

MC220731V-100-C  
MELLANOX 56GBASE-AOC QSFP+ MMF  
850NM, 100M



### MC220731V-100-C

Mellanox® MC220731V-100 Compatible TAA Compliant 56GBase-AOC QSFP+ Active Optical Cable (850nm, MMF, 100m)

#### Features

- Support Infiniband and Fibre Channel application
- Compliant to QSFP+ Electrical MSA SFF-8436
- Multi rate of up to 14.025 Gbps
- +3.3V single power supply
- Low power consumption
- Operating case temp Commercial: 0°C to +70°C
- RoHS compliant
- 100m length



#### Applications

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

#### Product Description

This is a Mellanox® MC220731V-100 compatible 56GBase-AOC QSFP+ to QSFP+ active optical cable that operates over multi-mode fiber with a maximum reach of 100.0m (328.1ft). At a wavelength of 850nm, it has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This active optical cable is TAA (Trade Agreements Act) compliant, and is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' active optical cables are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



## Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc3	-0.5		+3.6	V	
Operating Case Temperature	Tc	0		+70	°C	
Storage Temperature	T <sub>S</sub>	-10		+70	°C	
Operating Humidity	RH	+5		+85	%	1

### Notes:

1. No condensation

## Electrical Characteristics

Parameter	Symbol	Min	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Dissipation	Pd			1.5	W	
Bit Rate	BR	1.25	14.025		Gbps	
ModSelL	Module Select	V <sub>OL</sub>	0	0.8	V	
	Module Unselect	V <sub>OH</sub>	2.5	Vcc	V	
LPMode	Low Power Mode	V <sub>IL</sub>	0	0.8	V	
	Normal Operation	V <sub>IH</sub>	2.5	Vcc+0.3	V	
ResetL	Reset	V <sub>IL</sub>	0	0.8	V	
	Normal Operation	V <sub>IH</sub>	2.5	Vcc+0.3	V	
ModPrsL	Normal Operation	V <sub>OL</sub>	0	0.4	V	
IntL	Interrupt	V <sub>OL</sub>	0	0.4	V	
	Normal Operation	V <sub>OH</sub>	2.4	Vcc	V	
<b>Electrical Transmitter Characteristics</b>						
Differential Data Input Swing	V <sub>in,p-p</sub>	200		1600	mVpp	
Input Differential Impedance	Z <sub>IN</sub>	90	100	120	Ω	
<b>Receiver</b>						
Differential Data Output Swing	V <sub>in,p-p</sub>	350		800	mVpp	
Bit Error Rate	BER			E-12		1
Input Differential Impedance	Z <sub>IN</sub>	90	100	110	Ω	

### Notes:

1. PRBS2<sup>31</sup>-1@14.025Gbps

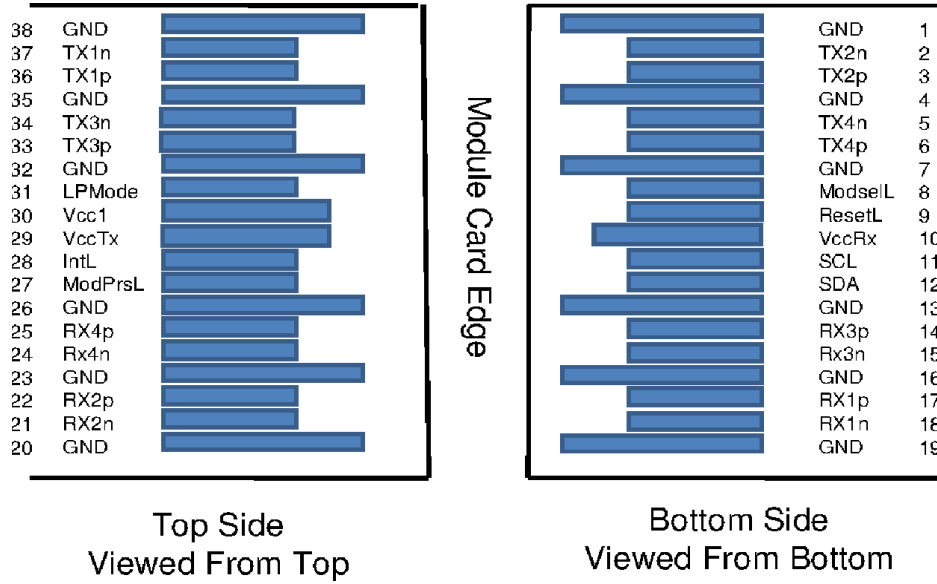
## Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
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	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
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	
28	IntL	Interrupt	
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

