

XQX5470 QSFP28 100G-CWDM4-10km

10 km Reach Optimized for Data Center

The **QSFP28 100G-CWDM4-10km** module is a highly integrated 4x28G transceiver focused on reach, bandwidth, density and cost for high-port-count 100G systems, and client-side 100G interfaces. It is compliant with the 100G 4WDM-10 MSA, which is based on the CWDM4 MSA version 1.1, but alters some of the specifications to extend the link reach from 2 km to 10 km. It is interoperable with CWDM4 transceivers over a 2 km reach.

This product is built on the **LightScale®2** platform.

Leveraging its novel hybrid integration technology, **KaiaM** is able to design and produce high-speed optical modules for high bandwidth applications such as router and data center interconnect. All of **KaiaM's** products allow for superior performance at 40Gb/s and beyond with duplex single mode fiber.

KEY FEATURES

- Reach: 10 km via SMF
- Interoperable with 2 km CWDM4 modules
- Optical link budget: Supports 6.5 dB of link budget
- Link budget assumes the use of KR4 FEC by the host
- Uncooled CWDM DFB lasers, directly modulated
- Electrical interface: retimed CAUI-4 per 100G Ethernet IEEE 802.3bm Annex 83E
- User controllable Transmit Input Equalization and Receiver Output Amplitude
- MSA-compliant performance monitoring via I2C interface
- Fiber connector: SMF LC duplex connector
- Hot pluggable
- 0–70°C operating temp
- Power dissipation < 3.5W
- 40G-LR4 compatible



OPTICAL TRANSMITTER PERFORMANCE

| PARAMETER | | SYMBOL | MIN | MAX | UNITS |
|--|-----|-------------|---------------------------|--------|-------|
| Channel Wavelength | Ch0 | λ_0 | 1264.5 | 1277.5 | nm |
| | Ch1 | λ_1 | 1284.5 | 1297.5 | |
| | Ch2 | λ_2 | 1304.5 | 1317.5 | |
| | Ch3 | λ_3 | 1324.5 | 1337.5 | |
| Bit Rate per Channel | | B | 25.78125±100ppm | | Gb/s |
| Side-Mode Suppression Ratio | | SMSR | 30 | | dB |
| Average launch power, each lane | | | -6.5 | 2.5 | dBm |
| Optical Modulation Amplitude (each lane) | | OMA | -4.0 | 2.5 | dBm |
| Launch power in OMA minus TDP, each lane | | OMA-TDP | -5.0 | | dBm |
| Transmission & dispersion penalty, each lane | | TDP | | 3.0 | dB |
| RIN _{20 OMA} | | | | -130 | dB/Hz |
| Transmitter Reflectance | | | | -20 | dB |
| Extinction Ratio | | ER | 3.5 | | dB |
| Transmitter Optical Mask | | MM | Compliant with 100G-CWDM4 | | |

