

PI3USB30532 evaluation board user's manual
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1 Introduction

PI3USB30532 type-C switch is for type-C application with the working modes of USB3, DP or USB3 + DPx2 as specified in type-C (DP) specs.

PI3USB30532 has high speed switch channels but does not have internal sensing control circuits. Therefore, PI3USB30532 needs to be working together with a PD controller.

2 Overview

In order to facilitate the evaluation test, the PI3USB30532 EV board has 5 test sections 1 thru 5. Please refer to figure 1, table-1, table-2 and the configuration table below for the test setups.

Test section 1

- Needs a PD controller for the test.

Test section 2

- Mimicking the 4 lane of DP1.2 mode.
- (Test 2 does not need a PD controller)

Test section 3

- Mimicking the 4 lane of DP1.2 swap mode.
- (Test 3 does not need a PD controller)

Test section 4

- Mimicking the USB3 mode.
- (Test 4 does not need a PD controller)

Test section 5

- Mimicking the USB3 swap mode.
- (Test 5 does not need a PD controller)

Why there is no “USB3 + DPx2” test?

- “USB3 + DPx2” test will request an individual DPx2 source, which is not available in the market.

Configuration Table

Switch	Open	Open	4 lane of DP1.2	4 lane of DP1.2 Swap	USB3	USB3 Swap	USB3 +2 lane of DP1.2	USB3 +2 lane of DP1.2 Swap
Conf[2:0]	000	001	010	011	100	101	110	111
TX	x	x	x	x	TX1	TX2	TX1	TX2
RX	x	x	x	x	RX1	RX2	RX1	RX2
DP0	x	x	RX2	RX1	x	x	RX2	RX1
DP1	x	x	TX2	TX1	x	x	TX2	TX1
DP2	x	x	TX1	TX2	x	x	x	x
DP3	x	x	RX1	RX2	x	x	x	x
AUX+	x	x	SBU1	SBU2	x	x	SBU1	SBU2
AUX-	x	x	SBU2	SBU1	x	x	SBU2	SBU1

000 = switch open with power down

001 = switch open only, no power down

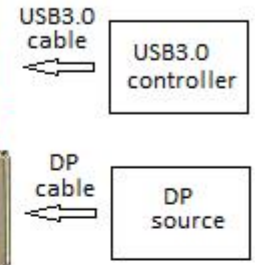
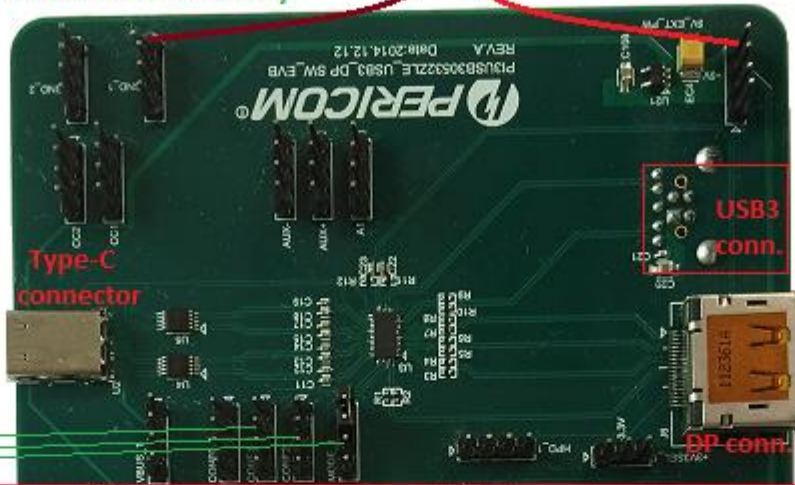
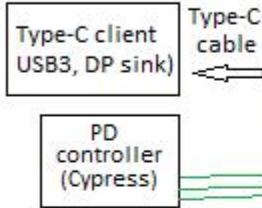
Note:

Please perform tests-1 thru test-5 individually.



