



### **160-9460-007-OPC**

Ciena® 160-9460-007 Compatible TAA Compliant 100GBase-AOC QSFP28 to QSFP28 OTU4 Active Optical Cable (850nm, MMF, 7m)

#### **Features**

- Compliant to standard SFF-8636 QSFP28 active optical modules
- Compliant to 100GE/OTU4
- Automatic power down while broken cable is detected to improve eye safety
- Supports up to 4x28 Gbps bi-directional operation
- Low power consumption: less than 2.5W
- Reliable VCSEL and PIN photonic devices
- I2C standard management interface
- Excellent high speed signal integrity
- Operating case temperature: 0 to 70 Celsius
- RoHS Complaint and Lead-Free



#### **Applications:**

- 100GBase Ethernet
- Proprietary high speed, high density data
- High performance computing, server and data storage

#### **Product Description**

This is a Ciena® 160-9460-007 compatible 100GBase-AOC QSFP28 to QSFP28 OTU4 active optical cable that operates over multi-mode fiber with a maximum reach of 7.0m (23.0ft). 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.

OptioConnect's transceivers are RoHS compliant and lead-free.

### Absolute Maximum Ratings

Parameter	Symbol	Min	Typ.	Max.	Unit
Supply Voltage	Vcc	0		3.6	V
Relative Humidity	RH	5		85	%
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0	25	70	°C
Data Rate per Channel			4*25.78	4*27.95	Gbps

### Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Supply Current	Icc			750	mA	
Power Dissipation	PD			2500	mW	
Clock Rate-I2C	f			400	kHz	1
Module Turn-on time				2000	ms	2

#### Notes:

1. For management interface.
2. Time from module power-on / insertion/ ResetL de-assert to module full functional.

## Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
<b>Transmitter</b>						
Reference Differential Input Impedance	Zd		100		Ω	1
Optical Return Loss Tolerance				12	dB	
Differential Data Input Swing	Vin_pp	180		1200	mV	
Differential Data Input Threshold			50		mV	2
<b>Receiver</b>						
Reference Differential Input Impedance	Zd		100		Ω	3
Differential Data Output Swing	Vout_pp	0		800	mV	
Pre-emphasis Pulse Amplitude		0			%	4
Percentage		10			%	
		20			%	
		40			%	
Pre-emphasis Pulse Duration			30		ps	
Signal Speed			4*25.78	4*27.95	Gbps	5
Differential Data Output Swing		300		850	mV	
Differential Data Output Swing When Squelched				50	mV	
Rise / Fall Time (20% to 80%)		24			ps	
Receiver Overload (Pavg)	POL	2.5			dBm	
Damage Threshold	POL	3.4			dBm	

### Notes:

1. AC coupled inside AOC module.
2. Input swing to trigger TX-squelch.
3. AC coupled inside AOC module.
4. User selectable. Percentage is the ratio of pre-emphasis amplitude to output swing. Users could change by writing to page 3 address 237, default value is "10."
5. BER is 5.0E-5.

