

100GBASE -SR4 QSFP28 Active Optical Cable WQ8-MDO100-XXXXC

Description

The WQ8-MDO100-XXXXC is a Four - Channel, Pluggable , Parallel, Fiber - Optic QSFP+ AOC for 100 Gigabit Ethernet and Infiniband EDR Applications .This AOC is a high performance module for short- range multi - lane data communication and interconnect applications. It integrates four data lanes in each direction with 100Gbps bandwidth . Each lane can operate at 25.78125Gbps up to 70m using OM3 fiber or 100m using OM4 fiber. These modules are designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 38 contact edge type connector. The optical interface uses an 12 fiber MTP (MPO) connector. This module incorporates Wiitek proven circuit and VCSEL technology to provide reliable long-life, high performance , and consistent service .

Features

- ◆ 4 channels full- duplex transceiver modules
- ◆ Supports 100Gbps total data rate
- ◆ 4 channels 850 nm VCSEL array
- ◆ 4 channels PIN photo detector array
- ◆ Low power consumption < 3.5W
- ◆ Hot Pluggable QSFP form factor
- ◆ Maximum link length of 70m on OM3 Multimode Fiber(MMF)
and 100m on OM4 MMF
- ◆ Single MPO connector receptacle
- ◆ Built- in digital diagnostic functions
- ◆ Operating case temperature 0°C to +70°C
- ◆ 3.3V power supply voltage
- ◆ RoHS 6 compliant



Applications

- ◆ IEEE 802.3bm 100 G BASE SR4
- ◆ Infiniband EDR

◆ Data Centers

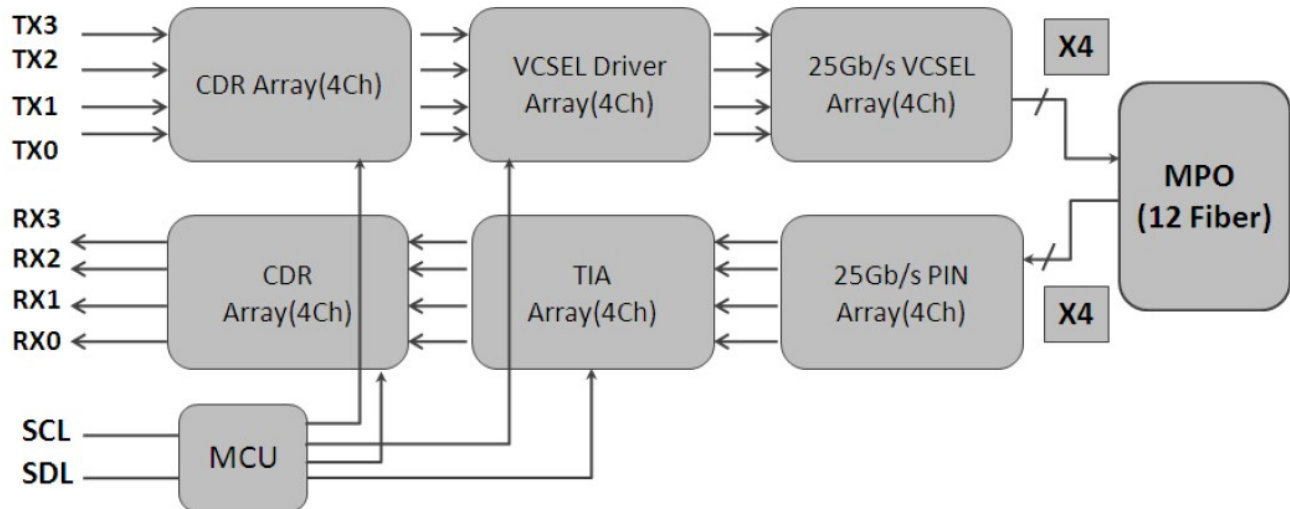


Figure1. Module Block Diagram

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V _{cc}	-0.3	3.6	V
Input Voltage	V _{in}	-0.3	V _{cc} + 0.3	V
Storage Temperature	T _{st}	-20	85	°C
Case Operating Temperature	T _{op}	0	70	°C
Humidity (non-condensing)	R _h	0	85	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	V _{cc}	3.13	3.3	3.47	V
Operating Case temperature	T _{ca}	0		70	°C
Data Rate Per Lane	f _d		25.78125		Gbps
Humidity	R _h	5		85	%
Power Dissipation	P _m			3.5	W
Fiber Bend Radius	R _b	3			cm

