

400G QSFP-DD DR4 2km CL400GQDDDR4+

Product Features:

- Compliant with IEEE802.3bs standard:
 - 400GAUI-8 electrical interface
- Compliant with IEEE 802.3bs standard:
 - 400GBASE-DR4 optical interface
- Compliant with QSFP-DD MSA HW Rev 5.1
 - Type 2 housing with MPO-12 connector
- Compliant with QSFP-DD CMIS Rev 5.0
- Supports 3dB channel insertion loss
- Maximum power consumption 9W
- Case operating temperature 0°C to 70°C
- Two wire serial Interface with digital diagnostic monitoring
- Complies with EU Directive 2011/65/EU (RoHS compliant)
- Class 1 Laser

Functional Characteristics (Optical)

The following tables list the performance specifications for the various functional blocks of the integrated optical transceiver module.

Table 1 – Transmitter Optical Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Wavelength	λ_C	1304.5	1311	1317.5	nm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Launch Power, each lane	AOPL	-2.9	-	4.0	dBm	1
Outer Optical Modulation Amplitude (OMA _{outer}), each lane	TOMA	-0.8	-	4.2	dBm	2
Launch Power in OMA _{outer} minus TDECQ, each lane	TOMA	-2.2	-	-	dBm	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each lane	TDECQ	-	-	3.4	dB	
TDECQ – 10log ₁₀ (Ceq)	-	-	-	3.4	dB	
Average Launch Power of OFF Transmitter, each lane	TOFF	-	-	-15	dBm	
Extinction Ratio, each lane	ER	3.5	-	-	dB	
Transmitter transition time	-	-	-	17	ps	
RIN _{21.4OMA}	RIN	-	-	-136	dB/Hz	
Optical Return Loss Tolerance	ORL	-	-	21.4	dB	
Transmitter Reflectance	TR	-	-	-26	dB	3

Note 1: Average launch power, each lane (min) is informative and not the principal indicator of signal strength

Note 2: Even if TDECQ < 1.4dB, OMA_{outer} (min) must exceed this value

Note 3: Transmitter reflectance is defined looking into the transmitter



Table 2 – Receiver Optical Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Wavelength	λ_C	1304.5	1311	1317.5	nm	
Damage Threshold, each lane	AOPD	5	-	-	dBm	
Average Receive Power, each lane	AOPR	-5.9	-	4.0	dBm	1
Receive Power (OMA _{outer}), each lane	OMAR	-	-	4.2	dBm	
Receiver Reflectance	RR	-	-	-26	dB	
Receiver Sensitivity (OMA _{outer}), each lane	SOMA	-	-	-4.4	dBm	2
Stressed Receiver Sensitivity (OMA _{outer}), each lane	SRS	-	-	-1.9	dBm	3
Conditions of stressed receiver sensitivity test						
Stressed eye closure for PAM4 (SECQ)			3.4		dB	
SECQ – 10log ₁₀ (C _{eq}), lane under test	-	-	-	3.4	dB	
OMA _{outer} of each aggressor lane			4.2		dBm	

Note 1: Note 1: Average receive power, (min) is informative and not the principal indicator of signal strength

Note 2: Receiver sensitivity (OMA_{outer}), each lane (max) is informative and is defined for a transmitter with a value of SECQ up to 3.4 dB. Note 3: Measured with conformance test signal at TP3 for the BER = 2.4x10⁻⁴

Ordering Information

Table 3 - Ordering Information

Part No.	Application	Data Rate	Laser Source	Fiber Type
CL400GQDDDR4+	400GBASE-DR4	400GB Ethernet	EML	Single Mode Fiber

CONTACT:

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