QSFP-DD Series

ETU-LINK
Optical Communication System

QSFP-DD

EQDA40X-330CDxx
400G QSFP-DD Multi-Mode AOC Transceiver

- Hot-pluggable QSFP-DD form factor
- Case temperature range of 0°C to +70 °C
- +3.3V single Power Supply
- power dissipation each ＜10W per terminal
- Operating case temp commpercial:0°C to +70 °C
- 8x50G PAM4 retimed 400GUAI-8 electrical interface aligned with IEEE 802.3bs
- RoHS compliant

Applications

- 200GAUI-4
- Other 400G optical links

Absolute Maximum Ratings

Parameter	Symbol	Min	Typical	Max	Unit
Storage temperature	Ts	-5	-	+70	°C
Supply voltage	Vcc_3	-0.5	-	+3.6	V
Operating humidity[Note1]	RH	+5	-	+85	%

Note1: No condensation

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating case temperature	Tc	0	-	+70	℃	
Power supply voltage	Vcc	3.135	3.3	3.465	V	
Power dissipation	Pd	-	-	10	W	1
Bit Rate	BR	-	26.5625	-	GBaud	2

Note:

1: Per terminal

2: Per channel,PAM4

Characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Transmitter						
Signaling rate (each lane)	SR	GBaud	26.5625 ± 100 ppm			
Differential data input voltage per lane	Vin,pp,diff	mV	900	-	-	
Differential termination mismatchal	-	%	-	-	10	
Single-ended voltage tolerance range	-	V	-0.4	-	3.3	
DC common mode voltage	-	mV	-350	-	2850	
Receiver						
Signaling rate (each lane)	SR	GBaud	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	
Bit Error Ratio	-	-	-	-	2.4E-4	1

