

QSFP+ AOC

Description

The QSFP Active Optical Cable (AOC) is a 4 x 10 Gbps solution to 4 channel QDR InfiniBand, 40G Ethernet and high-performance computing. The integrated cable transmits 4x10Gbps data in each direction over a loose tube OM2 fiber with distance up to 100 m. The AOC is QSFP+ MSA compliance, low power consumption and light weight.

Features

- Independently parallel 4 x 10Gbps bi-direction link
- QSFP+ MSA compliance form factor
- Support transmission distance up to 100 meters
- 850 nm wavelength over loose tube multi-mode fiber.
- Operating temperature 0°C to 70°C
- Hot pluggable
- Low power consumption of 1.0 W

Applications

- Infiniband QDR interconnects.
- 40GBASE- SR4 Ethernet
- High performance computing interconnect

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Remark
Storage Temperature	T _s	-20	+75	°C	
Storage Relative Humidity	RH	5	85		
Supply Voltage	V _{cc}	-0.3	+3.63	V	
ESD (HBM)	V _{ESD}		500	V	High speed interfaces
			2000	V	Others
Air Discharge to Housing			15	KV	
Contact Discharge to Housing			8	KV	

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Recommended Operating Conditions

Parameter	Symbol	Min	Typ.	Max	Unit
Operating Temperature	T _c	0		+70	°C
Supply Voltage	V _{cc}	3.135	3.3	3.465	V
Power Supply Noise Tolerance				50	mVpp
Bit Rate per Lane (Infiniband)	BR	2.5	10	10.5	Gbps
Bit Rate per Lane (Ethernet)	BR	8	10	10.5	Gbps
Differential AC Data Input Swing	V _{swing}	250		1200	mVpp

Electrical Interface

Data Input Electrical Specification

(Condition: T_c = 0°C to +70°C)

Parameter	Symbol	Min	Typ.	Max	Unit
Differential Input Impedance	Z _{in}	85	100	115	Ohm
Power Consumption per Plug	P _{plug}		0.8	1.2	W
Power Consumption End to End	P _{aoc}		1.6	2.4	W
3.3V Tx Supply Current	A		0.08	0.14	A
3.3V Rx Supply Current	A		0.16	0.21	A

Data Output Electrical Specification

(Condition: T_c = 0°C to +70°C)

Parameter	Symbol	Min	Typ.	Max	Unit
Differential Output Impedance	Z _{out}	85	100	115	Ohm
Differential Output Voltage (100Ω differential terminated)	V _{out}	350		800	mVpp
AC Common Mode Output Voltage				25	mV
Rise/Fall Time (20% to 80%)	Tr/TF			28	Ps
Total Jitter (peak to peak, per lane)	TJ _{Txin}			0.72	UI

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Low Speed Electrical Specification

(Condition: Tc = 0°C to +70°C)

Parameter	Symbol	Min	Typ.	Max	Unit
SCL, SDA	V _{IL}	-0.3		V _{CC} *0.3	V
	V _{IH}	V _{CC} *0.7		V _{CC} +0.5	V
SCL, SDA (I _{OL,Max} = 3mA)	V _{OL}	0		0.4	V
	V _{OH}	V _{CC} -0.5		V _{CC} +0.3	V

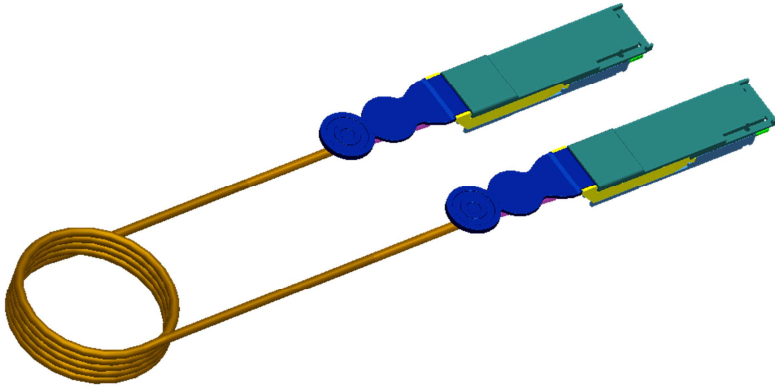
Cable Specification

(Condition: Tc = 0°C to +70°C)

