

40G QSFP+ to QSFP+ Direct Attach Cable Specification

HTDC-QQA4-xx01MB

Feature

- ◆ Low insertion loss and crosstalk
- ◆ Up to 10.3125Gbps data rate per channel
- ◆ Power Supply: +3.3V
- ◆ Operating Temperature: 0~70°C
- ◆ RoHS Compliant
- ◆ Round, plenum-rated (OFNP) and riser-rated (OFNR), low smoke zero halogen (LSZH) cables
- ◆ Up to 7m transmission
- ◆ Compatible to SFF-8436

Applications

- ◆ Data center network
- ◆ 40 Gigabit Ethernet
- ◆ Other high speed data connections

Standards

- ◆ IEEE P802.3ba 40GBASE-CR4
- ◆ SFF-8436

Description

The Hirundo ' s HTDC-QQA4-xx01MB QSFP+ passive cable assemblies are high performance, cost effective I/O solutions for 40G LAN, HPC and SAN applications. The QSFP+ passive copper cables are compliant with SFF-8436, QSFP+ MSA and IEEE P802.3ba 40GBASE-CR4. It is offer a low power consumption, short reach interconnect applications. The cable each lane is capable of transmitting data at rates up to 10Gb/s, providing an aggregated rate of 40Gb/s.

1. Ordering Information

Table 1.1 Ordering Information

Part No.	Specifications						Application
	Package	Data rate	Wire gauge	Cable lengthr	Temp	Others	
HTDC-QQA4-xx01MB ^[1]	QSFP+	4X10.31Gbps	30 to 26 AWG	up to 7m	0~70 °C	RoHS	40G Base CR4
PN	HTDC-QQA4-xx01MB ^[1]						
Description	40G QSFP+ to QSFP+ Direct Attach Cable,30 to 24 AWG, up to 7m, 0-70°C						
SAP No	-						
Customer PN	-						

Notes:

1. Refer to Chapter 7 Ordering Information

2. Revision History

Table 2.1 Revision History

Version	Initiated	Reviewed	Approved	Date
V1.0	Leo	Virgil	LiuSJ	2020-12-30

3. Absolute Maximum Ratings

Table 3.1 Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	Ts	°C	-40	+85
Operating Temperature	T	°C	0	+70
Power Supply Voltage	Vcc	V	-	3.47
Data Rate Per Lane (Per channel)		Gbps		10.3125

4. High Speed Characteristics

Table 4.1 High Speed Specifications

Parameter	Symbol	Min	Typ	Max	Units	Notes
Reference Differential Input Impedance	Zd	90	100	110	Ω	
Termination Mismatch	ΔZM			5	%	
Input AC Common Mode Voltage				25	mV(RMS)	
Differential Input Return Loss	SDD11	SDD11(dB)<-12+2*SQRT(f)			dB	0.01~4.1GHz
		SDD11(dB)<-6.3+13Log10(f/5.5)			dB	4.1~11.1GHz
Differential to Common Mode Loss	SDD11			-10	dB	0.01~11.1GHz
Jitter Tolerance (Total)	TJ			0.4	UI	
Jitter Tolerance (Deterministic)	DJ			0.15	UI	

