

SO-QSFP-DD-4C-DR4-M / -DR4-4-M

QSFP-DD 400G-DR4 Ethernet, 4x100G-DR PAM4, 4x 1311nm, 500m, 3dB, MPO12

OVERVIEW

The SO-QSFP-DD-4C-DR4-M is a QSFP-DD form-factor transceiver for 400Gbps Ethernet applications. It is intended for use in data center interconnect between switches, routers, storage equipment etc. for optical distances up to 500m over a SingleMode (SM) ribbon fiber cable.

The electrical interface consists of eight 53.125G signals (400GAUI-8) that are converted to eight PAM4-modulated channels/lanes to transport the Ethernet signal. Digital diagnostics functions are available via an I²C interface, as specified by the QSFP-DD MSA.

The optical interface to the transceiver is an MPO12 connector.

The transceiver is provided in two versions, compliant with Common Management Interface Specification CMIS3.0 and CMIS4.0.

TECHNICAL DATA

Technology	Grey QSFP-DD
Transmission media	SM (1x MPO12)
Typical reach	500 m
Nominal wavelength	4x 1311 nm
Bit rate range	425 Gbps ¹⁾ 53.125 Gbd ²⁾
Protocols Eth:	400GbE
Interface standard / MSA	4x 100G-DR
Power budget	0 - 3.0 dB
Temperature range	0°C to +70°C
Power consumption	< 10 W

Transmitter data	Output power, per lane	Min: -2.9 dBm ³⁾ Max: +4.0 dBm ³⁾
	Tx wavelength (nm):	1304.5 – 1317.5 nm
Receiver data	Minimum input power:	-5.9 dBm ³⁾
	Overload (max power):	+4.0 dBm ³⁾
	Wavelength range:	1304.5 – 1317.5 nm
DDM		Yes
MSA compliance		QSFP-DD MSA

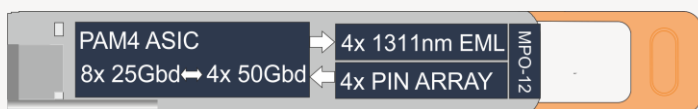
- ¹⁾ Aggregated line rate (400GbE)
²⁾ Lane baud rate
³⁾ Per lane

Regulatory compliance

Safety	EN 60950-1:2006+A11+A1+A12+A2 EN 60825-1:2014 EN 60825-2:2004+A1+A2 UL 60950-1
RoHS	EU Directive 2011/65/EU

Storage temp. -40°C to +85°C

Note! See “Definitions” below.



ORDERING INFORMATION

Part number	Description
SO-QSFP-DD-4C-DR4-M	QSFP-DD 400G-DR4 Ethernet, 4x100G-DR PAM4 CMIS3.0, 4x 1311nm 500m 3dB MPO12
SO-QSFP-DD-4C-DR4-4-M	QSFP-DD 400G-DR4 Ethernet, 4x100G-DR PAM4 CMIS4.0, 4x 1311nm 500m 3dB MPO12

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. 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 at specified BER, normally $1E^{-12}$.
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.