

AQP100CL4CHL040

100G QSFP28 ER4 Transceiver

Product Features

- Support line rates from 103Gbps to 112 Gbps
- Integrated LAN WDM TOSA / ROSA for up to 40 km reach over SMF
- Digital Diagnostics Monitoring Interface
- Duplex LC optical receptacle
- Electrically hot-pluggable with built-in CDR
- Compliant with QSFP28 MSA with LC connector
- Case operating temperature range: 0°C to 70°C
- Power dissipation < 5 W
- APD and TIA array on the receiver side

Standards Compliance

- QSFP28 MSA
- Compliant to IEEE 802.3ba, 802.3bm and 100G LR4
- Compliant to SFF-8436
- RoHS Compliant

Applications

- 100G Ethernet & 100GBASE-ER4 or ER4 lite
- ITU-T OTU4
- 100G Datacom & Telecom connections

Ordering information

Part No.	Data Rate	Distance	Temp.	Interface	DDMI
AQP100CL4CHL040	40Gbps	40km	0~+70℃	LC	Yes

Absolute Maximum Rating

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40	-	85	℃	
Relative Humidity	RH	5	-	95	%	
Power Supply Voltage	VCC	-0.3	-	4	V	
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0	-	70	℃	Without air flow
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Power Supply Current	ICC	-		1060	mA	
Data Rate	BR		25.78125		Gbps	Each channel
Transmission Distance	TD		-	40	km	
Coupled fiber	Single mode fiber					9/125um SMF

Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	NOTE
Transmitter						
Wavelength Assignment	λ_0	1294.53	1295.56	1296.59	nm	
	λ_1	1299.02	1300.05	1301.09	nm	
	λ_2	1303.54	1304.58	1305.63	nm	
	λ_3	1308.09	1309.14	1310.19	nm	
Total Output. Power	P _{OUT}			12.5	dBm	
Average Launch Power Per lane		-2.5		6.5	dBm	
SMSR		30			dB	

Optical Extinction Ratio	ER	7			dB	
Average launch Power off per lane	Poff			-30	dBm	
RIN	RIN			-128	dB/Hz	
Receiver						
Rx Sensitivity per lane	RSNS			-10.6	dBm	1
LOS De-Assert	LOSD	-30			dBm	
LOS Assert	LOSA			-12	dBm	
Input Saturation Power (Overload)	Psat			4.5	dBm	
Receiver Reflectance	Rr			-26	dB	

Notes:

1. Measured with a PRBS $2^{31}-1$ test pattern, @25.78Gb/s, BER< 10^{-12} .

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	NOTE
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc			1060	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	1
Differential data input swing	Vin,pp	180		1000	mV	
Transmit Disable Voltage	VD	Vcc-1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	2
Receiver						
Differential data output swing	Vout,pp	300		850	mV	3
LOS Fault	VLOS fault	Vcc-1.3		VccHOST	V	4
LOS Normal	VLOS norm	Vee		Vee+0.8	V	4

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Into 100 ohms differential termination.
4. Loss Of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

