APTICOM | AQC-702YY

QSFP28 to 4SFP28 100G 850nm 0-70°C Cables - AOC and DAC

Features

- Management Interface Specifications per SFF-8431, SFF-8472 and SFF-8636
- Breakout from QSFP28 to four SFP28
- VCSEL Transmitter
- PIN Receiver
- Lengths up to 100m
- Operating Temperature 0 to 70°C
- Power Dissipation ≤2.5W (QSFP28), ≤1W (SFP28)
- Single 3.3V Power Supply

Applications

- 100 Gigabit Ethernet (100G to 4x 25G Breakout)

Description

The AQC-702yy series are high-performance Active Optical Cables (AOC) for 100 Gigabit Ethernet breakout applications. It is compliant with the QSFP28 and SFP28 Multisource Agreements (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.
AQC-702yy	850nm	100GBASE	N/A	N/A	≤100m	0-70°C

Ordering Guide

Part Number	Cable Length [m]	Part Number	Cable Length [m]
AQC-70249	1	**AQC-70257**	20
AQC-70250	2	**AQC-70258**	25
AQC-70251	3	**AQC-70259**	30
AQC-70252	5	**AQC-70260**	35
AQC-70253	7	**AQC-70261**	50
AQC-70254	10	**AQC-70262**	75
AQC-70255	12	**AQC-70263**	100
AQC-70256	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.

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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 (QSFP28)			750	mA
Power Dissipation (QSFP28)			2.5	W
Supply Current (SFP28)			300	mA
Power Dissipation (SFP28)			1	W
Transmitter				
Input Differential Impedance		100		Ω
Differential Data Input Swing (QSFP28)	180		1200	mVpp
Differential Data Input Swing (SFP28)	180		700	mVpp
Receiver				
Output Differential Impedance		100		Ω
Differential Output Data Swing [2]	300		850	mVpp
Data Output Rise/Fall Time, QSFP28 (20/80%)	24			ps
Data Output Rise/Fall Time, SFP28 (20/80%)		30		ps
General				
Pre-FEC Bit Error Ratio			5x10^-5	
Post-FEC Bit Error Ratio			10^-12	

Transceiver Pins

QSFP28

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

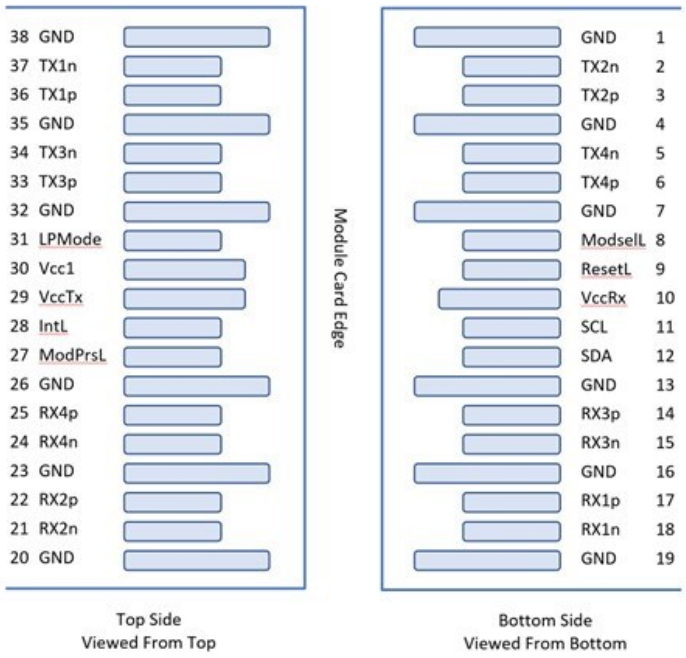
SFP28

Pin #	Name	Description	Pin #	Name	Description
1	VeeT	Module Transmitter Ground	11	VeeR	Module Receiver Ground
2	Tx_Fault	Module Transmitter Fault	12	RD-	Receiver Inverted Data Output
3	Tx_Disable	Transmitter Disable	13	RD+	Receiver Non-Inverted Data Output
4	SDA	2-wire Serial Interface Data Line	14	VeeR	Module Receiver Ground
5	SCL	2-wire Serial Interface Clock	15	VccR	Module Receiver 3.3 V Supply
6	Mod_ABS	Module Absent	16	VccT	Module Transmitter 3.3 V Supply
7	RS0	Not Used	17	VeeT	Module Transmitter Ground
8	Rx_LOS	Receiver Loss of Signal Indication [1]	18	TD+	Transmitter Non-Inverted Data Input
9	RS1	Not Used	19	TD-	Transmitter Inverted Data Input
10	VeeR	Module Receiver Ground	20	VeeT	Module Transmitter Ground

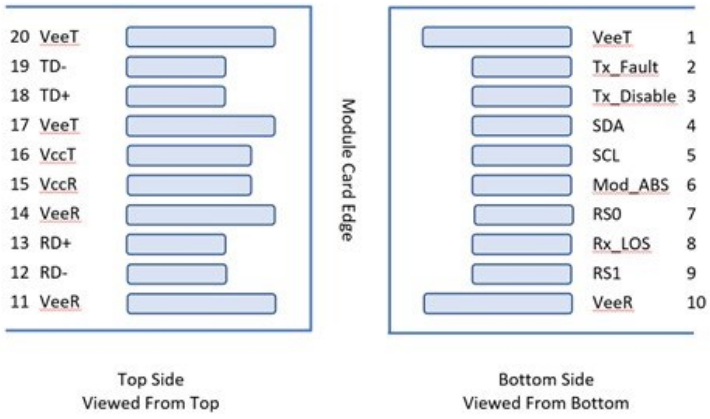
1. Open collector, to be pulled upp with 4.7kohm

Transceiver Pad Layout

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



SFP+-compliant 20-pin connector as per SFF-8431.



Regulatory Compliance

The AQC-702yy 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	2023-02-09	Initial release

For more information

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