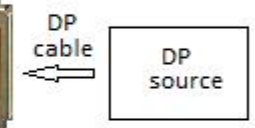
Test section 1

Test-1 needs a external PD controller to CONFIG1, 2, 3 pins



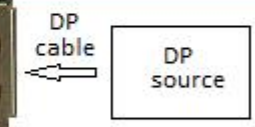
Test section 2

DPx4 non-flip test
CONF[2:0] = 010



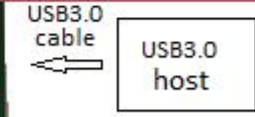
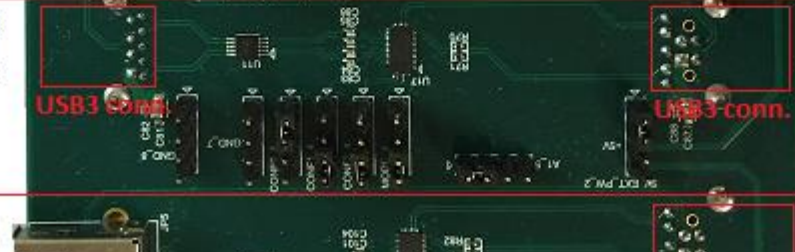
Test section 3

DPx4 flipped test
CONF[2:0] = 011



Test section 4

USB3 non-flip test
CONF[2:0] = 100



Test section 5

USB3 flipped test
CONF[2:0] = 101

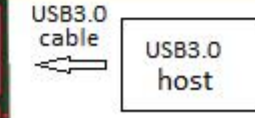


Figure 1, the test setup of test section 1 thru 5

Pin control test

	Mimicking type-C mode of:	Conf[2:0]	Mode (pin)	Remark
Test section 1	→	→	→	Refer to the spec of the PD controller used for the tests
Test section 2	4 lane of DP1.2	010	0	
Test section 3	4 lane of DP1.2 swap	011	0	
Test section 4	USB3	100	0	
Test section 5	USB3 swap	101	0	

Table-1, the settings of pin control tests

I2C control test

	Mimicking type-C mode of:	Conf[2:0]	Mode (pin)	Remark
Test section 1	→	→	→	Refer to the spec of the PD controller used for the tests
Test section 2	4 lane of DP1.2	110	1	With 4.7K to 3.3V, Conf1 to SCL and Conf2 to SDA
Test section 3	4 lane of DP1.2 swap	110	1	With 4.7K to 3.3V, Conf1 to SCL and Conf2 to SDA
Test section 4	USB3	110	1	With 4.7K to 3.3V, Conf1 to SCL and Conf2 to SDA
Test section 5	USB3 swap	110	1	With 4.7K to 3.3V, Conf1 to SCL and Conf2 to SDA