Note1: Pattern PRBS31Q

Pin arrangement

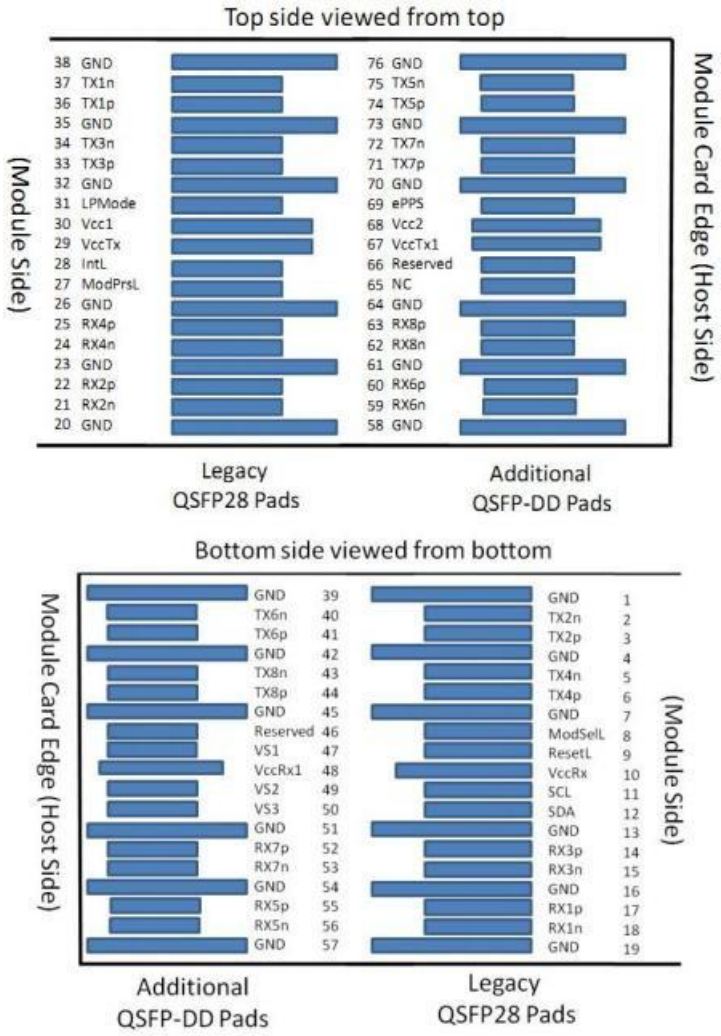


Figure1. Pin View

Pin Function Definition

Pin	Logic	Symbol	Description	Plug Sequence[4]	Notes
1		GND	Ground	1B	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	3B	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	3B	
4		GND	Ground	1B	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	3B	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	3B	
7		GND	Ground	1B	1
8	LVTTL-I	ModSelL	Module Select	3B	

9	LVTTL-I	ResetL	Module Reset	3B	
10		Vcc Rx	+3.3V Power Supply Receiver	2B	
11	LVCMOS-I/O	SCL	2-wire serial interface clock	3B	
12	LVCMOS-I/O	SDA	2-wire serial interface data	3B	
13		GND	Ground	1B	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	3B	
15	CML-O	Rx3n	Receiver Inverted Data Output	3B	
16		GND	Ground	1B	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	3B	
18	CML-O	Rx1n	Receiver Inverted Data Output	3B	
19		GND	Ground	1B	1
20		GND	Ground	1B	1
21	CML-O	Rx2n	Receiver Inverted Data Output	3B	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	3B	
23		GND	Ground	1B	1
24	CML-O	Rx4n	Receiver Inverted Data Output	3B	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	3B	
26		GND	Ground	1B	1
27	LVTTL-O	ModPrsL	Module Present	3B	
28	LVTTL-O	IntL	Interrupt	3B	
29		Vcc Tx	+3.3V Power supply transmitter	2B	2
30		Vcc1	+3.3V Power supply	2B	2
31	LVTTL-T	LPMode	Low Power Mode	3B	
32		GND	Ground	1B	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	3B	
34	CML-I	Tx3n	Transmitter Inverted Data Input	3B	
35		GND	Ground	1B	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	3B	
37	CML-I	Tx1n	Transmitter Inverted Data Input	3B	
38		GND	Ground	1B	1
39		GND	Ground	1A	1
40	CML-I	Tx6p	Transmitter Inverted Data Input	3A	
41	CML-I	Tx6n	Transmitter Non-Inverted Data Input	3A	
42		GND	Ground	1A	1
43	CML-I	Tx8p	Transmitter Inverted Data Input	3A	
44	CML-I	Tx8n	Transmitter Non-Inverted Data Input	3A	
45		GND	Ground	1A	1
46		Reserved	For future use	3A	2
47		VS1	Nodule Vendor Specific 1	3A	3

48		VccRx1	3.3V Power Supply	2A	2
49		VS2	Nodule Vendor Specific 2	3A	3
50		VS3	Nodule Vendor Specific 3	3A	3
51		GND	Ground	1A	1
52	CML-O	Tx7p	Receiver Non-Inverted Data Output	3A	
53	CML-O	Tx7n	Receiver Inverted Data Output	3A	
54		GND	Ground	1A	1
55	CML-O	Tx5p	Receiver Non-Inverted Data Output	3A	
56	CML-O	Tx5n	Receiver Inverted Data Output	3A	
57		GND	Ground	1A	1
58		GND	Ground	1A	1
59	CML-O	Tx6p	Receiver Inverted Data Output	3A	
60	CML-O	Tx6n	Receiver Non-Inverted Data Output	3A	
61		GND	Ground	1A	1
62	CML-O	Tx8p	Receiver Inverted Data Output	3A	
63	CML-O	Tx8n	Receiver Non-Inverted Data Output	3A	
64		GND	Ground	1A	1
65		NC	No Connect	3A	3
66		Reserved	For future use	3A	3
67		VccTx1	3.3V Power Supply	2A	2
68		Vcc2	3.3V Power Supply	2A	2
69	LVTTL-I	ePPS	Precision Time Protocol(PTP) reference clook input	3A	3
70		GND	Ground	1A	1
71	CML-I	Tx7p	Transmitter Non-Inverted Data Input	3A	
72	CML-I	Tx7n	Transmitter Inverted Data Input	3A	
73		GND	Ground	1A	1
74	CML-I	Tx5p	Transmitter Non-Inverted Data Input	3A	
75	CML-I	Tx5n	Transmitter Inverted Data Input	3A	
76		GND	Ground	1A	1

Note: 1. Circuit ground is internally isolated from chassis ground

Memory Map

Compatible with QSFP-DD CMIS rev4.0.

