

APTICOM | AQC-702[19-33]

QSFP28 to QSFP28 100G 850nm 0-70°C Cables - AOC and DAC

Features

- Management Interface Specifications per SFF-8636
- Supports 103.125Gbps Data Rate
- 100GBASE-SR4 Compliant
- VCSEL Transmitter
- PIN Receiver
- Lengths up to 100m
- Operating Temperature 0 to 70°C
- Power Dissipation $\leq 2.5W$
- Single 3.3V Power Supply

Applications

- 100 Gigabit Ethernet

Description

The AQC-702[19-33] series are high-performance Active Optical Cables (AOC) for 100 Gigabit Ethernet connections. It is compliant with the QSFP28 Multisource Agreement (MSA) and hot pluggable.

The AOC is RoHS 2 compliant per Directive 2011/65/EU.

CAUTION! The AOC is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling transceiver modules or coming into contact with modules.

Order Information

Part Number	Wavelength	Protocol	Tx Output Power	Rx Sensitivity	Reach	Temp.
AQC-702[19-33]	850nm	100GBASE	N/A	N/A	$\leq 100m$	0-70°C

Ordering Guide

Part Number	Cable Length [m]	Part Number	Cable Length [m]
AQC-70219	1	AQC-70227	20
AQC-70220	2	AQC-70228	25
AQC-70221	3	AQC-70229	30
AQC-70222	5	AQC-70230	35
AQC-70223	7	AQC-70231	50
AQC-70224	10	AQC-70232	75
AQC-70225	12	AQC-70233	100
AQC-70226	15		

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Min	Typ	Max	Unit
Storage Temperature	-40		85	°C
Relative Humidity	5		95	%
Supply Voltage	0		3.6	V

Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Operating Case Temperature	0		70	°C
Supply Voltage	3.135	3.3	3.465	V
Data Rate, each Lane		25.78125		Gbps

Transceiver Electrical Parameters

EOL, over the full temperature range, Vcc = 3.135 to 3.465V.

Parameter	Min	Typ	Max	Unit
Supply Current			750	mA
Power Dissipation			2.5	W
Transmitter				
Input Differential Impedance		100		Ω
Differential Data Input Swing	180		1200	mVpp
Receiver				
Output Differential Impedance		100		Ω
Differential Output Data Swing [2]	300		850	mVpp
Data Output Rise/Fall Time (20/80%)	24			ps
General				
Pre-FEC Bit Error Ratio			5×10^{-5}	
Post-FEC Bit Error Ratio			10^{-12}	

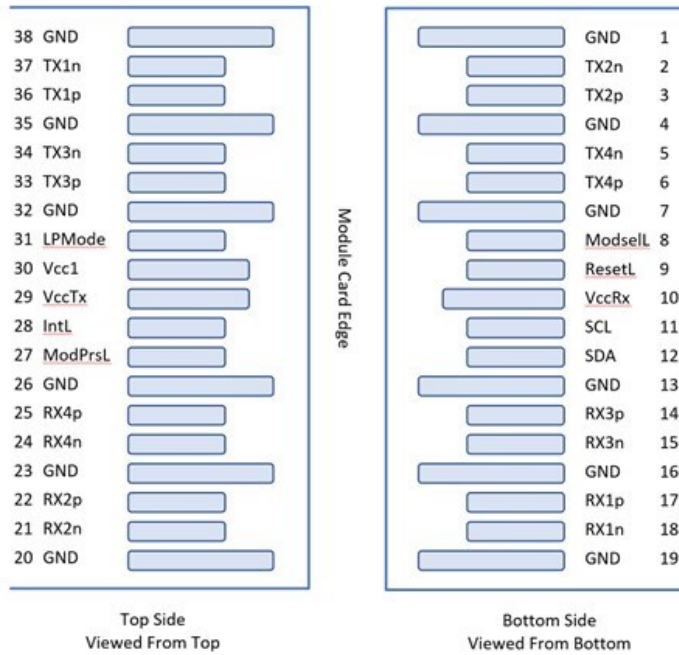
Transceiver Pins

Pin #	Name	Description	Pin #	Name	Description
1	GND	Ground	20	GND	Ground
2	TX2n	Transmitter Inverted Data Input	21	RX2n	Receiver inverted data output
3	TX2p	Transmitter non-Inverted Data Input	22	RX2p	Receiver non-inverted data output
4	GND	Ground	23	GND	Ground
5	TX4n	Transmitter Inverted Data Input	24	RX4n	Receiver Inverted Data Output
6	TX4p	Transmitter non-Inverted Data Input	25	RX4p	Receiver non-Inverted Data Output
7	GND	Ground	26	GND	Ground
8	ModSelL	Module Select [1]	27	ModPrsL	Module Present
9	ResetL	Module Reset [1]	28	IntL	Interrupt [1]
10	VccRx	+3.3V Power Supply Receiver	29	VccTx	+3.3V Power Supply Transmitter
11	SCL	2-wire Serial Interface Clock [1]	30	Vcc1	+3.3V Power Supply
12	SDA	2-wire Serial Interface Data [1]	31	LPMODE	Low Power Mode [1]
13	GND	Ground	32	GND	Ground
14	RX3p	Receiver non-Inverted Data Output	33	TX3p	Transmitter non-Inverted Data Input
15	RX3n	Receiver Inverted Data Output	34	TX3n	Transmitter Inverted Data Input
16	GND	Ground	35	GND	Ground
17	RX1p	Receiver non-Inverted Data Output	36	TX1p	Transmitter non-Inverted Data Input
18	RX1n	Receiver Inverted Data Output	37	TX1n	Transmitter Inverted Data Input
19	GND	Ground	38	GND	Ground

1. Open collector, to be pulled up with 4.7kohm

Transceiver Pad Layout

QSFP28-compliant 38-pin connector as per SFF-8679.



Regulatory Compliance

The AQC-702[19-33] series of AOC:s are Class 1 Laser Products and certified per the following standards:

Item	Agency	Standard
Laser Eye Safety	TÜV	EN 60825-1:2014 EN 60825-2:2004+A1+A2
Electrical Safety	TÜV	EN 60950-1:2006+A11+A1+A12+A2

Revision Information

Revision	Date	Description
A	2023-01-31	Initial release

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