

SO-SFP28-LR

SFP28, 25GBase, 1310nm, SM, DDM, 5.5dB, 10km

OVERVIEW

The SO-SFP28-LR is an SFP+ form-factor transceiver for 25 Gbps Ethernet applications. Since the transmission rate can reach up to 28Gbps, the engineering and industry name is SFP28. It is intended for use in interconnect applications between data centers with switches, routers, storage equipment etc. The optical performance supports distances up to 10km over a SingleMode (SM) fiber. SO-SFP28-LR also supports the high data rate CPRI option 10 having a bit rate of 24.33024 Gbps. With the Clock and Data Recovery (CDR) functionality disabled, the transceiver can also be used for 10GbE-LAN and 10GbE-WAN services.

SO-SFP28-LR uses a single 1310nm channel @ 25.78 Gbps to transport a 25G Ethernet signal. 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 5×10^{-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

Technology	Grey SFP28
Transmission media	SM (2x LC)
Typical reach	10 km
Nominal wavelength	1310 nm
Bit rate range	24.33 / 25.78 Gbps ¹⁾ 9.953 / 10.312 Gbps ²⁾
Protocols	Eth: 25GbE 10GbE-LAN/WAN CPRI: CPRI opt 10
Power budget	0 – 5.5 dB ³⁾
Temperature range	0°C to +70°C
Power consumption	< 1.2 W

¹⁾ CDR engaged

²⁾ CDR disengaged

³⁾ at 25.78 Gbps (25GbE) and BER 5E-5

Transmitter data	Output power:	Min: -7.0 dBm Max: +2.0dBm
	Wavelength range:	1295 – 1325 nm
Receiver data	Minimum input power:	-12.5 dBm ³⁾
	Overload (max power):	+2.0 dBm
	Wavelength range:	1260 – 1355 nm
DDM		Yes
MSA compliance		SFP28 SFF-8402

Regulatory compliance

EMC CE	EN 55032:2012, EN 55032:2015 EN 55024:2010, EN 55024:2010+A1
UL/Safety	UL 60950-1
FCC	47 CFR PART 15 OCT, 2013
RoHS	RoHS 6
TUV	EN 60950-1:2006+A11+A1+A12+A2 EN 60825-1:2014 EN 60825-2:2004+A1+A2

Storage temp.	-40°C to +85°C
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Note! See “Definitions” below.

Note: The 25GbE specification states that a 25GbE interface can operate with or without FEC. The optical data above is defined at a BER of 5×10^{-5} , implying that FEC shall be enabled on the host equipment to provide required quality at specified distance.

ORDERING INFORMATION

Part number	Description
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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 (DAC). 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 giving a BER, normally $1E^{-12}$.
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.