Recommended Interface Circuit

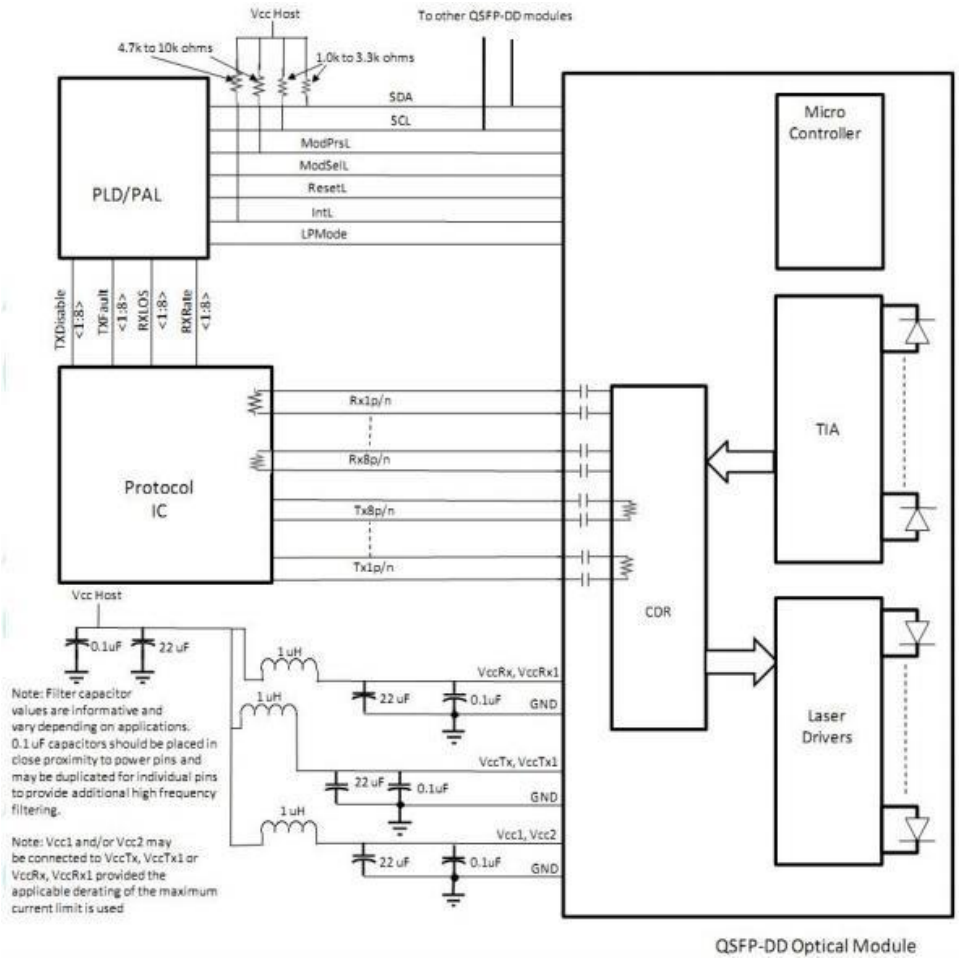


Figure2.Recommended Interface Circuit

Mechanical

The QSFP-DD AOC terminal are compatible with the QSFP-DD Type 2 Specification forpluggable form factor modules.