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Operating Case temperature	Tca	0		70	°C
Data Rate Per Lane	fd		25.78125		Gbps
Humidity	Rh	5		85	%
Power Dissipation	Pm			3.5	W
Fiber Bend Radius	Rb	3			cm

Electrical Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Differential input impedance	Zin	90	10	11	ohm
Differential Output impedance	Zout	90	10	11	ohm
Differential input voltage amplitude	ΔV_{in}	300		1100	mVp-p
Differential output voltage amplitude	ΔV_{out}	500		80	mVp-p
Skew	Sw			300	ps
Bit Error Rate	BER			E-12	
Input Logic Level High	VIH	2.0		VCC	V
Input Logic Level Low	VIL	0		0.8	V
Output Logic Level High	VOH	VCC-0.5		VCC	V
Output Logic Level Low	VOL	0		0.4	V

Note:

1. BER = 10^{-12} ; PRBS $2^{31}-1$ @ 25.78125 Gbps.
2. Differential input voltage amplitude is measured between Tx n P and Tx n N.
3. Differential output voltage amplitude is measured between Rx n P and Rx n N.

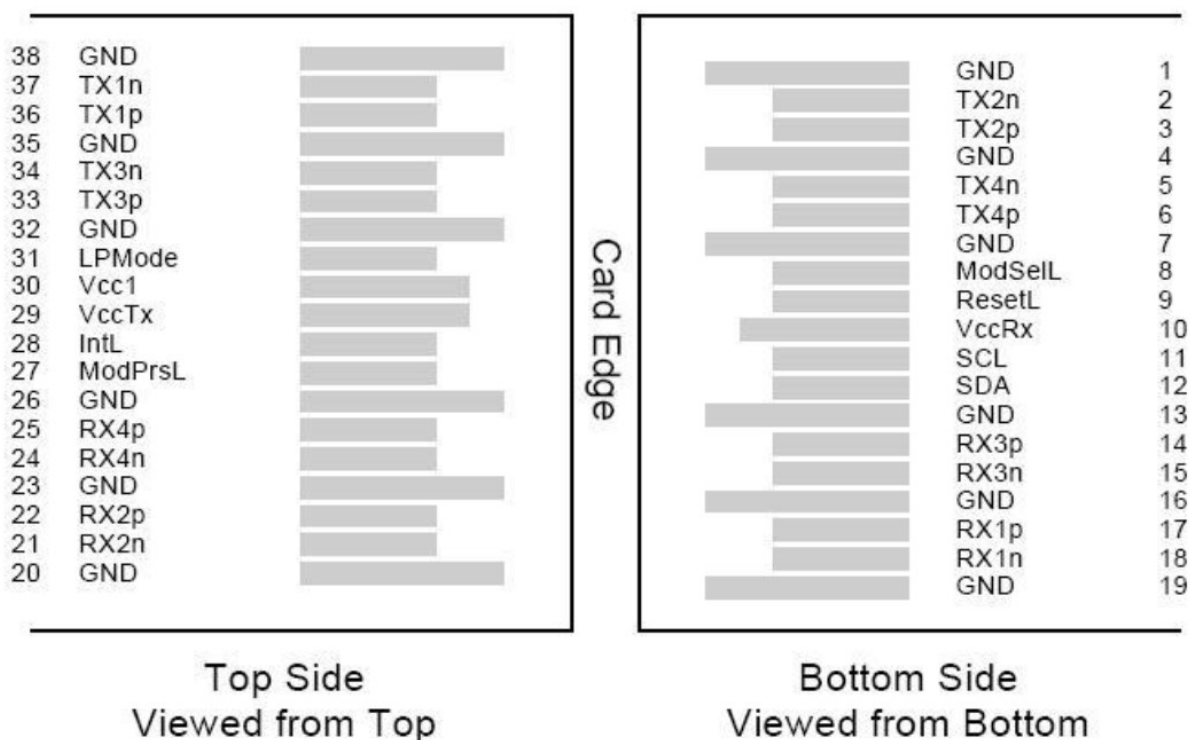
Pin Descriptions

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	2
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	

29		VccTx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTL-I	LPMODE	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Notes:

1. Module circuit ground is isolated from module chassis ground within the module. GND is the symbol for signal and supply (power) common for QSFP modules.
2. The connector pins are each rated for a maximum current of 500mA.



Power Supply Filtering

The host board should use the power supply filtering shown in Figure2.

