PRODUCT SPECIFICATION

AQXP-85B4-xxx(I)

850nm AOC Parallel MMF 100G SR4 QSFP28 Optical Transceiver

■ Features:

★ Hot-pluggable QSFP28 form factor

★ Supports 103.1Gb/s aggregate bit rate

★ Power dissipation < 2.5W

★ RoHS-6 compliant

★ Commercial case temperature range of 0° C to 70° C

★ Single 3.3V power supply

★ Maximum link length of 100m on OM4 Multimode Fiber (MMF)

★ 4x25Gb/s 850mm VCSEL-based transmitter

★ 4x25G electrical interface

★ Single MPO12 receptacle

★ I2C management interface

■ Applications:

★ 100GBASE-SR4 100G Ethernet

■ Description:

GLight AQXP-85B4-xxx(I) 100G QSFP28 transceiver modules are designed for use in 100G Ethernet links over multimode fiber. They are compliant with the QSFP28 MSA and IEEE 802.3bm 100GBASE-SR4 and CAUI-4. Digital diagnostics functions are available via the I2C interface, as specified by the QSFP28 MSA. The transceiver is RoHS-6 compliant per Directive 2011/65/EU.

■ Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	T_S	-40		+85	°C
Case Operating Temperature	T_A	0		70	°C
Supply Voltage	V_{CC}	-0.5		4	V
Relative Humidity	RH	0		85	%
Receiver Damage Threshold, per Lane	P_{Rdmg}	3.4			dBm
Industrial	TC	-40		85	°C
Commercial	TC	0		70	°C

■ Electrical Characteristics (EOL, TOP = 0 to 70C, V_{CC} = 3.135 to 3.465 Volts)

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	Vcc	3.14		3.47	V	
Supply Current	Icc			600	mA	
Module total power	P			2.5	W	
Transmitter Section:						
Signaling rate per lane		25.78125 ± 100ppm			Gb/s	
Differential pk-pk input voltage tolerance	Vin,pp,diff			900	mV	
Single-ended voltage tolerance	Vin,pp	-0.35		+3.3	V	
Module stress input test		Per Section 83E.3.4.1, IEEE 802.3bm			V	
Receiver Section:						
Signaling rate per lane		25.78125 ± 100ppm			V	
Differential data output swing	$V_{out,pp}$	100		400	mV_{pp}	
		300		600		
		400	600	800		
		600		1200		
Eye width		0.57			UI	
Eye height, differential		228			mV	
Vertical eye closure	VEC	5.5			dB	
Transition time (20% to 80%)	t_r, t_f	12			ps	

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■ Optical Characteristics (EOL, TOP = 0 to 70C, V_{CC} = 3.135 to 3.465 Volts)

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter Section:						
Signaling Speed per Lane		25.78125 ± 100ppm			Gb/s	1
Center Wavelength	λt	830	850	870	nm	
RMS spectral width	△λ			0.6	nm	
Average Optical Power per Lane	TXPx	-8.4		2.4	dBm	
Optical Power OMA per Lane	TxOMA	-6.4		3	dBm	
Launch Power [OMA] minus TDEC per Lane	P-TDEC	-7.3			dBm	
TDEC per Lane	TDEC			4.3	dBm	
Optical Extinction Ratio	ER	3.5			dB	
Optical Return Loss Tolerance	ORL			12	dB	
Encircled Flux	FLX	>86% at 19 um <30% at 4.5 um			dB	
Average Launch Power of OFF Transmitter, per Lane				-30	dBm	
Transmitter Eye mask definition {X1, X2, X3, Y1, Y2, Y3}		{0.3,0.38,0.45,0.35,0.41,0.5}				2
Receiver Section:						
Signaling Speed per Lane		25.78125 ± 100ppm			Gb/s	3
Center Wavelength	λr	840		860	nm	
Damage Threshold	DT	3.4			dBm	
Average Receive Power per Lane	RXPx	-10.3		2.4	dBm	
Receive Power (OMA) per Lane	RxOMA			3	dBm	
Receiver Reflectance	Rfl			-12	dB	
Stressed Sensitivity (OMA)	SRS			-8.5	dBm	4
Stressed Conditions:						
Stressed Eye Closure	SEC	4.3			dB	
Stressed Eye J2 Jitter	J2	0.39			UI	
Stressed Eye J4 Jitter	J4	0.53			UI	
OMA of each aggressor lane		3			dBm	
Stressed Receiver Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		{0.28,0.5,0.5,0.33,0.33,0.4}				5
Los De-Assert	LOS_D			-12	dBm	
Los Assert	LOS_A	-22			dBm	
Los Hysteresis	LOS_H	0.5	2	2.5	dB	
Overload		2.4			dBm	