Unit mm

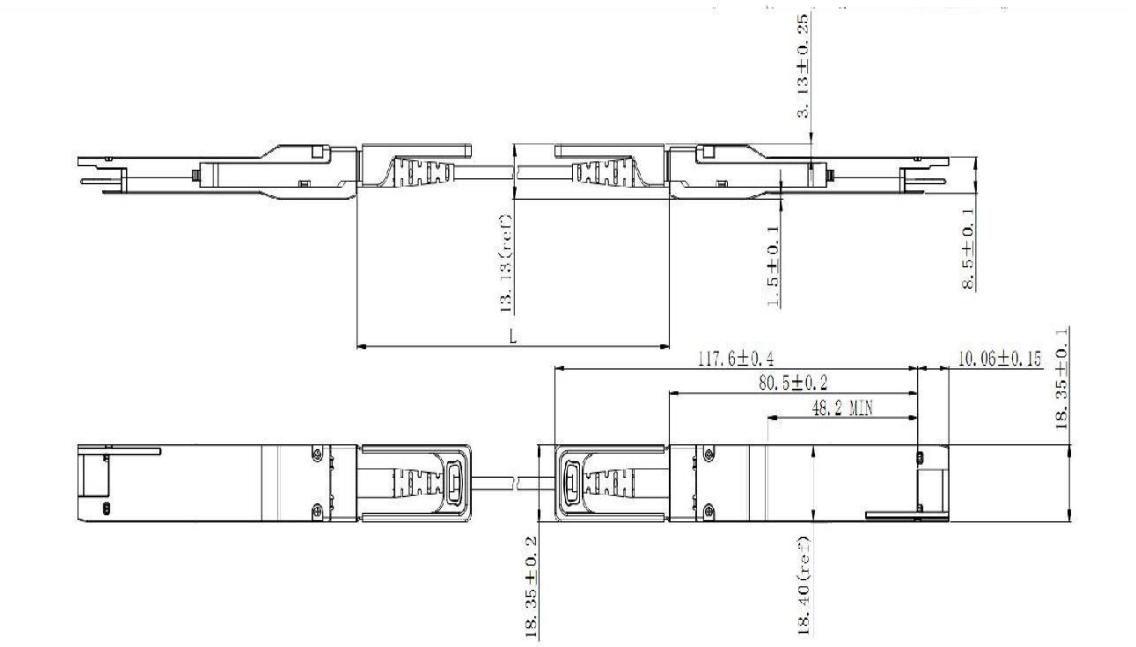


Figure3.Mechanical Diagram

Cable Length

Cable Length（Unit: m）	Tolerant（Unit: cm）
＜1.0	+5/-0
1.0~4.5	+15/-0
5.0~14.5	+30/-0
≥15.0	+2%/-0

