

## QSFP28

### EQ2DP10X-32Q2CNxx

#### 100G QSFP28 to 2x 50G QSFP28 Copper Breakout Cable

- Compliant with IEEE 802.3bj
- Compliant with SFF-8665
- Up to 100Gb/s data rates
- Ultra low crosstalk for improved performance
- Low insertion loss
- BER better than 10<sup>-15</sup>
- Serial numbers printed on each end
- Tested in an end-to-end system
- RoHS compliant



## Applications

- Low EMI radiation Switches, servers and routers
- Data Center networks
- Storage area networks
- High performance computing
- Telecommunication and wireless infrastructure
- Medical diagnostics and networking

## Description

ETU-LINK's EQ2DP10X-32Q2CNxx provides robust connections for leading edge 100Gb/s systems. Passive copper cables require no additional power to ensure quality connectivity. The 100Gb/s passive copper cables are fully compliant with SFF-8436 specification and provide connectivity between devices using QSFP28 ports. ETU-LINK's CAB-ZQP/2ZQP-PXM fills the need for short, cost-effective connectivity in the data center.

ETU-LINK's high-quality solutions provide a power-efficient replacement for active power connectivity such as fiber optic cables for short distances. Optimizing systems to operate with ETU-LINK's CAB-ZQP/2ZQP-PXM significantly reduces power consumption and EMI emission.

The Low Smoke Zero Halogen (LSZH) design fully complies with the European Union Restriction of Hazardous Substances (RoHS) directive and similar North American safety and environmental standards.

## Recommended Operation Condition

Parameter	Symbol	Min	Max	Unit
Operating Case Temperature	Topc	0	70	degC
Storage Temperature	Tst	-40	125	degC
Relative Humidity (non-condensation)	RS	-	85	%
Supply Voltage	VCC3	3.135	3.465	V
Voltage on LVTTTL Input	Vilvttl	-0.3	VCC3 +0.2	V
Power Supply Current	ICC3	0.001	-	mA
Total Power Consumption	Pd	-	0.003	W

### Notes:

Stress or conditions exceed the above range may cause permanent damage to the device.

This is a stress rating only and functional operation of the device at these or any other conditions above those listed in the operational sections of this specification is not applied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

### Frequency Domain

## Frequency Domain

Item	Test Parameter	IEEE802.3bj Specification
1	Differential Insertion Loss (SDD12)	Maximum insertion loss at 12.8906Ghz -22.48dB Minimum insertion loss at 12.8906Ghz -8dB
2	Differential Insertion Loss (SDD21)	Maximum insertion loss at 12.8906Ghz -22.48dB Minimum insertion loss at 12.8906Ghz -8dB
3	Differential Return Loss (SDD22)	-16.5+2xSQRT(f) @ 0.01 to 4.1GHz -10.66+14xLog10(f/5.5) @4.1 to 19GHz
4	Differential Return Loss (SDD11)	-16.5+2xSQRT(f) @ 0.01 to 4.1GHz -10.66+14xLog10(f/5.5) @4.1 to 19GHz
5	Common Mode Reflection (SCC22)	-2dB @ 0.01 to 19GHz
6	Common Mode Reflection (SCC11)	-2dB @ 0.01 to 19GHz
7	Common Mode Conversion (SCD22)	-22+(20/25.78)*(f) @ 0.01 to 12.89GHz -15+(6/25.78)*(f) @ 12.9 to 19GHz
8	Common Mode Conversion (SCD11)	-22+(20/25.78)*(f) @ 0.01 to 12.89GHz -15+(6/25.78)*(f) @ 12.9 to 19GHz

## Time Domain

Item	Test Parameter	Specification (Proposal )
1	Intra-Skew*	
	1M	20ps Max
	1.5M~2M	25ps Max
2	2.5M~3M	30ps Max
	Impedance	100 +/- 10 Ohm
Rise time: 14ps (20%~80%)		
3	Insertion Loss* (SDD21)for 1M	a) 0.6GHz : -2.09 dB Max
		b) 1.25GHz : -2.88 dB Max
		c) 2.50GHz : -3.69 dB Max
		d) 3.25GHz : -4.72 dB Max
		e) 5.0GHz : -5.82 dB Max
3	Insertion Loss* (SDD21) for 1.5M	a) 0.6GHz : -2.10 dB Max
		b) 1.25GHz : -3.24 dB Max
		c) 2.50GHz : -5.65 dB Max
		d) 3.25GHz : -5.99 dB Max
		e) 5.0GHz : -6.90 dB Max
3	Insertion Loss* (SDD21) for 2M	a) 0.6GHz : -2.28 dB Max
		b) 1.25GHz : -3.76 dB Max
		c) 2.50GHz : -5.08 dB Max
		d) 3.25GHz : -6.74dB Max
		e) 5.0GHz : -8.14 dB Max
3	Insertion Loss* (SDD21) for 2.5M	a) 0.6GHz : -2.53 dB Max
		b) 1.25GHz : -4.35 dB Max
		c) 2.50GHz : -5.93 dB Max
		d) 3.25GHz : -7.90dB Max
		e) 5.0GHz : -9.45 dB Max
3	Insertion Loss* (SDD21) for 3M	a) 0.6GHz : -2.77 dB Max
		b) 1.25GHz : -4.79 dB Max
		c) 2.50GHz : -6.94 dB Max
		d) 3.25GHz : -8.73 dB Max
		e) 5.0GHz : -10.58 dB Max

