



400G QSFP-DD FR4 2km CL400GQDDFR4

Product Features

- Compliant with 400GBASE-FR4(IEEE802.3cu)
- Compliant with IEEE 802.3bs standard: 400GAUI-8 electrical interface
- Compliant with QSFP-DD MSA HW Rev 5.1; type 2 housing with duplex LC connector
- Compliant with QSFP-DD CMIS Rev 5.0
- Maximum power consumption 9 W
- 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 L0	$\lambda C0$	1264.5	1271	1277.5	nm	
Wavelength L1	$\lambda C1$	1284.5	1291	1297.5	nm	
Wavelength L2	$\lambda C2$	1304.5	1311	1317.5	nm	
Wavelength L3	$\lambda C3$	1324.5	1331	1337.5	nm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Launch Power, each lane	AOPL	-3.2	-	4.4	dBm	1
Outer Optical Modulation Amplitude (OMA _{outer}), each lane	TOMA	-	-	3.7	dBm	
Outer Optical Modulation Amplitude (OMA _{outer}) eachlane: for TDECQ <1.4dB for 1.4 ≤ TDECQ ≤ 3.4dB	TOMA	-0.2 -1.6+TDECQ				
Difference in launch power between any two lanes (OMA _{outer})	DP	-	-	3.9	dB	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each lane	TDECQ	-	-	3.4	dB	
Transmitter eye closure for PAM4(TECQ)	TECQ	-	-	3.4	dB	
TDECQ - TECQ	-	-	-	2.5	dB	
Over/under-shoot	-	-	-	22	%	
Transmitter power excursion	-	-	-	1.8	dBm	
Average Launch Power of OFF Transmitter, each lane	TOFF	-	-	-16	dBm	
Extinction Ratio, each lane	ER	3.5	-	-	dB	
Transmitter transition time	-	-	-	17	ps	
RIN _{17.1OMA}	RIN	-	-	-136	dB/Hz	
Optical Return Loss Tolerance	ORL	-	-	17.1	dB	
Transmitter Reflectance	TR	-	-	-26	dB	



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DWDM



Data Center

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

Table 2 – Receiver Optical Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Wavelength L0	$\lambda C0$	1264.5	1271	1277.5	nm	
Wavelength L1	$\lambda C1$	1284.5	1291	1297.5	nm	
Wavelength L2	$\lambda C2$	1304.5	1311	1317.5	nm	
Wavelength L3	$\lambda C3$	1324.5	1331	1337.5	nm	
Damage Threshold, each lane	AOPD	5.4	-	-	dBm	
Average Receive Power, each lane	AOPR	-7.2	-	4.4	dBm	1
Receive Power (OMA _{outer}), each lane	OMAR	-	-	3.7	dBm	
Difference in receive power between any two lanes (OMA _{outer})	DR	-	-	4.1	dB	
Receiver Reflectance	RR	-	-	-26	dB	
Receiver Sensitivity (OMA _{outer}), each lane for TECQ <1.4dB for 1.4 ≤ TECQ ≤ 3.4dB	SOMA	-	-	-4.6 -6+TECQ	dBm	
Stressed Receiver Sensitivity (OMA _{outer}), each lane	SRS	-	-	-2.6	dBm	
Conditions of stressed receiver sensitivity test						
Stressed eye closure for PAM4 (SECQ)	-	-	3.4	-	dB	
OMA _{outer} of each aggressor lane	-	-	1.4	-	dBm	

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

Ordering Information

Table 3 - Ordering Information

Part No.	Application	Data Rate	Laser Source	Fiber Type
CL400GQDDFR4	400GBASE-FR4	400GB Ethernet	EML	Single Mode Fiber

CONTACT:

Email: sales@c-light.com <http://www.c-light.co>