

## QSFP+

### EQA5X-33CDxx

#### 56G QSFP+ to 56G QSFP+ Active Optical Cables

- 4 channels 850nm VCSEL and PIN
- Electrical interface compliant to SFF-8436
- Support 56GB data rate
- Hot Pluggable QSFP form factor
- Built-in digital diagnostic functions
- Operating case temperature 0°C to +70°C
- 3.3V power supply voltage
- Round OFNP-rated cable
- UL certification cables (optional)

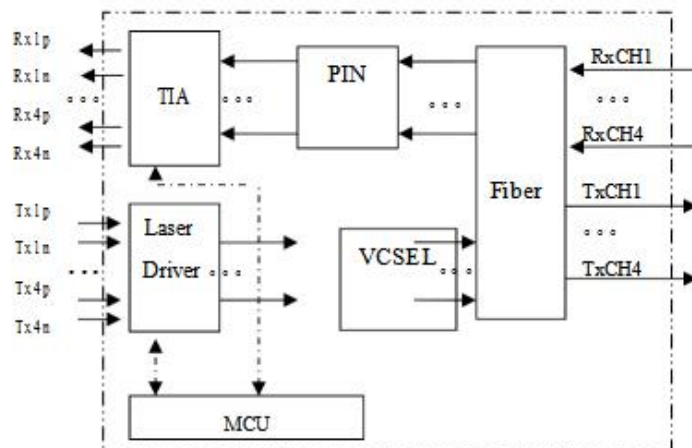


## Applications

- 56GBASE-SR Ethernet
- InfiniBand QDR, SDR, DDR
- Servers, switches, storage and host card adapters

## Module Block Diagram

Figure1. Module Block Diagram



## Absolute Maximum Ratings

The operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Type	Max	Unit
Storage Temperature	TSTG	-20		85	°C
Case Operating Temperature	TC <sub>Case</sub>	0		70	°C
Supply Voltage	VCC	-0.5	3.3	3.6	V
Input Voltage	V <sub>ilvttl</sub>	-0.5		V <sub>cc</sub> +0.5	V

## Recommended Operating Conditions

Parameter	Symbol	Min	Type	Max	Unit
Case Operating Temperature	TC <sub>Case</sub>	0		70	°C
Supply Voltage	VCC	3.15	3.3	3.45	V
Differential data input voltage per lane	V <sub>din</sub>	200		1200	mV
Signaling rate per lane	Dr	1.25	14.025		Gbit/s
Differential Termination Resistance				10%	

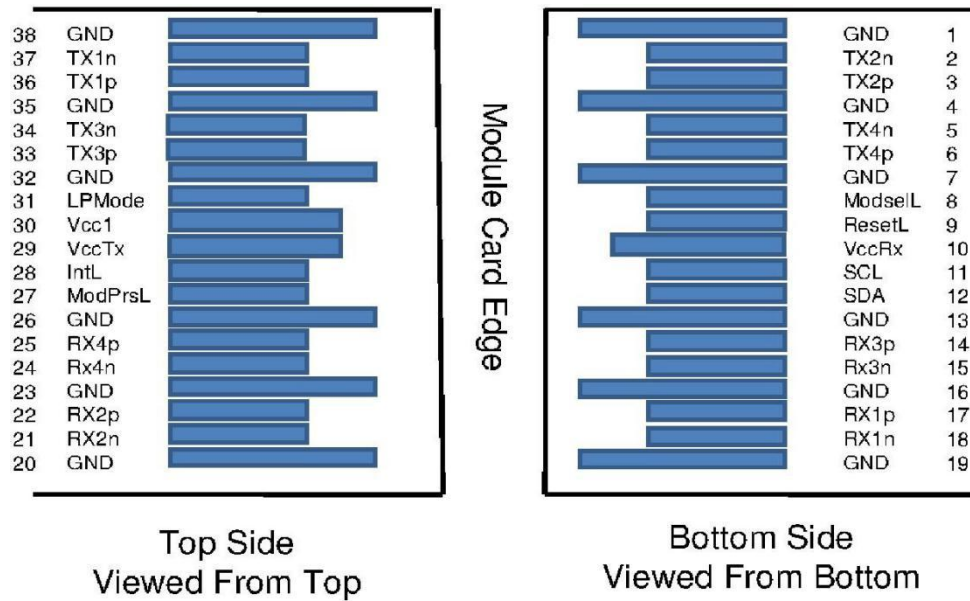
## Electrical Characteristics

The following characteristics are defined over the Recommended Operating Conditions unless otherwise noted. Typical values are for T<sub>c</sub> = 40 °C, V<sub>cc</sub> = 3.3 V

Parameter	Symbol	Min	Type	Max	Unit
Bit Error Ratio	BER			10-12	
Differential data output voltage per lane	V <sub>OUTpp</sub>	320	450		mV
Differential Termination Resistance	Z <sub>out</sub>	80	100	120	Ω
Module total power	P			1.5	W
Transmit turn-on time		2000			ms

Note: Tested with a PRBS31 test pattern.

## Pin Descriptions



## Pin Definition

Parameter	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3V Power Supply Receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground

21	Rx2n	Receiver Inverted Data Output
22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	Vcc Tx	+3.3V Power supply transmitter
30	Vcc1	+3.3V Power supply
31	LPMoDe	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

## Mechanical Design Diagram

Unit: mm

	L	L1	L2	L3	W	W1	W2	H	H1	H2
MAX	72.2	—	122	4.35	18.45	—	6.2	8.6	12.0	5.35
Typical	72.0	—	—	4.20	18.35	—	—	8.5	11.8	5.2
MIN	68.8	16.5	118	4.05	18.25	2.2	5.8	8.4	11.6	5.05

## Cable Length Tolerant

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

## Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can be 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.



**Cisco Catalyst 3850**



**HUAWEI S5700**



**H3C S3100V2**



**HP J9264AR**



**Juniper EX 4200**



**Alcatel 6850E-U24X**



**Mikrotik CR5226-24G-25+RM**



**Cisco Catalyst 2960G**



**Volktek MEN-4110**

## 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.



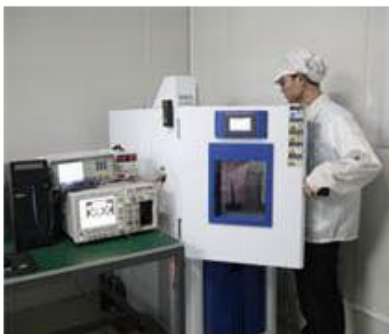
**Standardized  
Production Line**



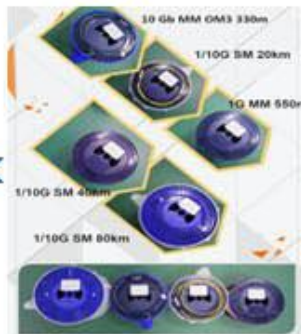
**Professional  
Welding**



**Assembling**



**Aging Testing**



**Distance Testing**



**Cleaning end face**



**Product Initial Test**



**Switch Testing**



**Product Final Test**

## Packaging

ETU-Link provides two kinds of packaging, 10pcs/Tray and individual package.



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Addresses and phone number also have been listed at [www.etulinktechnology.com](http://www.etulinktechnology.com).

Please e-mail us at [sales@etulinktechnology.com](mailto:sales@etulinktechnology.com) or call us for assistance.