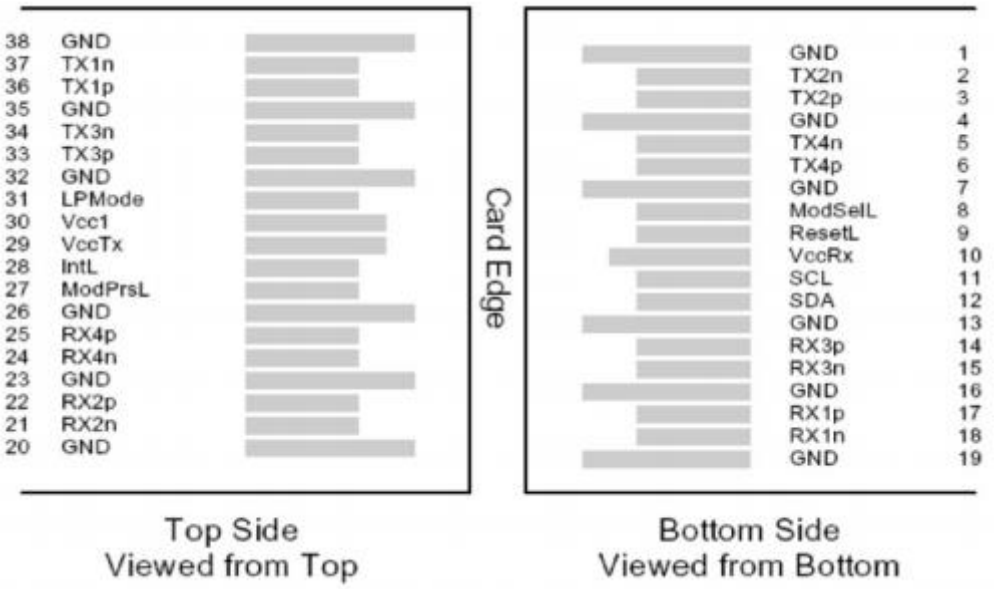
Note:

1. Transmitter consists of 4 lasers operating at a maximum speed of 25.78125Gb/s ±100ppm each.
2. Hit Ratio 1.5 x 10^{-3} hits/sample.
3. Receiver consists of 4 photo detectors operating at a maximum speed of 25.78125Gb/s±100ppm each.
4. Minimum value is informative only and not the principal indicator of signal strength.
5. Hit Ratio 5 x 10^{-5} hits/sample

General Specifications

Parameter	Symbol	Min.	Typical	Max.	Unit
Bit Rate (all wavelengths combined)	BR			103.1	Gb/s
Bit Error Ratio (pre-FEC)	BER			$5x10^{-5}$	
Maximum Supported Distances					
Fiber Type					
OM3 MMF	Lmax1			70	m
OM4 MMF	Lmax2			100	m

Pin Assignment:



Digital Diagnostics Functions

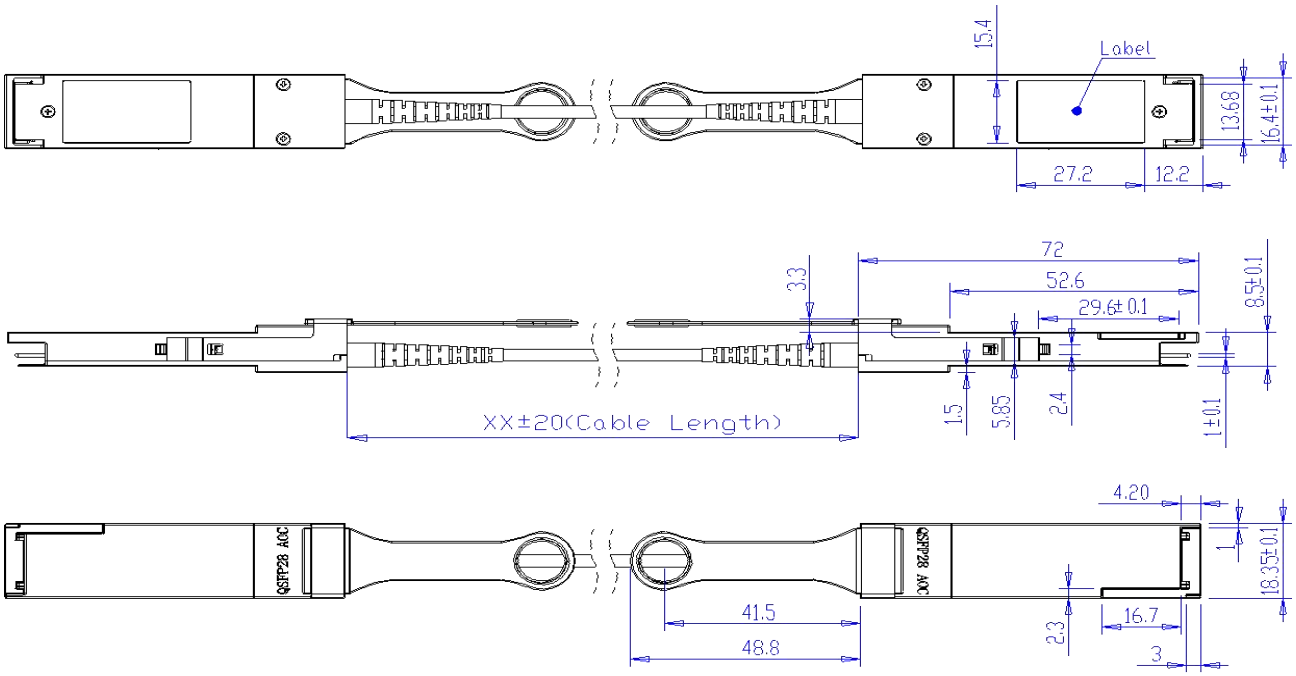
The QSFP28 transceivers support the I2C-based diagnostics interface specified by the QSFP28 MSA.

Memory Contents

Per the QSFP28 MSA.

Mechanical Specifications

Per the QSFP28 MSA.



Mechanical Dimensions

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