Table-2, the settings of I2C control tests

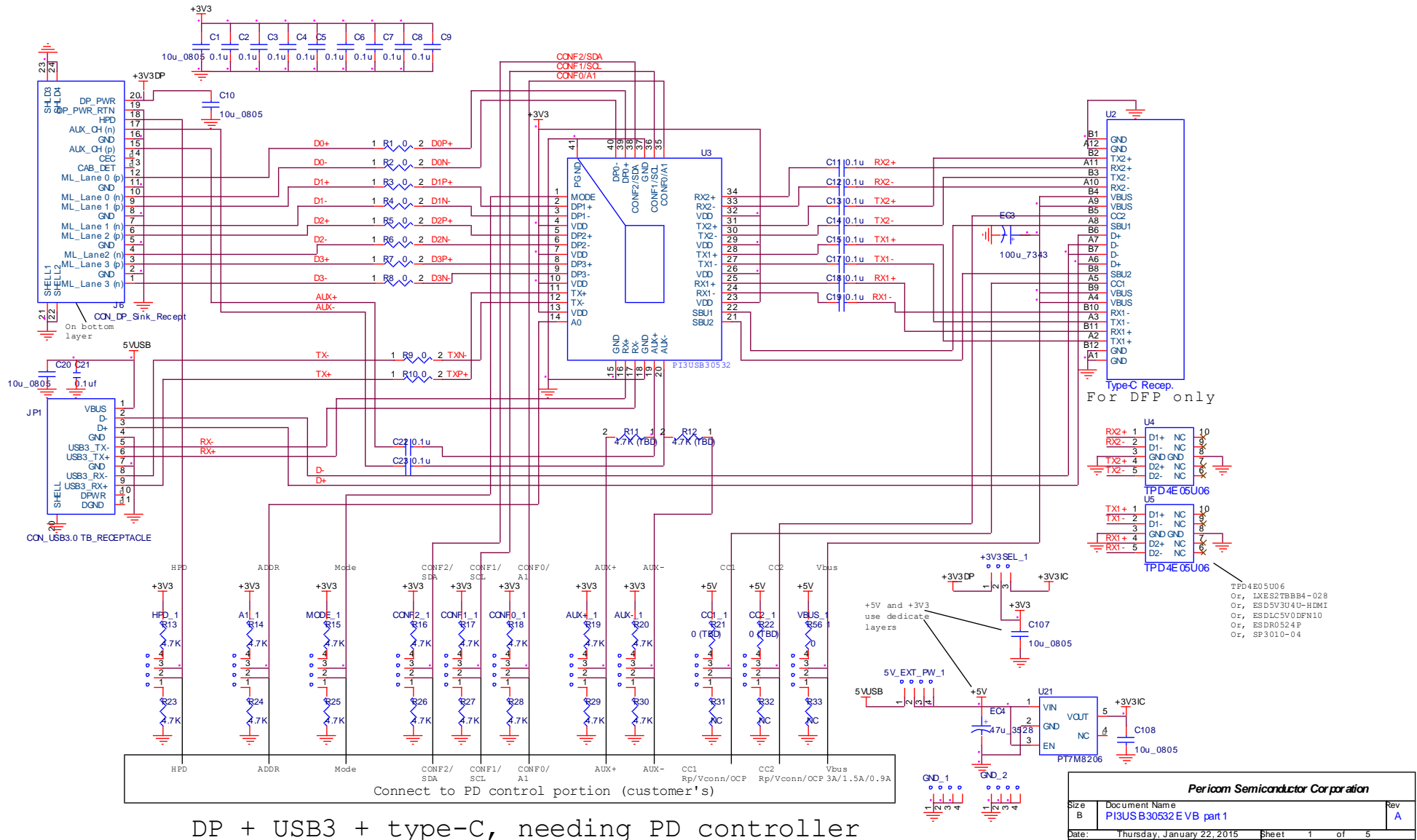
3 Quick Start

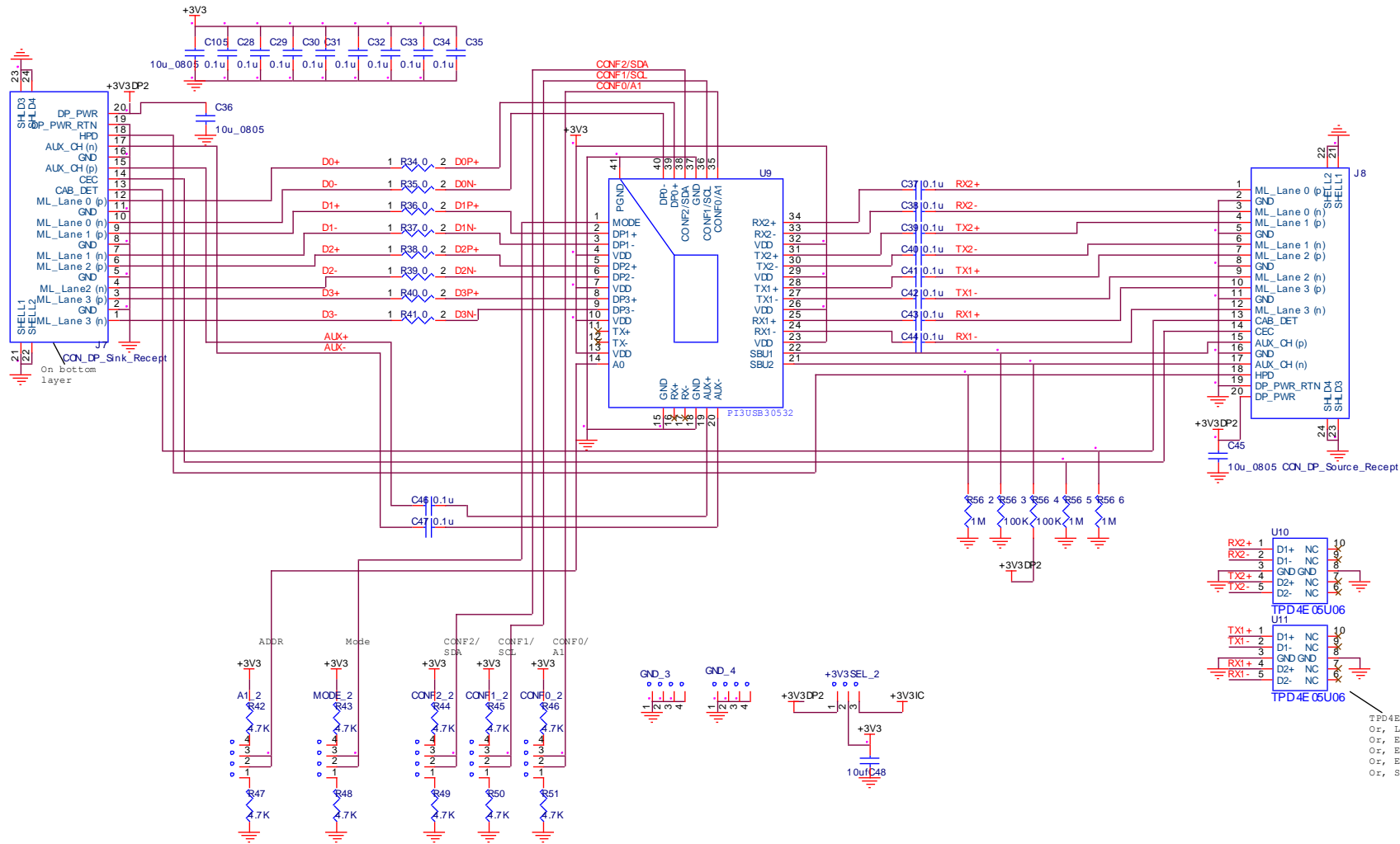
To start-up the PI3USB30532 evaluation tests:

1. Refer to figure-1, table-1 and table-2 for the settings of each test.
2. Connect 5V power supply as in figure 1 for all the tests.
3. Setup as in figure 1 for each individual test and individually perform the tests 1 thru 5.