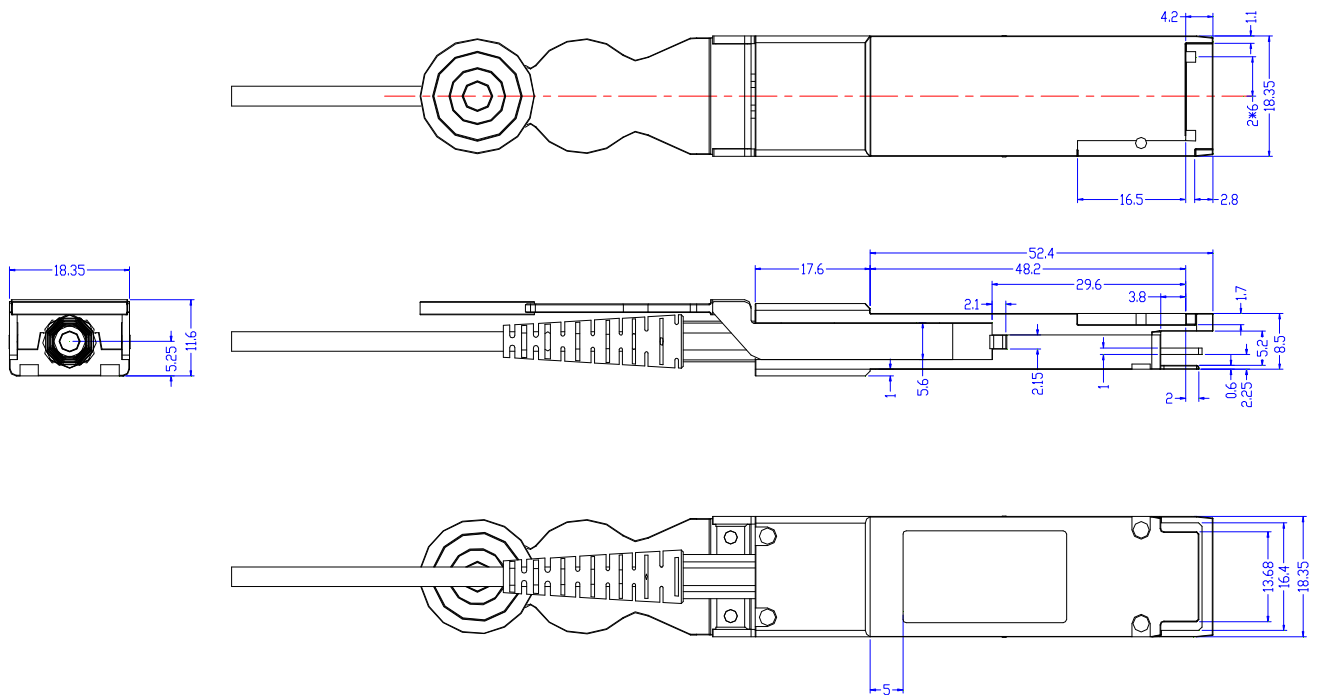
Parameter	Symbol	Min	Typ.	Max	Unit
Cable Skew (Absolute skew between any individual channel, w/o any input skew)	tpd			1	ns
Cable Diameter			3		mm
Bend Radius while Service			45		Mm
Plug Insertion Force	FI	0		40	N
Plug Retention Force	FR	90			N

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Mechanical Drawing



QSFP+ MSA compliance housing dimension



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Pin Configuration

