DUXNET

PRODUCT DATASHEET

DUXQSFP28LR4



QSFP28, 100G Ethernet LR, SM, 1x 1311nm, PAM4, 10km, 6.3dB, LC

OVERVIEW

The DUXQSFP28LR4 is a QSFP28 form-factor transceiver for 100 Gbps Ethernet applications.It is intended for use in intra- and interconnect applications within and between data centers, such as between switches, routers, and storage equipment.

It has optical performance enabling distances of up to 10 km over a singlemode (SM) G.652 fiber-pair cable. The module includes FEC (Forward Error Correction) coding (KP4 FEC) to ensure reliable system operation. Therefore, the host system should not have FEC activated. The optical parameters will provide a Bit Error Ratio (BER) of 2.4 x 10^{-4}, and FEC will achieve the required BER of better than 1 x 10^{-12}.

The DUXQSFP28LR4 uses a single 1311 nm channel/lane at 50 Gbaud using PAM4 modulation to transport the Ethernet signal. The electrical interface is 4 x 25.78 Gbps and is compliant with OIF CEI-28G-VSR. Digital diagnostic functions (DDM) are available via an I²C interface, as specified by the QSFP28 MSA.

TECHNICAL DATA

Technology	Grey QSFP28
Transmission media	SM (2x LC)
Typical reach	10 km
Nominal wavelength	1x 1311nm
Interface standards	100GBASE-LR
Bit rate support	103.12Gbps [1)] 53.125Gbd [2)]
Protocol support	100GbE

Protocol support		100GbE
Power budget		0 – 6.3dB
Power consumption		< 4W
Operating temperature		0°C to +70°C
Storage temperature		-40°C to +85°C
Transmitter data	**Output power**	Min: -1.4dBm [3]
		Max: +4.5dBm [3]
	Transmit wavelength	1304.5 – 1317.5nm
Receiver data	**Minimum input power**	-7.7dBm [3] [4]
	Overload (max power)	+4.5dBm [3] [4]
	Wavelength range	1304.5 – 1317.5nm
	LOS Assert	Min -15dBm
	LOS De-assert	Max -12dBm
	LOS Hysteresis	Min 0.5dB
	DDM	Yes
	MSA compliance	QSFP28 MSA
		SFF-8636

TECHNICAL DATA

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

[1] Aggregated line rate 100GbE
[2] Line baud rate
[3] Average power
[4] Specified at BER 2.4x10-4



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Limited Lifetime Warranty