



QSFP12-400G-QDD-AOC-XXM-AQ-5

400GBASE-AOC QSFP12 FLAT TOP TO QSFP-DD
850nm, UP TO 50m REACH, ACTIVE OPTICAL CABLE

Features

- Hot-pluggable QSFP12 to QSFP-DD form factor
- Maximum cable length of 50m with FEC
- +3.3V single end power supply
- Power dissipation < 8W per end
- Operating case temp Commercial: 0°C to +70 °C
- RoHS compliant

Applications

- 400GAUI-4 to 400GAUI-8
- Ethernet and InfiniBand supported

Absolute Maximum Ratings

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Supply Voltage	Vcc3	-0.5	-	+3.6	V	
Storage Temperature	Ts	-40	-	+85	°C	
Operating Humidity	RH	0	-	+85	%	1
Control Input Voltage	VI	-0.3	-	VCC+0.5	V	1

Note 1: No condensation

Recommended Operating Conditions

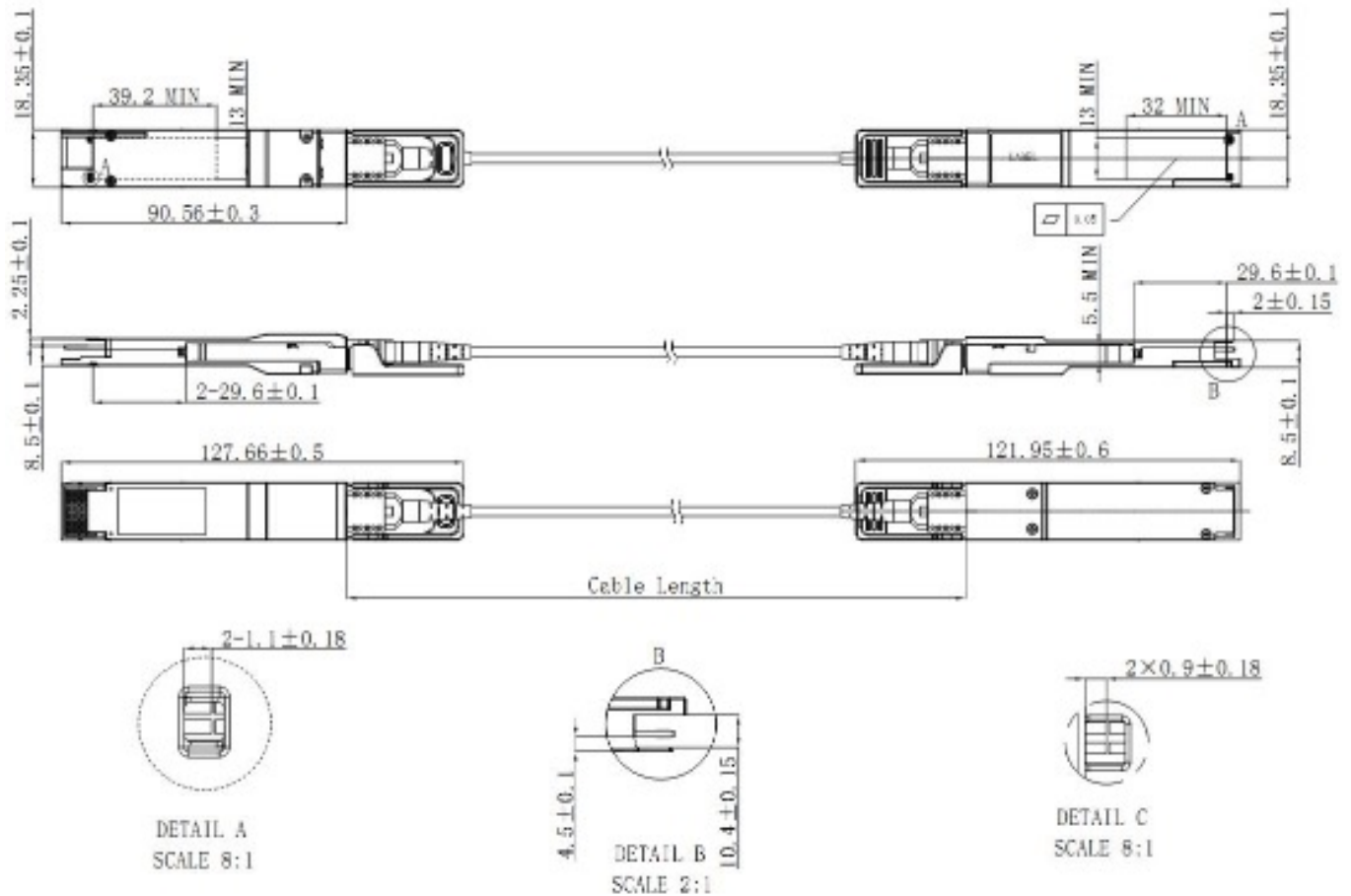
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Case Temperature	TC	0	-	+70	°C
Power Supply Voltage	Vcc	3.135	3.3	3.465	V
Power Dissipation Per End	Pd	-	-	8	W
Supply Current Per End	Icc	-	-	2550	mA
Pre-FEC Bit Error Ratio	-	-	-	2.4x10 ⁻⁴	-