Appendix 1

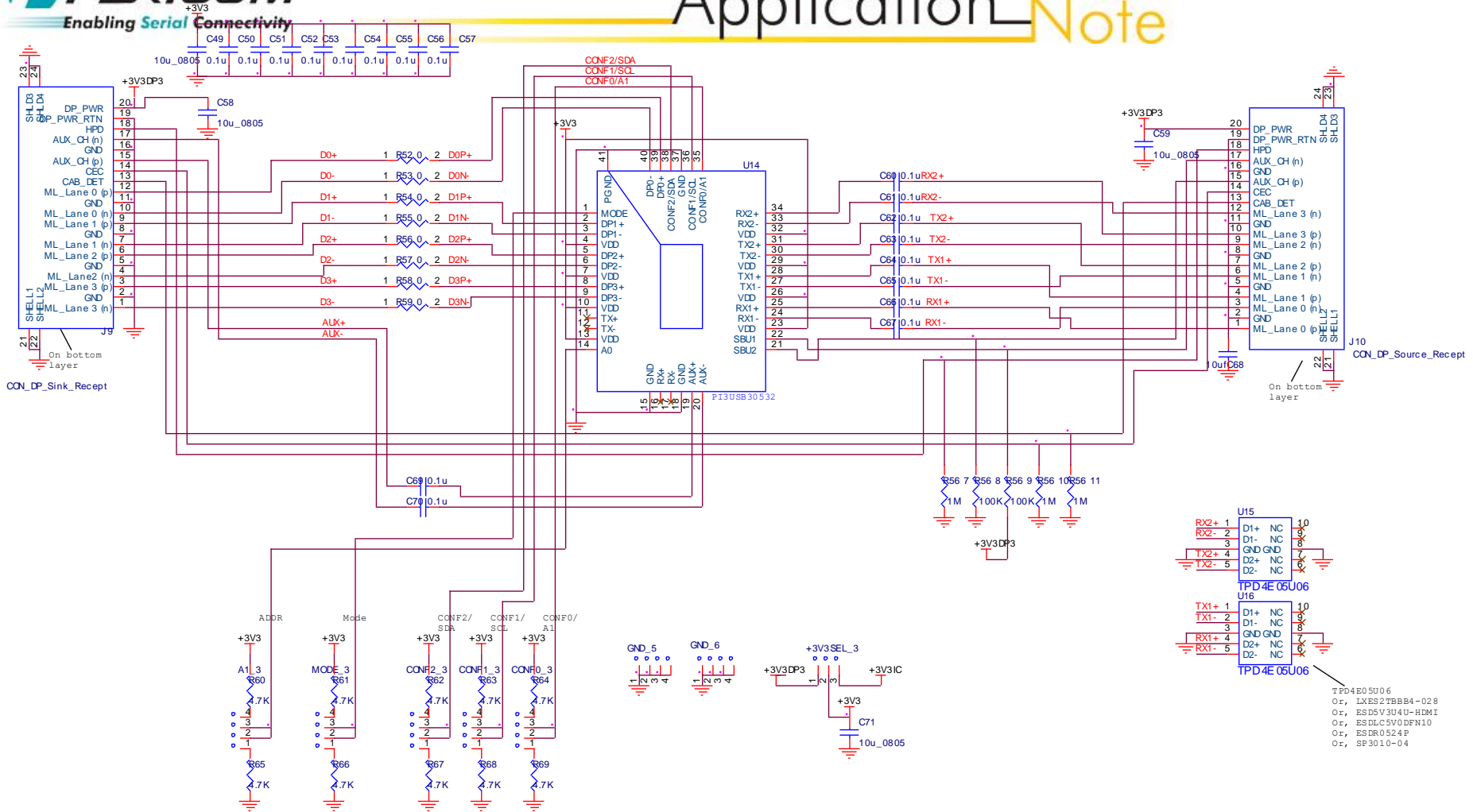
The schematics of test section 1 to test section 5