## Pin Descriptions

38	GND
37	TX1n
36	TX1p
35	GND
34	TX3n
33	TX3p
32	GND
31	LPMODE
30	Vcc1
29	VccTx
28	IntL
27	ModPrsL
26	GND
25	RX4p
24	RX4n
23	GND
22	RX2p
21	RX2n
20	GND

Top Side  
Viewed from Top

Card Edge

	GND	1
	TX2n	2
	TX2p	3
	GND	4
	TX4n	5
	TX4p	6
	GND	7
	ModSelL	8
	ResetL	9
	VccRx	10
	SCL	11
	SDA	12
	GND	13
	RX3p	14
	RX3n	15
	GND	16
	RX1p	17
	RX1n	18
	GND	19

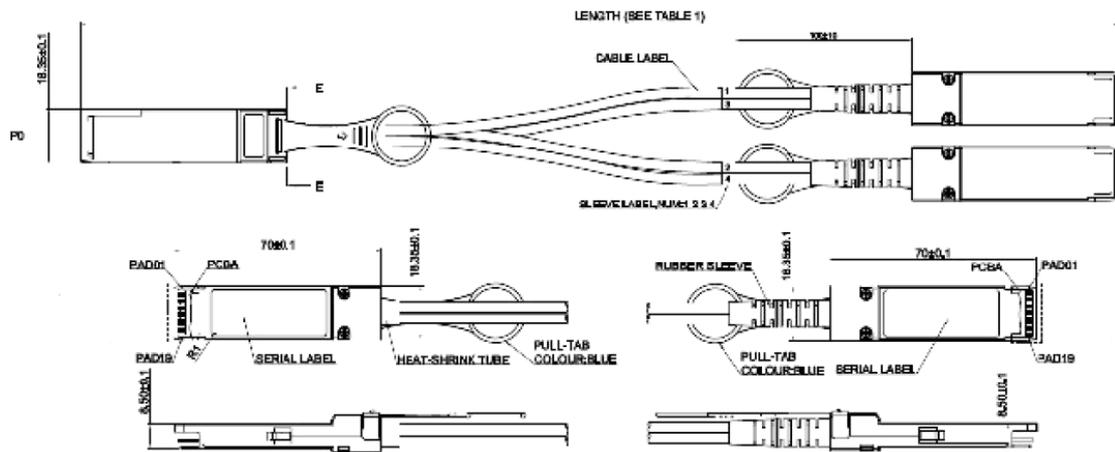
Bottom Side  
Viewed from Bottom

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. GND is the symbol for signal and supply (power) common for QSFP modules. All are common within the QSFP module and all module voltages are referenced to this potential otherwise noted. Connect these directly to the host board signal common ground plane
2. Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a Maximum current of 500mA.

## Mechanical Dimensions



## Order Information

### 100G QSFP28 to 2x 50G QSFP28 Copper Breakout Cable Assemblies, Passive

Length	Data Rate	P/N	AWG	Length Tolerance
1m	100G	CAB-ZQP/2ZQP-P1M	/ 28 30	+0.1/-0.0m
1.5M	100G	CAB-ZQP/2ZQP-P1.5M	/ 28 30	+0.1/-0.0m
2M	100G	CAB-ZQP/2ZQP-P2M	/ 28 30	+0.1/-0.0m
2.5M	100G	CAB-ZQP/2ZQP-P2.5M	/ 28 30	+0.1/-0.0m
3M	100G	CAB-ZQP/2ZQP-P3M	/ 28 /	+0.3/-0.3m

## 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**



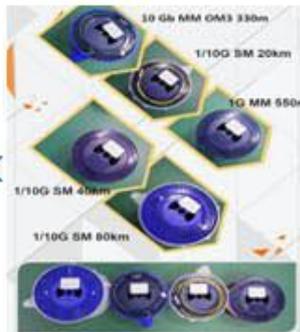
**Professional  
Welding**



**Assembling**



**Aging Testing**



**Distance Testing**



**Cleaning end face**



**Product Initial Test**



**Switch Testing**



**Product Final Test**

## Packaging

Individual package.



Company: ETU-Link Technology Co., LTD

Address: 4th Floor, C Building, JinBoLong Industrial Park, QingQuan Road, LongHua District, Shenzhen city, GuangDong

Tel: +86-755 2328 4603

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.