5. Pin Assignment and Pin Description

5.1 Pin Assignment

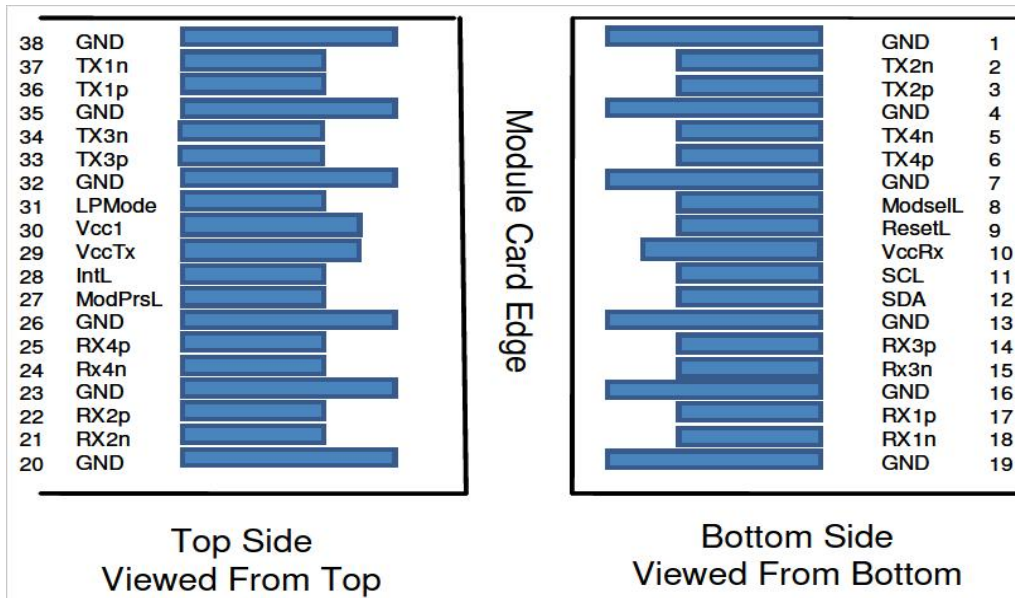


Figure 1 Electrical Pin-out Details

5.2 Pin Description

Table 5.1 Pin Description

Pin	Symbol	Name/Description	Note
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSe1L	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	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrSL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power Supply	
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

Notes:

1. GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal common ground plane. Circuit ground is internally isolated from chassis ground.

6. Mechanical Specifications

The connector is compatible with the SFF-8436 specification.

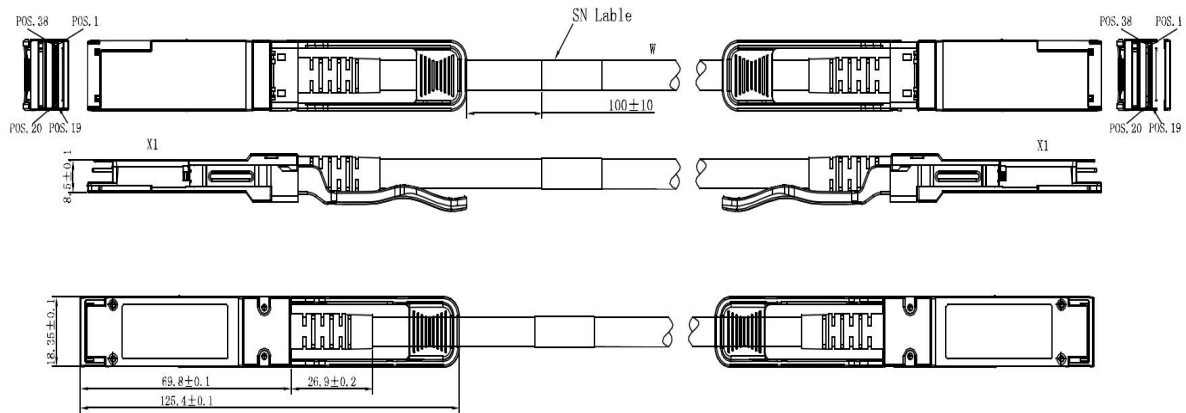


Figure 2 Mechanical Dimensions

Table 6.1 Length and related Cable AWG

Length (m)	Cable AWG
1	30
2	30
3	30
4	26
5	26
6	26
7	26

7. Ordering Information:

Table 7.1 Ordering Information

Part Number	Description
HTDC-QQA4-3001MB	40G QSFP+ 1m 30AWG DAC Cable
HTDC-QQA4-3002MB	40G QSFP+ 2m 30AWG DAC Cable
HTDC-QQA4-3003MB	40G QSFP+ 3m 30AWG DAC Cable
HTDC-QQA4-2604MB	40G QSFP+ 4m 26AWG DAC Cable
HTDC-QQA4-2605MB	40G QSFP+ 5m 26AWG DAC Cable
HTDC-QQA4-2406MB	40G QSFP+ 6m 26AWG DAC Cable
HTDC-QQA4-2407MB	40G QSFP+ 7m 26AWG DAC Cable

8. For More Information

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