DP x4 only, non-flip connection test

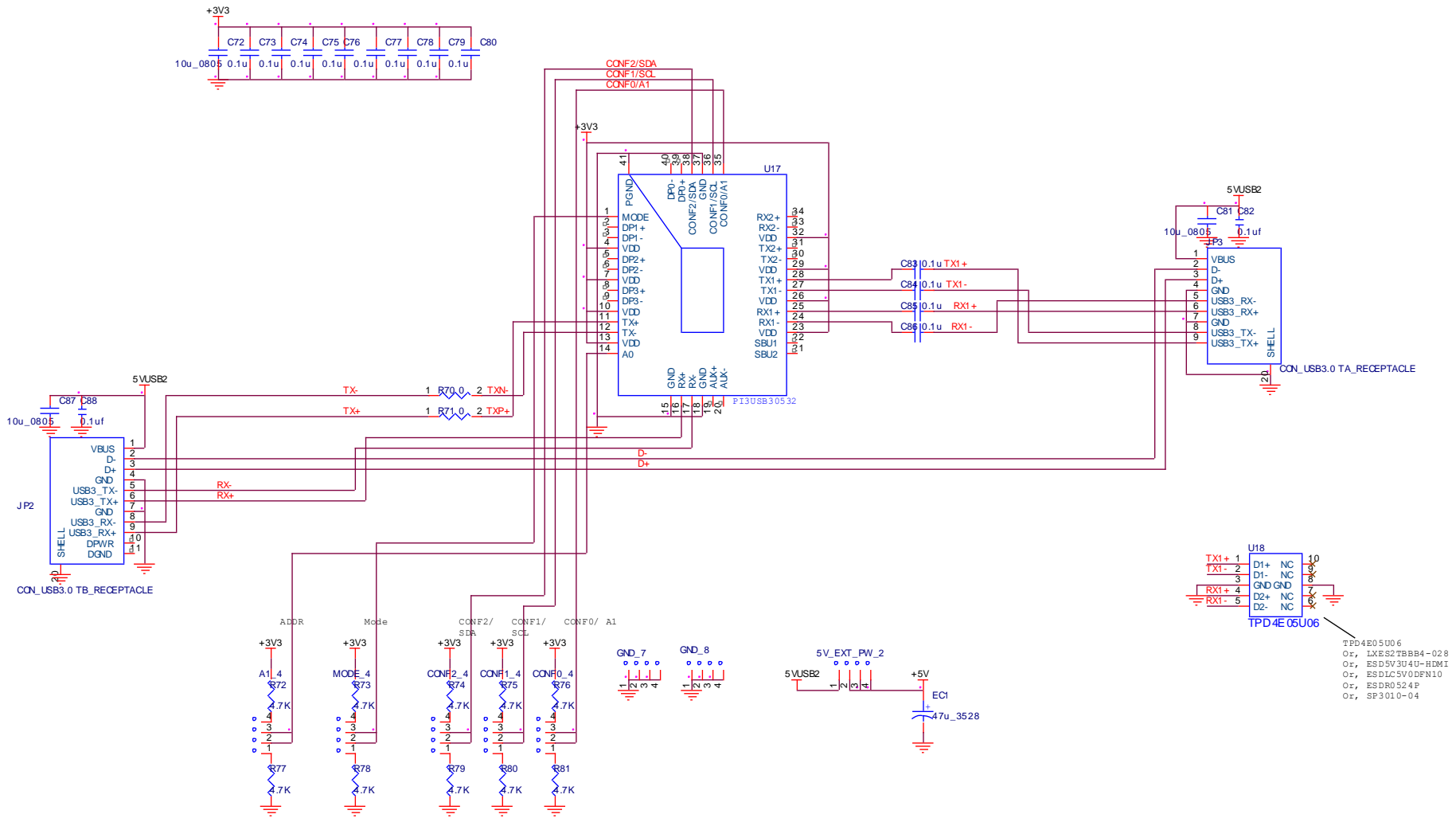
Pericom Semiconductor Corporation		
Size	Document Name	Rev
B	PI3USB30532 EVB part 2	A
Date:	Thursday, January 22, 2015	Sheet 2 of 5