## Pin Descriptions

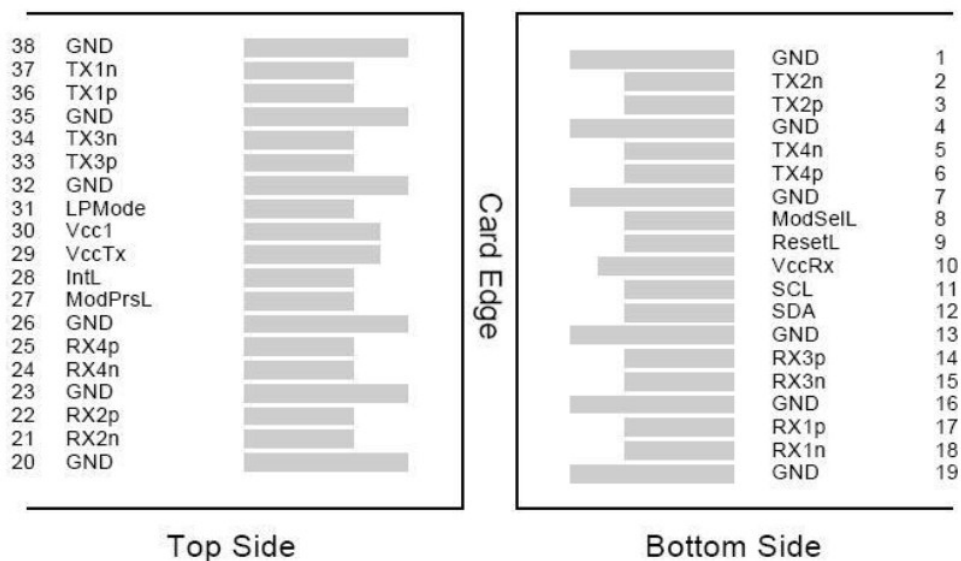
Pin	Symbol	Description	Notes
1	GND	Transmitter Ground. Common with Receiver Ground.	1
2	Tx2-	Transmitter Inverted Data Input.	
3	Tx2+	Transmitter Non-Inverted Data output.	
4	GND	Transmitter Ground. Common with Receiver Ground.	1
5	Tx4-	Transmitter Inverted Data Input.	
6	Tx4+	Transmitter Non-Inverted Data output.	
7	GND	Transmitter Ground. Common with Receiver Ground.	1
8	ModSelL	Module Select.	2
9	ResetL	Module Reset.	2
10	VccRx	3.3V Power Supply Receiver.	
11	SCL	2-Wire serial Interface Clock.	2
12	SDA	2-Wire serial Interface Data.	2
13	GND	Transmitter Ground. Common with Receiver Ground.	1
14	Rx3+	Receiver Non-Inverted Data Output.	
15	Rx3-	Receiver Inverted Data Output.	
16	GND	Transmitter Ground. Common with Receiver Ground.	1
17	Rx1+	Receiver Non-Inverted Data Output.	
18	Rx1-	Receiver Inverted Data Output.	
19	GND	Transmitter Ground. Common with Receiver Ground.	1
20	GND	Transmitter Ground. Common with Receiver Ground.	1
21	Rx2-	Receiver Inverted Data Output.	
22	Rx2+	Receiver Non-Inverted Data Output.	
23	GND	Transmitter Ground. Common with Receiver Ground.	1
24	Rx4-	Receiver Inverted Data Output.	1
25	Rx4+	Receiver Non-Inverted Data Output.	
26	GND	Transmitter Ground. Common with Receiver Ground.	1
27	ModPrsl	Module Present.	
28	IntL	Interrupt.	2
29	VccTx	3.3V power supply transmitter.	
30	Vcc1	3.3V power supply.	
31	LPMODE	Low Power Mode.	2
32	GND	Transmitter Ground. Common with Receiver Ground.	1
33	Tx3+	Transmitter Non-Inverted Data Input.	
34	Tx3-	Transmitter Inverted Data Output.	

35	GND	Transmitter Ground. Common with Receiver Ground.	1
36	Tx1+	Transmitter Non-Inverted Data Input.	
37	Tx1-	Transmitter Inverted Data Output.	
38	GND	Transmitter Ground. Common with Receiver Ground.	1

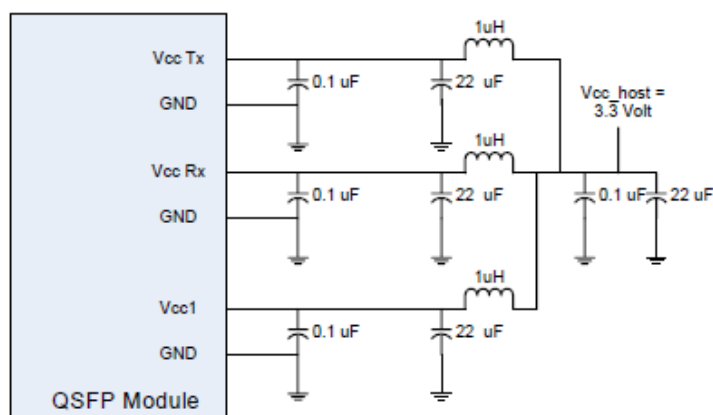
**Note:**

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7kΩ to 10kΩ pull-up resistor to VccHost.

