

XQX5970 QSFP28 100G-CWDM4+ *Enhanced Link Budget for Data Center*

The enhanced **QSFP28 100G-CWDM4+** 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. The **XQX5970** offers an additional 3dB of link budget versus our standard **XQX5070** part.

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*
- *Optical link budget of 8.5dB to support fiber patch panel and fiber cable management*
- *Dual rate operation: operate at 100Gbps, fully backward compatible with 40G-LR4*
- *Lasers: uncooled CWDM DFB lasers, directly modulated*
- *Electrical interface: retimed CAUI-4 as defined in 100G Ethernet IEEE 802.3bm Annex 83E*
- *User controllable Transmit Input Equalization and Receiver Output Amplitude*
- *Fiber connector: SMF LC duplex connector*
- *MSA-compliant performance monitoring via I2C interface*
- *Hot pluggable for ease of installation and service*
- *0–70°C transceiver operating case temperature*
- *Power dissipation < 3.5W*



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 (± 100 ppm)		B	10.3125	25.78125	Gb/s
Extinction Ratio		ER	3.5		dB
Optical Modulation Amplitude (each lane)		OMA	-1.0	2.5	dBm
Transmitter Optical Mask		MM	100G mode compliant with 100GBASE-CWDM4 40G mode compliant with 40GBASE-LR4		
Relative Intensity Noise		$RIN_{20\text{ OMA}}$		-130	dB/Hz
Side-Mode Suppression Ratio		SMSR	30		dB
Transmitter Reflectance				-20	dB
Optical Return Loss Tolerance				20	dB
Average launch power of OFF Transmitter, each lane				-30	dBm

OPTICAL RECEIVER PERFORMANCE

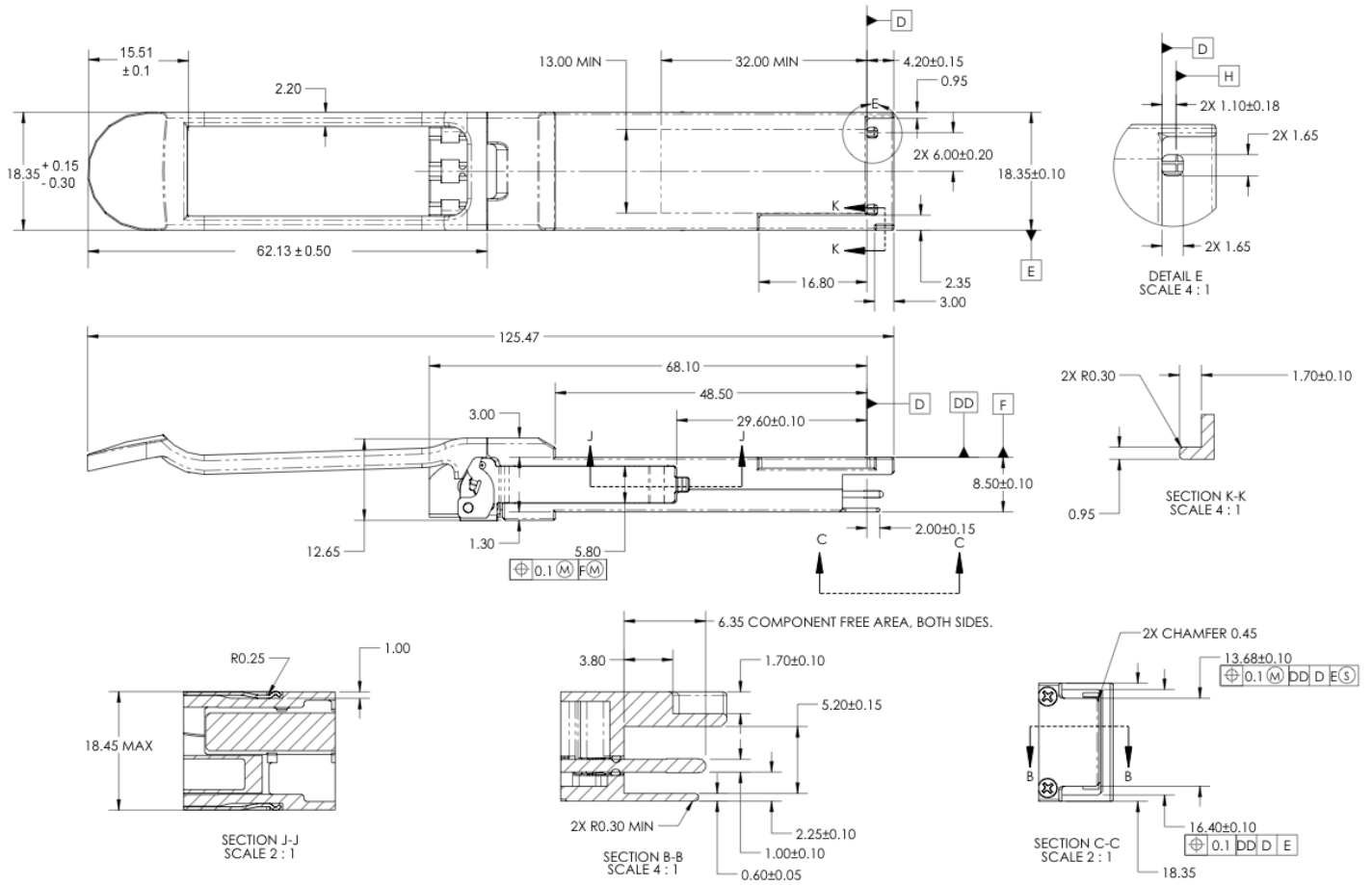
PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS
Channel Wavelength	Ch0	λ_0	1264.5	1271	1277.5	nm
	Ch1	λ_1	1284.5	1291	1297.5	
	Ch2	λ_2	1304.5	1311	1317.5	
	Ch3	λ_3	1324.5	1331	1337.5	
Receiver sensitivity (OMA), 100G mode @ 5e-5 BER		$OMA_{in, 100G}$			-11.5	dBm
Receiver sensitivity (OMA), 40G mode @ 1e-12 BER		$OMA_{in, 40G}$			-11.5	dBm
Receiver saturation (OMA), per lane, 100G mode			2.5			dBm
Receiver saturation (OMA), per lane, 40G mode			3.5			dBm
Receiver Reflectance					-26	dB
LOS Assert, per channel			-30		-17	dBm
LOS De-assert, per channel			-28		-16	dBm
Receiver Power Monitor Accuracy			-2		2	dB

NOMINAL OPERATING CONDITIONS

PARAMETER	MIN	TYP	MAX	UNITS	NOTES
Operating Case Temperature	20		60	°C	0 - 70°C option available
Supply Voltage	3.135	3.3	3.465	V	+/- 5%
IIC Clock Frequency			100	kHz	
IIC Clock Stretching			NA	µs	clock is not stretched
IIC Data Hold Time			900	ns	

QSFP28 MODULE MECHANICAL OUTLINE

(all dimensions in mm)



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