

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

QSFP-DD 400G Ethernet, 4x 100G-DR, 4x 1311nm PAM4, CMIS3.0, 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 complies with the Common Management Interface Specification CMIS3.0.

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 (CMIS3.0)
MSA compliance		QSFP-DD MSA

¹⁾ Aggregated line rate (400GbE)

²⁾ Lane baud rate

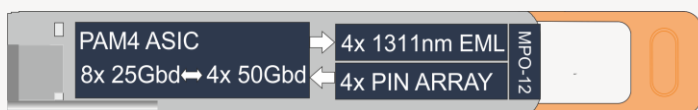
³⁾ Per lane

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.



Subject to change without notice.

For more information visit smaroptics.com.

smaroptics

ORDERING INFORMATION

Part number	Description
SO-QSFP-DD-4C-DR4-M	QSFP-DD 400G Ethernet, 4x 100G-DR, 4x 1311nm PAM4, CMIS3.0, 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.