

APTICOM | AQQ-707[00-19]  
**QSFP+ to QSFP+ 40G 850nm 0-70°C  
Cables - AOC and DAC**

## Features

- Management Interface Specifications per SFF-8636
- Supports 41.25Gbps Data Rate
- 40GBASE-SR4 Compliant
- VCSEL Transmitter
- PIN Receiver
- Lengths up to 100m
- Operating Temperature 0 to 70°C
- Power Dissipation  $\leq 1.5W$
- Single 3.3V Power Supply

## Applications

- 40 Gigabit Ethernet

## Description

The AQQ-707[00-19] series are high-performance Active Optical Cables (AOC) for 40 Gigabit Ethernet connections. It is compliant with the QSFP+ Multisource Agreement (MSA) and hot pluggable.

The AOC is RoHS-6 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.
AQQ-707[00-19]	850nm	40GBASE	N/A	N/A	$\leq 100m$	0-70°C

## Ordering Guide

Part Number	Cable Length [m]	Part Number	Cable Length [m]
AQQ-70700	1	AQQ-70710	25
AQQ-70701	1.5	AQQ-70711	30
AQQ-70702	2	AQQ-70712	40
AQQ-70703	3	AQQ-70713	50
AQQ-70704	5	AQQ-70714	60
AQQ-70705	7	AQQ-70715	70
AQQ-70706	8	AQQ-70716	75
AQQ-70707	10	AQQ-70717	80
AQQ-70708	15	AQQ-70718	90
AQQ-70709	20	AQQ-70719	100

## 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		10.3125		Gbps

## Transceiver Electrical Parameters

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

Parameter	Min	Typ	Max	Unit
Supply Current			450	mA
Power Dissipation			1.5	W
<b>Transmitter</b>				
Input Differential Impedance		100		$\Omega$
Differential Data Input Swing			800	mVpp
<b>Receiver</b>				
Output Differential Impedance		100		$\Omega$
Differential Output Data Swing [2]	150		850	mVpp
Data Output Rise/Fall Time (20/80%)	24			ps
<b>General</b>				
Bit Error Ratio (BER)			$10^{-12}$	

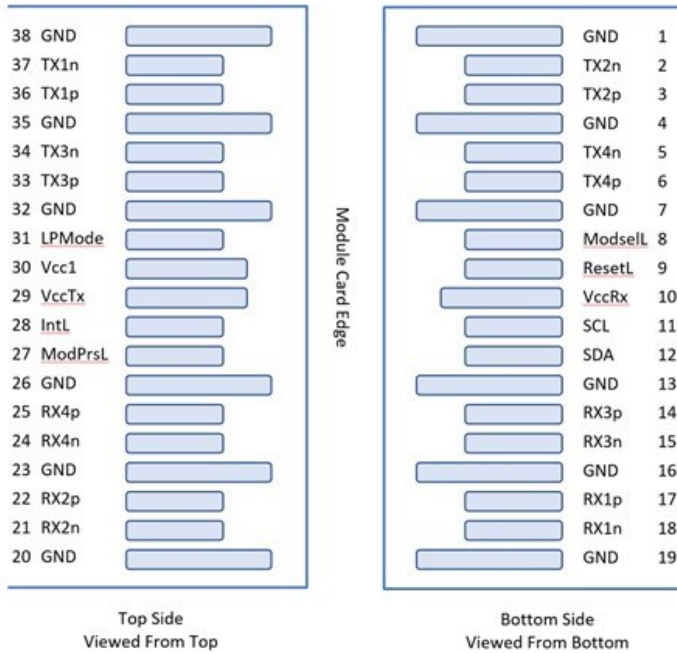
## Transceiver Pins

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

QSFP+ compliant 38-pin connector as per SFF-8679.



## Regulatory Compliance

The AQQ-707[00-19] 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	2024-02-01	Initial release

## For more information

### APTICOM AB

Skalholtsgatan 10  
SE-164 40 Kista  
Sweden

[info@apticom.com](mailto:info@apticom.com)

### APTICOM SRL

Rue Santos-Dumont 1  
6041 Gosselies  
Belgium