Pin Assignment

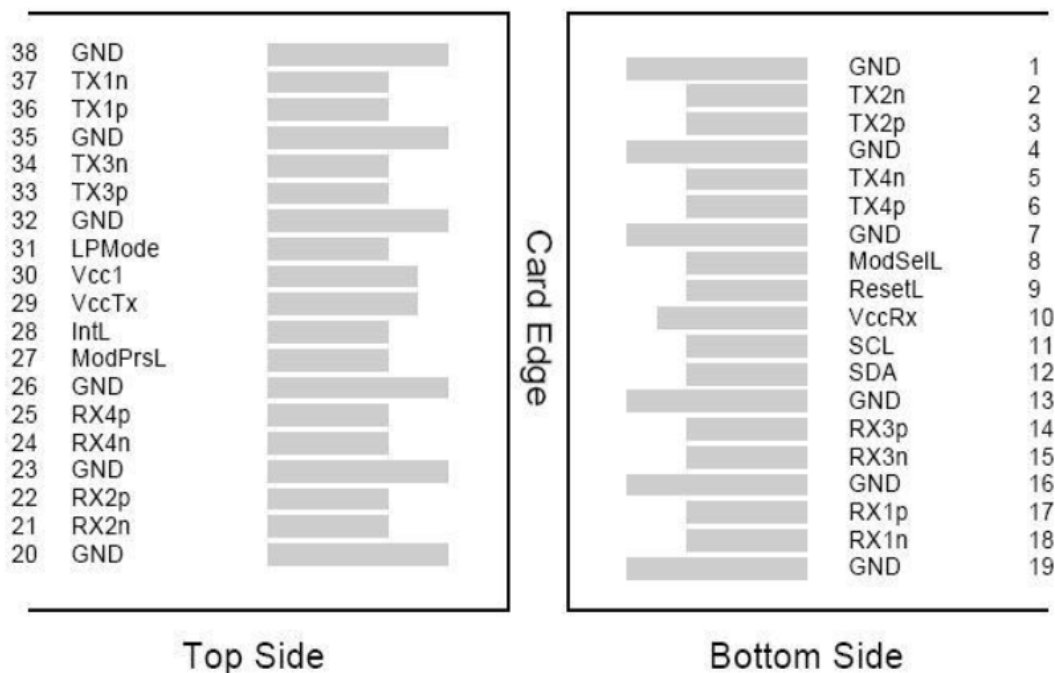


Figure 1 Pin out of connector block on host board.

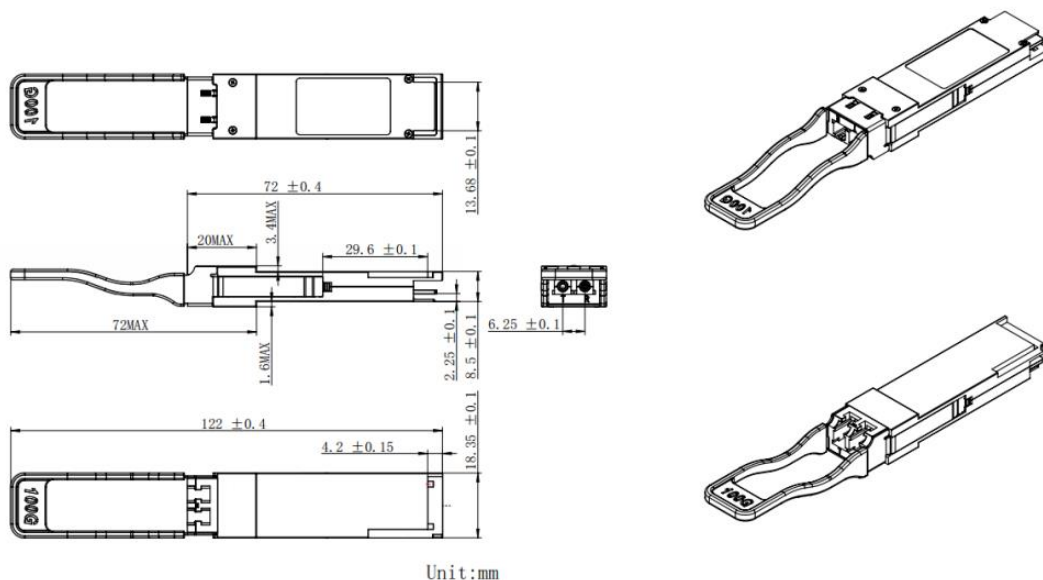
Pin	Logic	Symbol	Name/Description	NOTE
1		GND	Transmitter Ground (Common with Receiver Ground)	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Transmitter Ground (Common with Receiver Ground)	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Transmitter Ground (Common with Receiver Ground)	1
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	3.3V Power Supply Receiver	2
11	LVC MOS-I/O	SCL	2-Wire serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire serial Interface Data	
13		GND	Transmitter Ground (Common with Receiver Ground)	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Transmitter Ground (Common with Receiver Ground)	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Transmitter Ground (Common with Receiver Ground)	1
20		GND	Transmitter Ground (Common with Receiver Ground)	1

21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Transmitter Ground (Common with Receiver Ground)	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Transmitter Ground (Common with Receiver Ground)	1
27	LVTTL-O	ModPrsl	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	3.3V power supply transmitter	2
30		Vcc1	3.3V power supply	2
31	LVTTL-I	LPMODE	Low Power Mode, not connect	
32		GND	Transmitter Ground (Common with Receiver Ground)	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Input	
35		GND	Transmitter Ground (Common with Receiver Ground)	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Input	
38		GND	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. GND is the symbol for signal and supply (power) common for QSFP28 modules. All are common within the QSFP28 module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal common ground plane.
2. VccRx, Vcc1 and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP28 transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

Mechanical Dimensions



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