OPTICAL RECEIVER PERFORMANCE

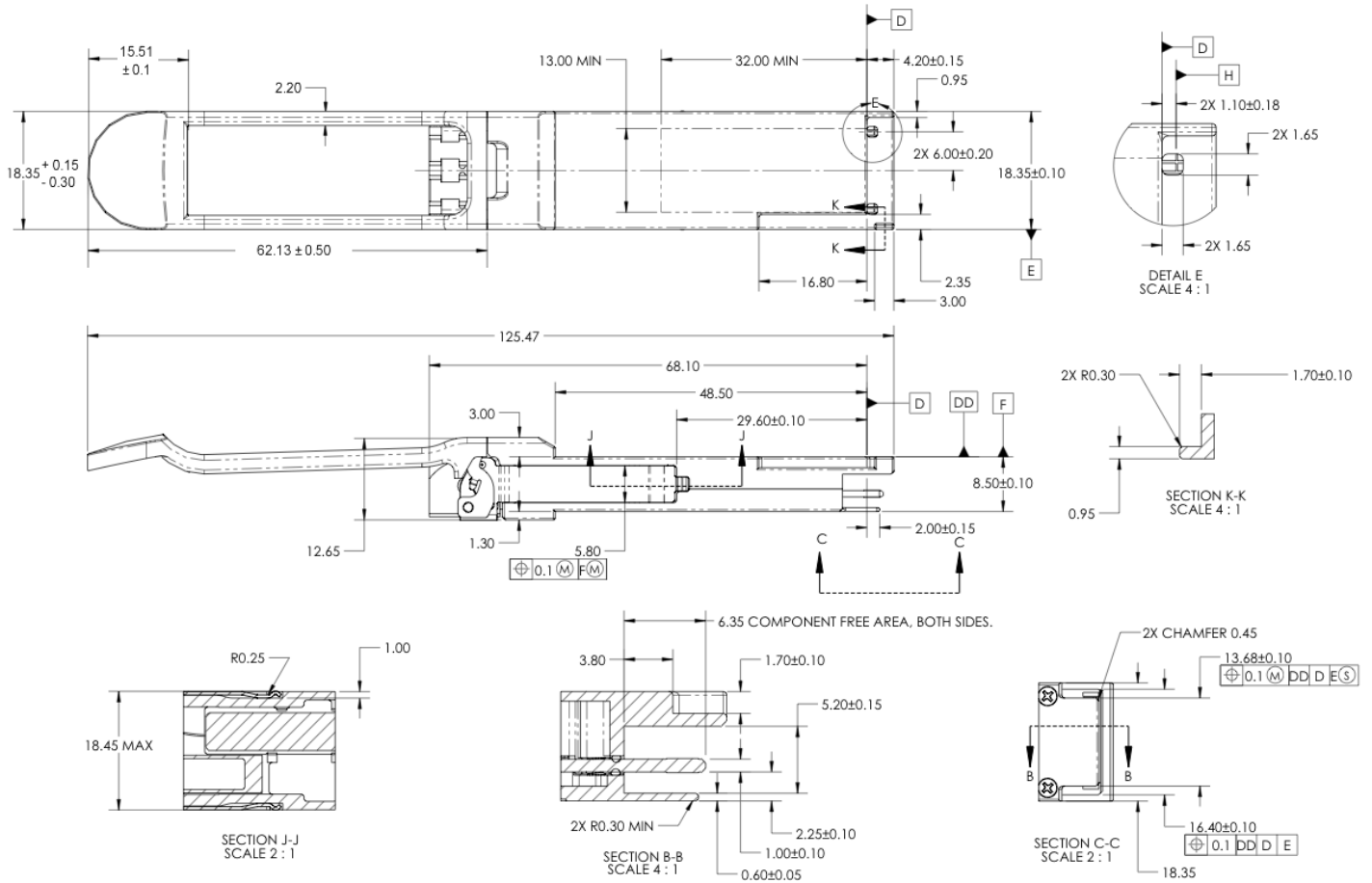
| PARAMETER | | SYMBOL | MIN | TYP | MAX | UNITS |
|---|-----|-----------------------|--------|------|--------|-------|
| Channel Wavelength | Ch0 | λ_0 | 1264.5 | 1271 | 1277.5 | nm |
| | Ch1 | λ_1 | 1284.5 | 1291 | 1297.5 | |
| | Ch2 | λ_2 | 1304.5 | 1311 | 1317.5 | |
| | Ch3 | λ_3 | 1324.5 | 1331 | 1337.5 | |
| Average Receive Power, each lane (BER=5x10 ⁻⁵ , PRBS=2 ³¹ - 1) | | | -13 | | 2.5 | dBm |
| Receiver Sensitivity (OMA) per channel | | OMA _{in} | | | -11.5 | dBm |
| Stressed Receiver Sensitivity (OMA) | | OMA _{in,str} | | | -8.6 | dBm |
| Receiver Reflectance | | ORL | | | -26 | dB |
| Vertical eye closure penalty, each lane | | VECP | | 2.6 | | dB |
| Stressed eye J2 Jitter, each lane | | J2 | | 0.33 | | UI |
| Stressed eye J9 Jitter, each lane | | J9 | | 0.48 | | UI |

NOMINAL OPERATING CONDITIONS

| PARAMETER | MIN | TYP | MAX | UNITS | NOTES |
|----------------------------|-------|-----|-------|-------|--------|
| Operating Case Temperature | 0 | | +70 | °C | |
| Supply Voltage | 3.135 | 3.3 | 3.465 | V | +/- 5% |
| IIC Clock Frequency | | 100 | 400 | kHz | |
| IIC Clock Stretching | | | 500 | µs | |
| IIC Data Hold Time | | | 900 | ns | |

QSFP28 MODULE MECHANICAL OUTLINE

(all dimensions in mm)



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