Electrical Characteristics					
Parameter	Symbol	Unit	Minimum	Typical	Maximum
400G QSFP112 Transmitter					
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm		
Modulation Format	-	-	PAM4		
Differential pk-pk Input Voltage Tolerance	V _{in,pp,diff}	mV	750	-	-
Module Stressed Input Tolerance	-	-	IEEE802.3ck 120G.3.4.3		
Effective Return Loss	ERL	dB	8.5		
Differential Termination Mismatch	-	%	-	-	10
Single-ended Voltage Tolerance Range	-	V	-0.4	-	3.3
DC Common-mode Voltage Tolerance					
Upper limit	-	mV	2850		
Lower limit	-		-350		
400G QSFP112 Receiver					
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm		
Modulation Format	-	-	PAM4		
Differential Output Voltage (Long mode)	-	mV	-	-	845
Differential Output Voltage (Short mode)	-	mV	-	-	600
Eye Height	-	mV	15	-	-
Vertical Eye Closure	VEC	mV	-	-	12
Differential Termination Mismatch	-	%	-	-	10
Transition Time	-	ps	8.5	-	-
DC common-mode Voltage Tolerance					
Upper limit	-	mV	2850		
Lower limit	-		-350		
400G QSFP-DD Transmitter					
Signaling Rate (each lane)	SR	GBPS	26.5625 ± 100 ppm		
Differential Data Input Voltage per Lane	V _{in,pp,diff}	mV	-	-	900
Differential Termination Mismatch	-	%	-	-	10
Single-ended Voltage Tolerance Range	-	V	-0.4	-	3.3
DC Common-mode Voltage	-	mV	-350	-	2850
400G QSFP-DD Receiver					
Signaling Rate (each Lane)	SR	GBd	26.5625 ± 100 ppm		
Differential Output Voltage	-	mV	-	-	900
Near-end ESMW (Eye symmetry mask width)	-	UI	0.265	-	-
Near-end Eye Height, Differential (min)	-	mV	70	-	-
Far-end ESMW (Eye symmetry mask width)	-	UI	0.2	-	-
Far-end Eye Height, Differential (min)	-	mV	30	-	-
Differential Termination Mismatch	-	%		-	10
Transition Time (min, 20% to 80%)	-	ps	9.5	-	-
DC Common-mode Voltage	-	mV	-350	-	2850

Digital Diagnostic Specifications

Parameter	Symbol	Unit	Minimum	Maximum	Notes
Temperature Monitor Absolute Error	DMI_Temp	degC	-3	3	Over operating temperature range
Supply voltage Monitor Absolute Error	DMI_VCC	V	-0.1	0.1	Over full operating range
Channel Bias Current Monitor	DMI_Ibias_Ch	mA	-10%	10%	

Mechanical Diagram



Note:

External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

Ordering Information			
OEM	Part Number	OEM	Part Number
Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-1M-A	Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-8M-A
Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-2M-A	Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-9M-A
Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-3M-A	Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-10M-A
Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-4M-A	Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-12M-A
Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-5M-A	Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-15M-A
Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-6M-A	Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-20M-A
Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-7M-A	Nvidia to Arista	Q112-400G-QDD-MXAN-AOC-30M-A

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