

100G QSFP28 Active Optical Cable

(RoHS Compliant)

FEATURES

- ◆ Four Full-Duplex Lanes
- ◆ Up to 25.78125Gbps/lane (100Gbps/4lane)
- ◆ Fiber link up to 100 meters
- ◆ Hot-Pluggable QSFP form factor
- ◆ DDM function support RX input power, Voltage, internal Temperature
- ◆ Low latency, low weight, and low power consumption
- ◆ Compliant with QSFP28 MSA, IEEE802.3bm, 100GBASE-SR4
- ◆ EMI performance match FCC class B
- ◆ BER better than 10^{-6}
- ◆ Storage, Network, Server, NIC, Switch
- ◆ Low power AOC solution

OVERVIEW

OPTOWAY is devoted to providing reliable and outstanding direct attach cables (DAC) and active optical cables (AOC) company.

Optoway 100G QSFP+ AOC is a high-speed solution with cost-effective design.

ORDER INFORMATION

AOC	-	<u>SS</u>	<u>VV</u>	QP	<u>C</u>	-	<u>LLL</u>	-	<u>AA</u>	G
		↑	↑		↑		↑		↑	
		<u>Speed</u>	<u>Version</u>		<u>FiberCable</u>		<u>Length(m)</u>		<u>Application</u>	
		25: 25G	01		B: OM2 C: OM3 D: OM4		003: 3 010: 10 020: 20 030: 30		00: InfiniBand 01: Ethernet	

1.1 Environmental specifications

Parameter	Min	Max	Units	Note
Operating case temperature	0	70	°C	
Storage temperature	-10	75	°C	
Operating relative Humidity	5	85	%	
Max Supply Voltage	-0.5	3.6	V	

1.2 Operating Specifications

Parameter	Min	Typ	Max	Units	Note
Supply Voltage	3.15		3.45	V	
Supply Current	500	600	700	mA	Per end
Power Consumption	1.65	2	2.5	W	Per end @3.3V
Data rate		103.1		Gbps	4 lane
Post- FEC BER		$<10^{-12}$			Note 1
Pre - FEC BER		$<10^{-6}$			
Input Swing	300		800	mV	differential
Output Swing	300		700	mV	differential

Note1 : Assumes FEC provided by host system.

Active optical cable Electro-Electro Parameters

Conditions

Power Supply VCC: 3.15-3.45V, 3.3V nominal

T_{case}: 0C° to 70°C, 25°C nominal

SPECIFICATIONS

ACTIVE OPTICAL CABLE

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
FIBRE LENGTH						
50 μm Core Diameter MMF(OM3)			100		m	Pre-FEC BER < 10 ⁻⁰⁶ @ 103.1Gbps
50 μm Core Diameter MMF(OM2)			30		m	Pre- FEC BER < 10 ⁻⁰⁶ @ 103.1Gbps
TRANSMITTER						
Input swing	V _{in}	300		800	mV	Differential V _{p-p}
Data rate			25.78125	28	Gbit/s	Per lane
TX differential RL	SDD11	IEEE P802.3bm			dB	
RECEIVER						
Data output swing – Single end	V _{o- SE}	150		350	mV	Single-end V _{p-p}
Data output swing - Differential	V _{o- Diff}	300		700	mV	Differential V _{p-p}
Data rate			25.78125		Gbit/s	Per lane
RX differential Return LOSS	SDD11	IEEE P802.3bm			dB	
Module						
Supply voltage	VCC	3.15		3.45	V	Vcc1, VccTX, VccRX
Total current consumption	ICC	500	600	700	mA	Per end
Time to link turn-on	t _{start}			2000	ms	
DDM voltage detect		-5		+5	%	
DDM RX input power detect		-3		+3	dB	
DDM RX internal Temperature		-3		+3	°C	