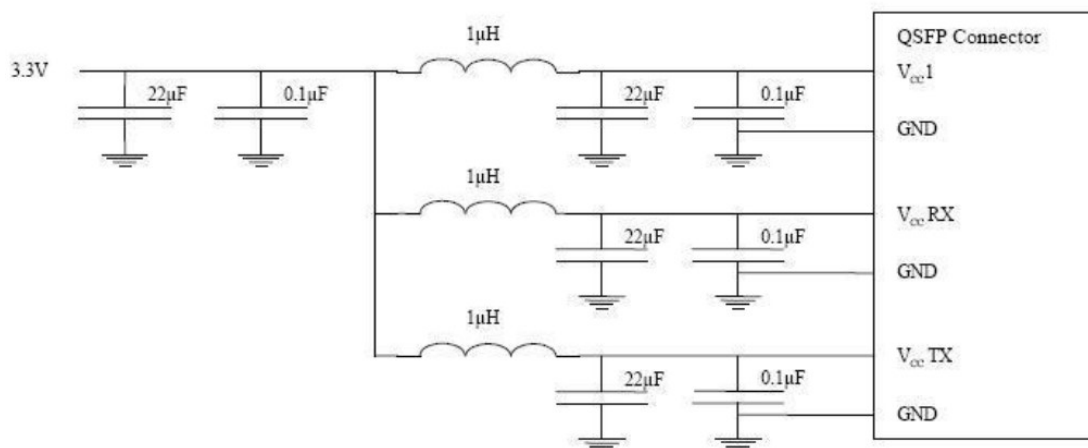
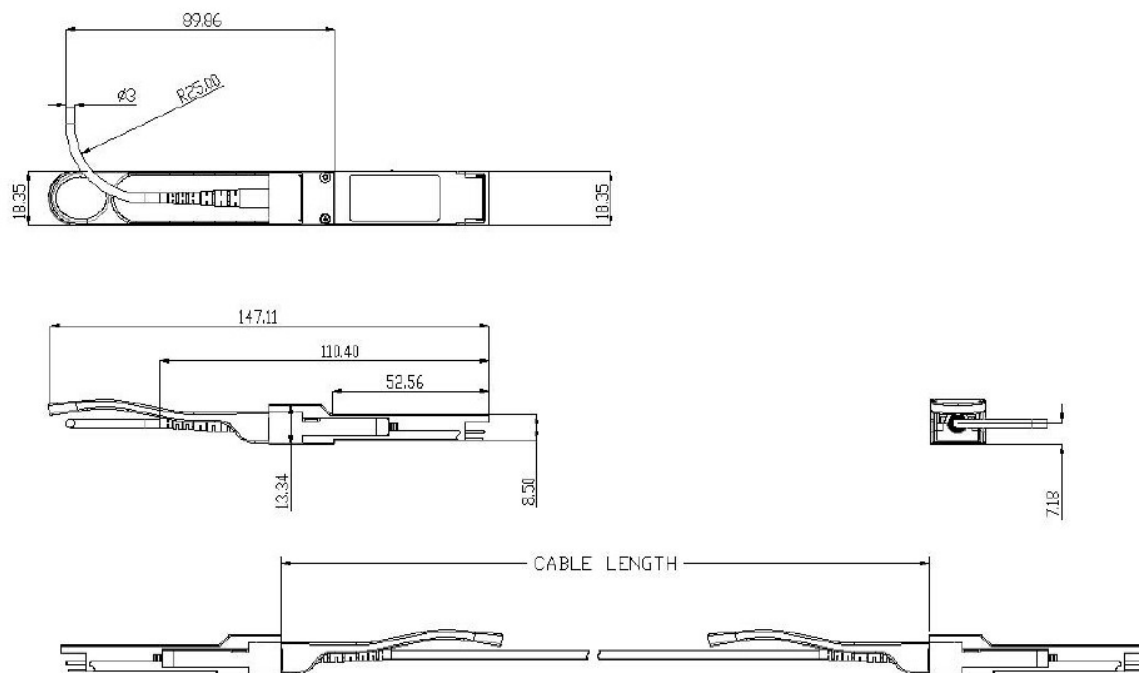


Figure2. Host Board Power Supply Filtering

Mechanical Dimensions



Dimensions in Millimeters

Ordering information

Part Number	Product Description
WQ8-MDO100-XXXC	XXX=different cable lengths on OM3 Multimode Fiber (MMF)

XX(X)	Cable Length on OM3 Multimode Fiber (MMF)
03	003=3m
05	005=5m
10	010=10m
20	020=20m
50	050=50m
100	100=100m(OM4 Fiber Cable)

References

1. SFF-8436 QSFP+
2. Ethernet 100GBASE-SR4

Important Notice

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