

400G-FR4 2km QSFP 112 Transceiver CL400GQ112FR4

Product Features:

- Compliant with 400GBASE-FR4(IEEE802.3cu)
- Compliant with IEEE802.3ck standard
- - 400GAUI -4 C2M electrical interface
- Compliant with QSFP112 MSA HW Rev 6.2
- type 2 housing with duplex LC connector
- Compliant with QSFP112 CMIS Rev 5.0
- 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}) each lane: for TDECQ <1.4dB for 1.4=TDECQ=3.4 dB | 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 | |



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 | 2 |
| 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 receive power, each lane (min) is informative and not the principal indicator of signal strength.

Note 2: 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 |
|---------------|--------------|----------------|--------------|-------------------|
| CL400GQ112FR4 | 400GBASE-FR4 | 400GB Ethernet | EML | Single Mode Fiber |

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