance	SFP28 MSA, SFF-8402

### Safety/regulatory compliance:

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

RoHS compliance



Pull-tab color: Pink

## ORDERING INFORMATION

Ordering number	Description
SO-SFP28-LWDM-A-E	SFP28 25GE CPRI opt 10 LANWDM 1295.56nm SM DDM 21dB 30km, E-temp, LC
SO-SFP28-LWDM-B-E	SFP28 25GE CPRI opt 10 LANWDM 1300.05nm SM DDM 21dB 30km, E-temp, LC
SO-SFP28-LWDM-C-E	SFP28 25GE CPRI opt 10 LANWDM 1304.58nm SM DDM 21dB 30km, E-temp, LC
SO-SFP28-LWDM-D-E	SFP28 25GE CPRI opt 10 LANWDM 1309.14nm SM DDM 21dB 30km, E-temp, LC
SO-SFP28-LWDM-E-E	SFP28 25GE CPRI opt 10 LANWDM 1277.89nm SM DDM 21dB 30km, E-temp, LC
SO-SFP28-LWDM-F-E	SFP28 25GE CPRI opt 10 LANWDM 1282.26nm SM DDM 21dB 30km, E-temp, LC
SO-SFP28-LWDM-G-E	SFP28 25GE CPRI opt 10 LANWDM 1286.66nm SM DDM 21dB 30km, E-temp, LC
SO-SFP28-LWDM-H-E	SFP28 25GE CPRI opt 10 LANWDM 1291.10nm SM DDM 21dB 30km, E-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 1E <sup>-12</sup> . Note that some protocols require FEC to achieve sufficient BER.
Receiver max input power	Maximum average input power giving a BER, normally 1E <sup>-12</sup> .
DDM	Digital Diagnostic Monitoring functionality as defined in e.g. SFF-8472 MSA.

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