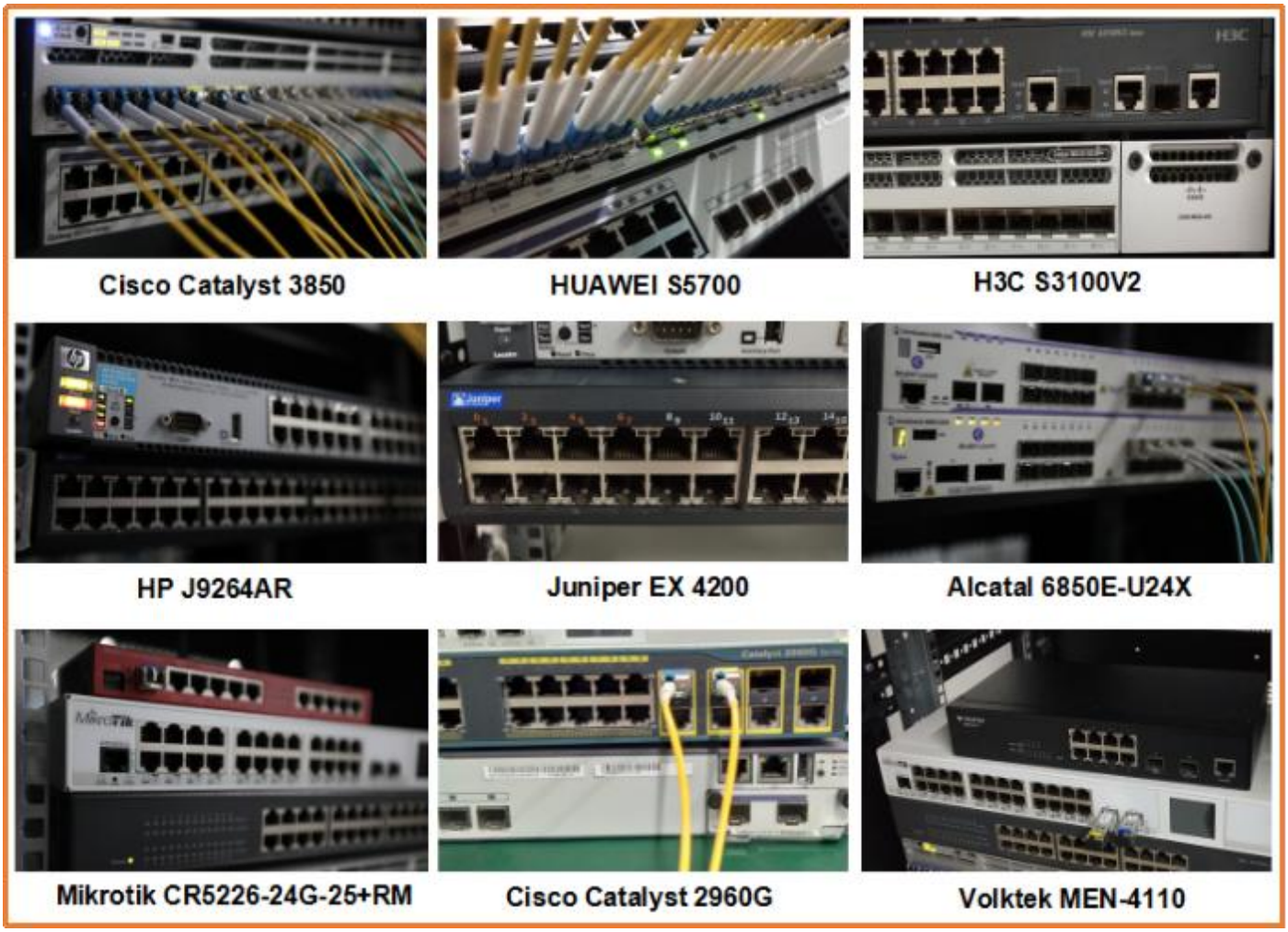
Ordering Information

Part Number	Description
EQDA40X-330CDxx	Multi-Mode 400G QSFP-DD AOC Transceiver 0.5~50m

Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can compatible with many mainstream brand switches, such as Cisco, Juniper, Extreme, Brocade, IBM, H3C, HP, Huawei, D-Link, Mikrotik, ZTE, TP-Link...

Our test equipment: VOLKTEK MEN-4110, HP 2530-8G, CRS226-24G-25+RM, Catalyst 2960G Series, Catalyst 3850 XS 10G SFP+, Catalyst 3750-E Series, HUAWEI S5700Series, H3C S3100V2 Series, Juniper-EX4200, etc.



Product Production Process

Quality Assurance

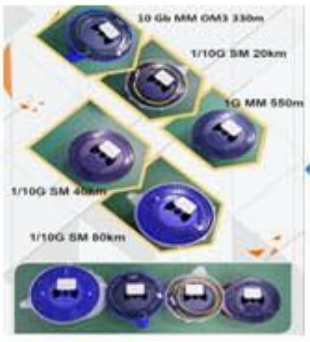
Continuous introduction of new equipment, produced by strict standards, strict quality inspection, to guarantee the high quality standard of each product.

Standardized Production Line

Professional Welding

Assembling

Cleaning end face



Distance Testing

Aging Testing

Product Initial Test

Switch Testing

Product Final Test

Packaging

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