

# Technical Datasheet

## AOC-QSFP-56G-1M-AT

Universally Coded MSA Compliant 56Gb/s, QSFP56

Active Optical Cable, 1m

### FEATURES

- Hot-pluggable QSFP+ footprint
- Support Infiniband and Fibre Channel application
- Up to 14.025Gbps per Channel
- Support 41.2Gbps aggregate bit rate
- 4x10Gpbs electrical interface
- Available in lengths up to 100m
- Power Dissipation <1.3W per cable end
- Single +3.3V power supply
- Operating Case temperature range 0°C to 70°C
- RoHS-6 compliant
- Compliant QSFP+ MSA

### APPLICATIONS

- InfiniBand FDR at 56Gb
- 16G Fibre Channel at 14Gb per lane
- Super Computer
- Other optical links

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	VCC	0		3.6	V	
Storage Temperature	Ts	-40		+85	°C	
Relative Humidity	RH	5		85	%	Non-condensing
Case Operating Temperature	Tc	0		+70	°C	

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## ELECTRICAL CHARACTERISTICS

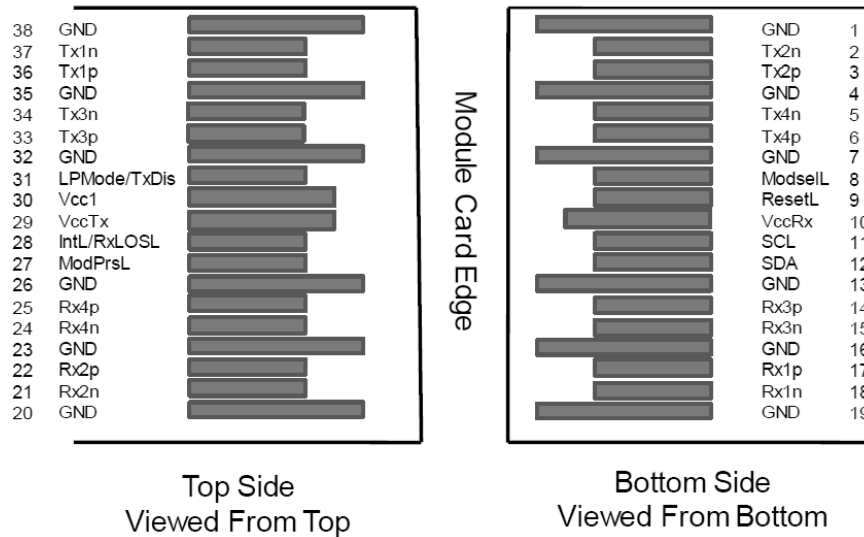
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Power Supply Voltage	V <sub>CC</sub>	3.135	3.3	3.465	V	
Power Dissipation	P <sub>D</sub>			1.3	W	
Power Supply Current	I <sub>CC</sub>			400	mA	
Aggregate Data Rate			41.2		Gbps	
Signaling rate per lane			10.3125		Gbps	
Clock Rate-I2C				400	kHz	
Transmitter						
Input Differential impedance	Z <sub>IN</sub>		100		ohm	
Differential data input swing	V <sub>IN</sub>	180		900	mV	
Single-ended voltage tolerance		-0.3		3.3	V	
Receiver						
Output Differential impedance	Z <sub>out</sub>		100		ohm	
Differential data Output Swing	V <sub>out</sub>	300		850	mV	

## GENERAL SPECIFICATIONS

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Aggregate Data Rate			41.2	56G	Gbps	
Signaling rate per lane			10.3125	14.025	Gbps	
Bit Error Ratio (pre-FEC)	BER			E-12		PRBS31
Maximum Supported Distances						
Fiber Type	Bandwidth (850nm)					
50um	2000MHz*km			150	m	OM3

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## PIN ASSIGNMENT



## PIN DESCRIPTIONS

PIN	Symbol	Name / Description	Note
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	2
9	ResetL	Module Reset	
10	Vcc Rx	3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	3
12	SDA	2-wire serial interface data	3
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	

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15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	3
28	IntL	Interrupt	3
29	Vcc Tx	3.3V power supply transmitter	
30	Vcc1	3.3V power supply	
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

Note1: Module ground pins GND are isolated from the module case.

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Note2: ModSelL is an input signal. When held low by the host, the module responds to two-wire serial communication commands. The ModSelL signal allows the use of multiple modules on a single two-wire interface. When ModSelL is high, the module shall not respond to or acknowledge any two-wire interface communication from the host.

Note3: Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

## MECHANICAL DIMENSIONS