DP x4 only, flipped connection test

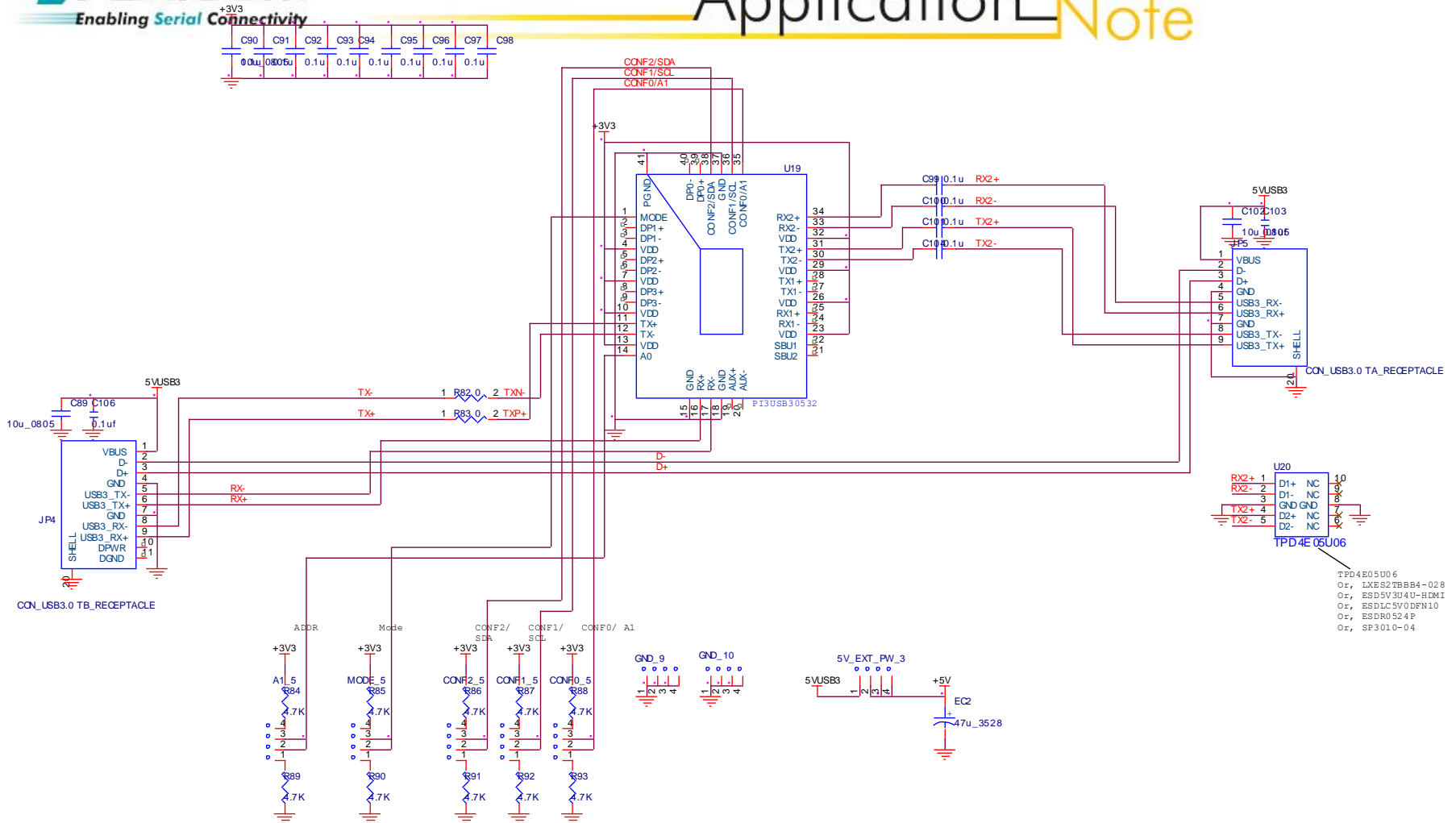
Pericom Semiconductor Corporation		
Size B	Document Name PI3USB30532 EVB part 3	Rev A
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TPD4E05U06
Or, LXES2T88B4-028
Or, ESD5V3U4U-HDMI
Or, ESDLC5V0DFN10
Or, ESDR0524P
Or, SP3010-04



USB3.0/2.0 only, non-flip connection test

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Size B	Document Name PI3USB30532 EVB part 4	Rev A
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USB3.0/2.0 only, flipped connection test

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Size B	Document Name P13USB30532 EVB part 5	Rev A
Date:	Thursday, January 22, 2015	Sheet 5 of 5