**Electrical Pin-Out Details**

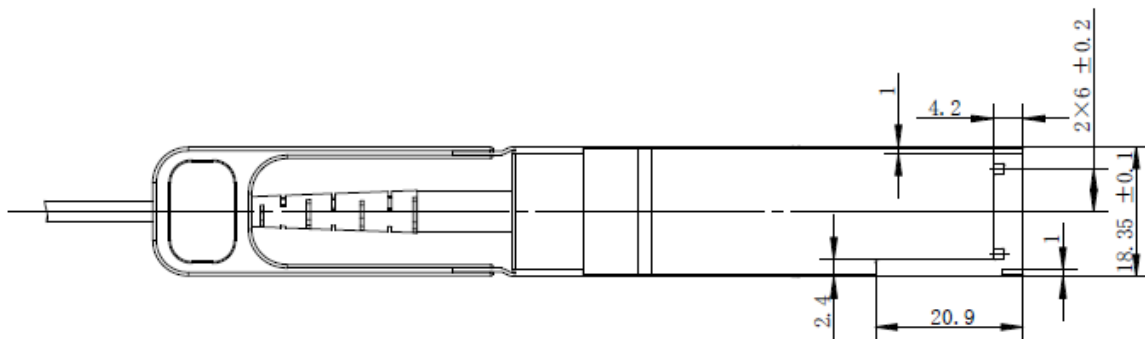
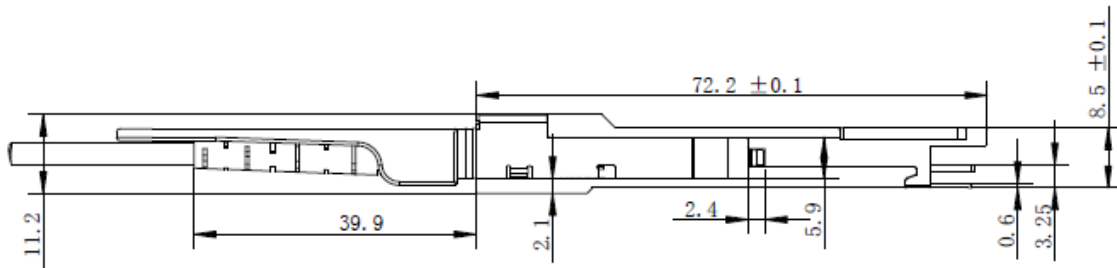
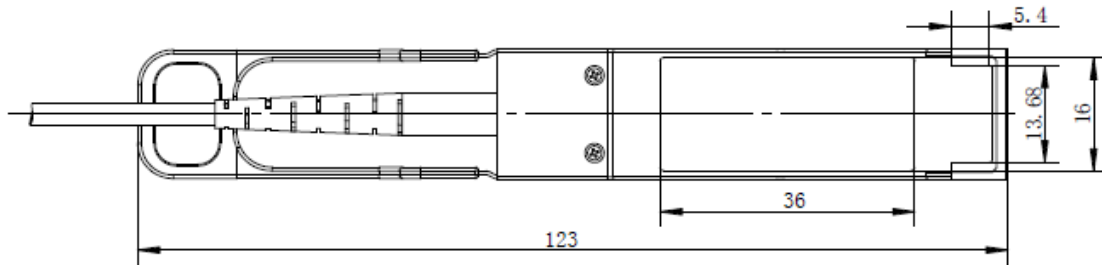


**Recommended Application Interface Circuit**



## Mechanical Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Notes
AOC cable length (L ≤ 5m)	L	L-0.06	L	L+0.06	M	
AOC cable length (L > 5m)	L	L-(L*1.1%)	L	L+(L*1.1%)	M	
Module Retention		90		170	N	
Module Insertion		0		18	N	
Module Extraction		0		25	N	
Cable Pull Strength – Apply Load at 0°		44			N	
Cable Pull Strength – Apply Load at 90°		33			N	
Clearance Out of IO Bezel		75			nm	
Cable Bending Radius		3			cm	
Insertion / Removal Cycles		50			Cycles	



## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

#### **Who We Are**

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

#### **What We Do**

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

#### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

#### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

#### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

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Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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