1.3 Contact Description

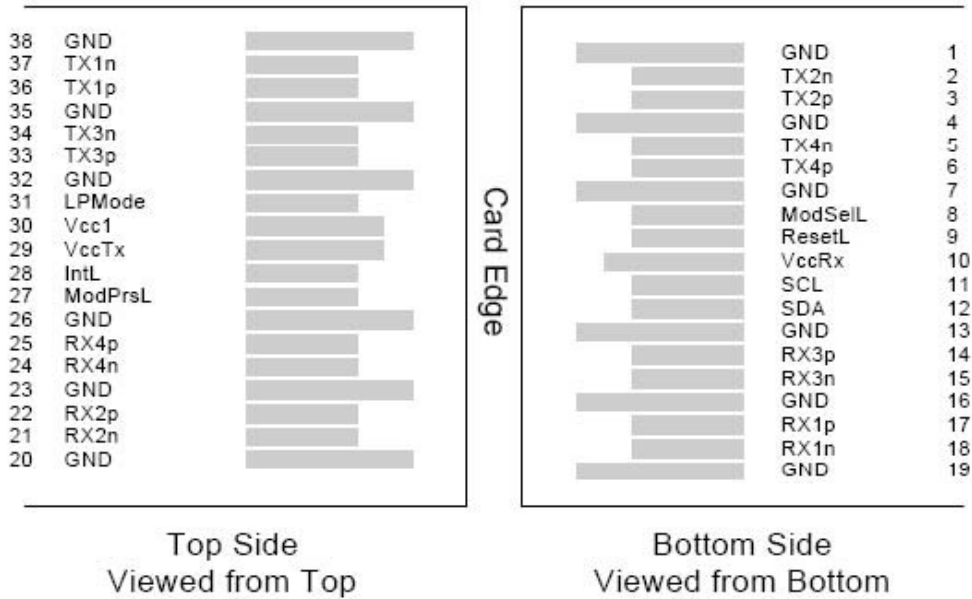


Figure 1.6 module PCB pad assignment view

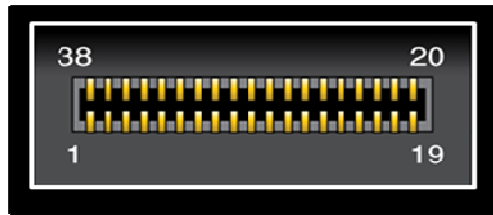


Figure 1.7 QSFP+ socket contact assignment

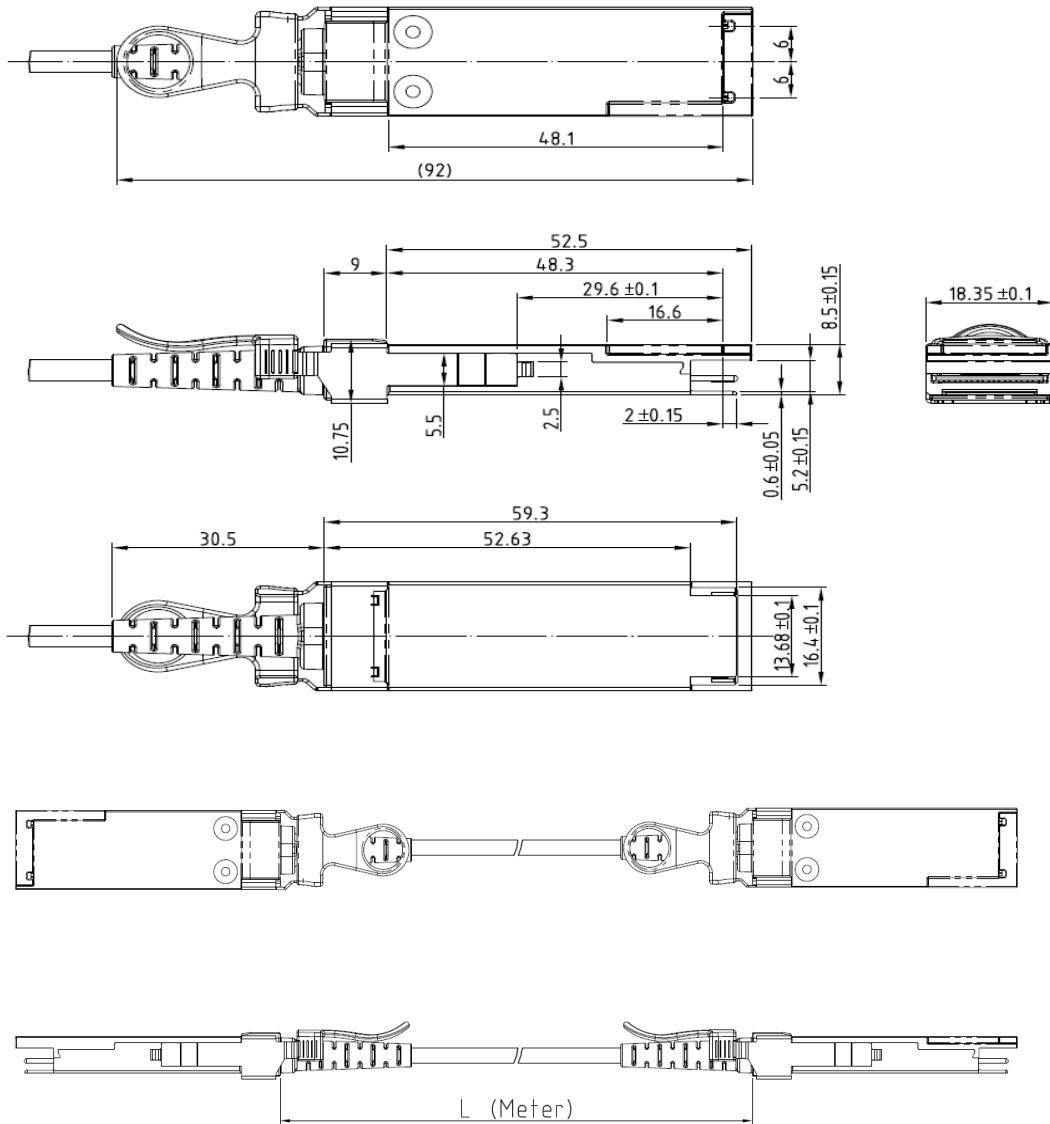
1.4 Pin Descriptions

Pin	Symbol	Description	Note
1	GND	Ground	
2	TX2n	Lane2 Transmitter Inverted Data Input	
3	TX2p	Lane2 Transmitter Non-Inverted Data Input	
4	GND	Ground	
5	TX4n	Lane4 Transmitter Inverted Data Input	
6	TX4p	Lane4 Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc	Rx +3.3V Power Supply Receiver	1

11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	RX3p	Lane3 Receiver Non-Inverted Data Output	
15	RX3n	Lane3 Receiver Inverted Data Output	
16	GND	Ground	
17	RX1p	Lane1 Receiver Non-Inverted Data Output	
18	RX1n	Lane1 Receiver Inverted Data Output	
19	GND	Ground	
20	GND	Ground	
21	RX2n	Lane2 Receiver Non-Inverted Data Output	
22	RX2p	Lane2 Receiver Inverted Data Output	
23	GND	Ground	
24	RX4n	Lane4 Receiver Non-Inverted Data Output	
25	RX4p	Lane4 Receiver Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc TX	Tx +3.3V Power Supply Transmitter	1
30	Vcc1	+3.3V Power Supply	1
31	LPmode	Low Power Mode	
32	GND	Ground	
33	TX3p	Lane3 Transmitter Inverted Data Input	
34	TX3n	Lane3 Transmitter Non-Inverted Data Input	
35	GND	Ground	
36	TX1p	Lane1 Transmitter Inverted Data Input	
37	TX1n	Lane1 Transmitter Non-Inverted Data Input	
38	GND	Ground	

Note1 : Vcc RX, Vcc TX is internal connected at transceiver module.

1.5 Thunderbolt Cable Mechanical Dimensions



L	Tolerance
1m	0~+20cm
3m	±20cm
5m	±20cm
10m	±0.5m
20m	±0.5m
30m	±0.5m
50m	±1m
100m	±1m