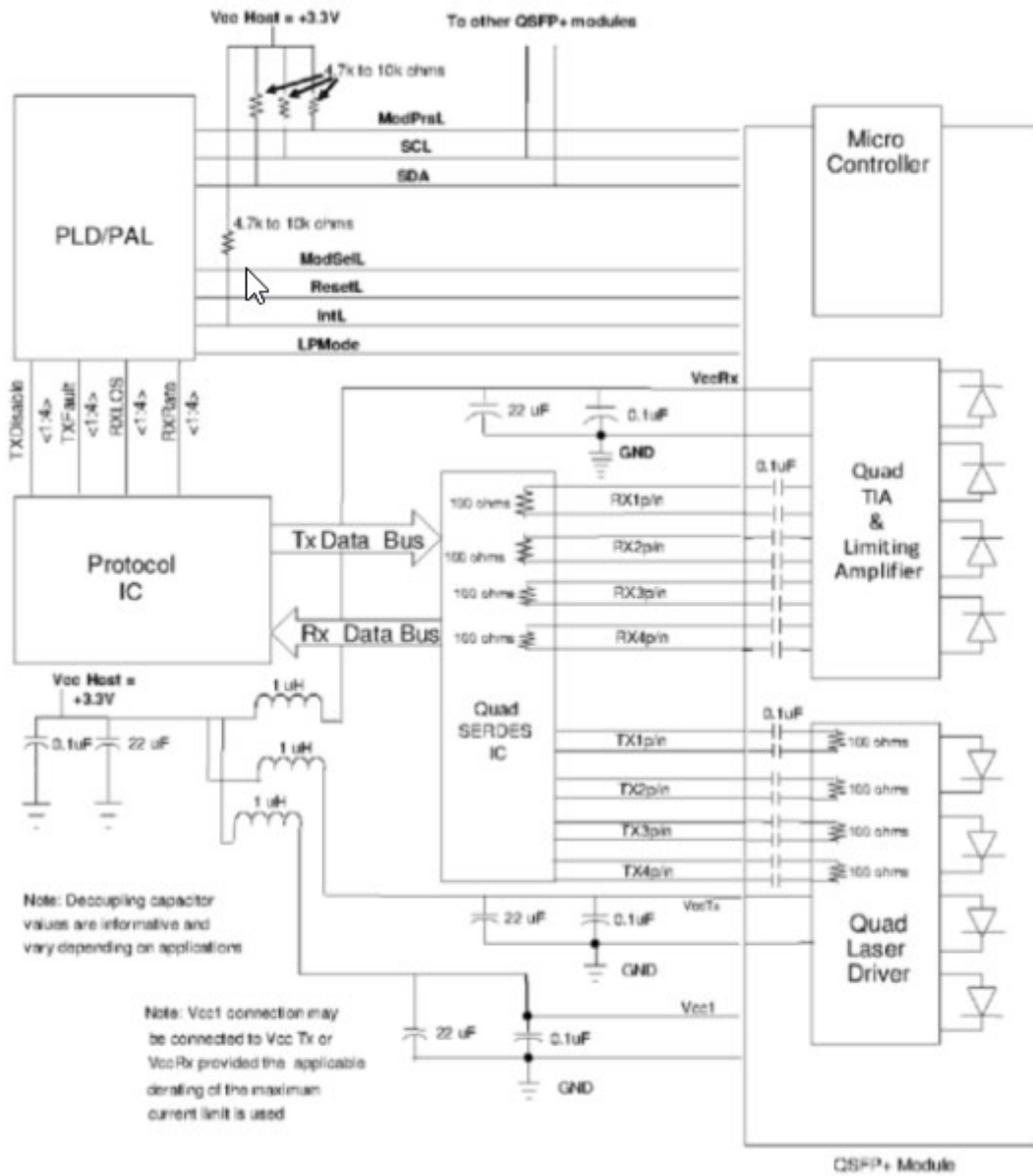
**Notes:**

1. Circuit ground is internally isolated from chassis ground.

**Electrical Pin-out Details**



## Recommended Interface Circuit

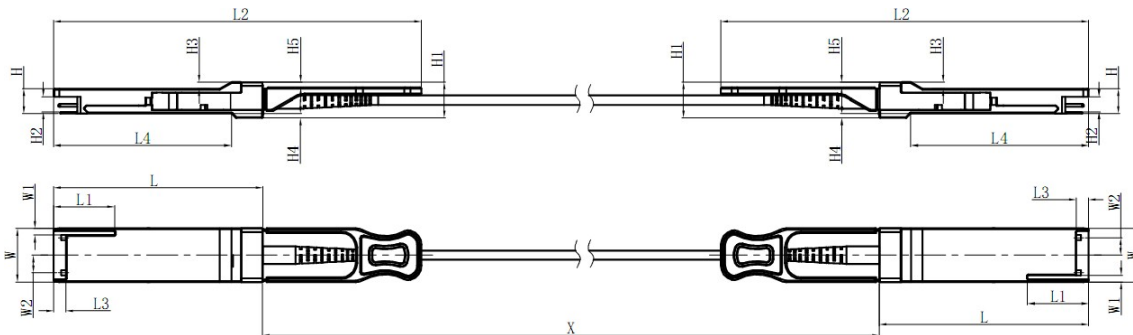


## Monitoring Specifications

2-Wire Serial Address 1010000x	
Lower Page 00h	
0	Identifier
1- 2	Status
3- 21	Interrupt Flags
22- 33	Free Side Device Monitors
34- 81	Channel Monitors
82- 85	Reserved
86- 98	Control
99	Reserved
100-104	Hardware Interrupt Pin Masks
105-106	Vendor Specific
107	Reserved
108-110	Free Side Device Properties
111-112	Assigned for use by PCI Express
113	Free Side Device Properties
114-118	Reserved
119-122	Password Change Entry Area (Optional)
123-126	Password Entry Area (Optional)
127	Page Select Byte

Upper Page 00h	Optional Page 01h	Optional Page 02h	Optional Page 03h
128 Identifier	128 CC_APPS	128-255 User EEPROM Data	128-175 Free Side Device Thresholds
129-191 Base ID Fields	129 AST Table Length (TL)		176-223 Channel Thresholds
	130-131 Application Code Entry 0		224 Tx EQ & Rx Emphasis Magnitude ID
	132-133 Application Code Entry 1		225 RX output amplitude indicators
	134-253 other entries		226-241 Channel Controls
192-223 Extended ID		242-251 Channel Monitor Masks	
224-255 Vendor Specific ID		252-255 Reserved	
	254-255 Application Code Entry TL		

## Mechanical Specifications



**About ProLabs**

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

**Complete Portfolio of Network Solutions**

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

**Trusted Partner**

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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