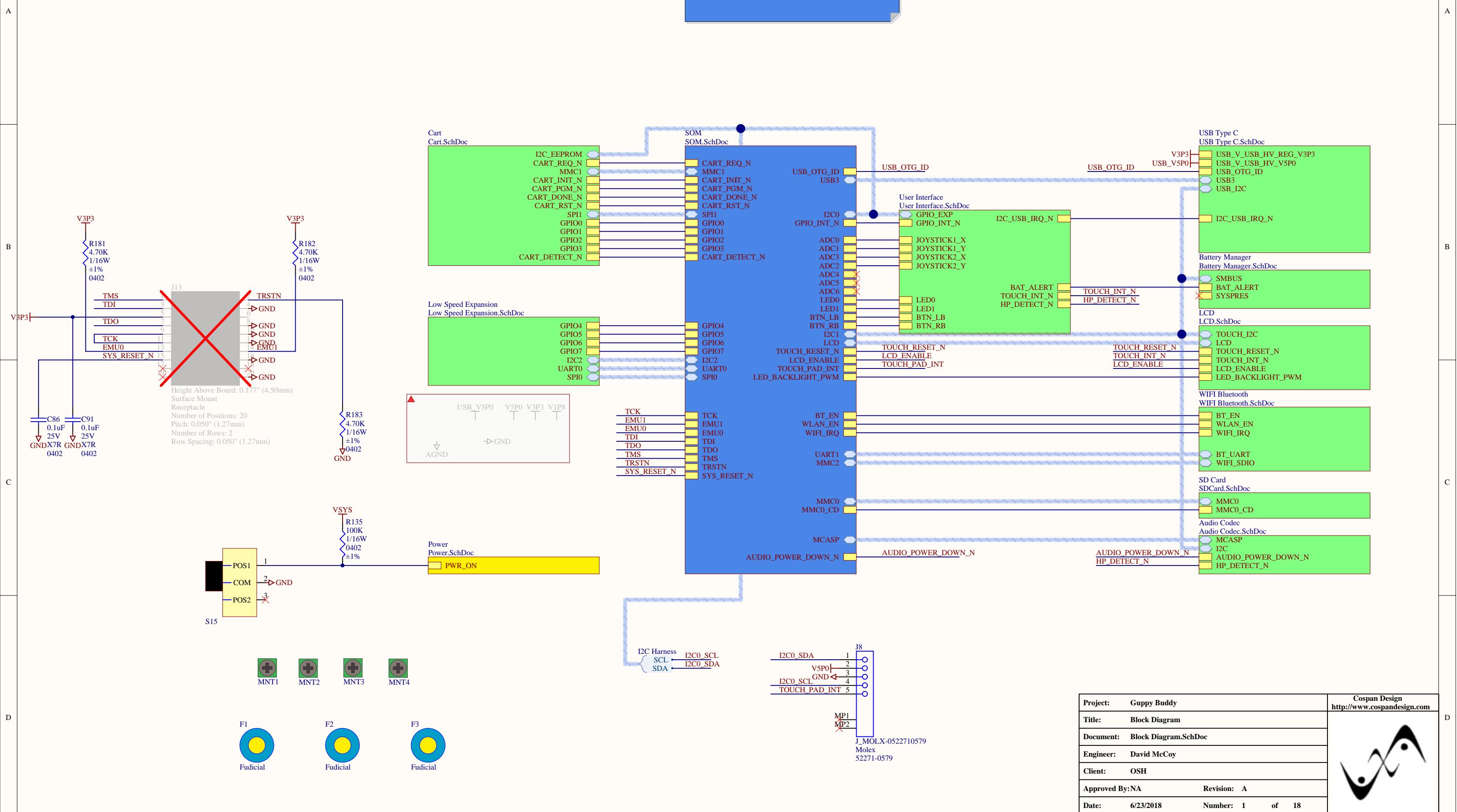
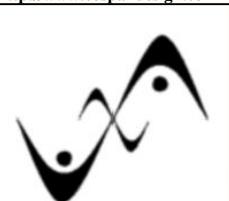
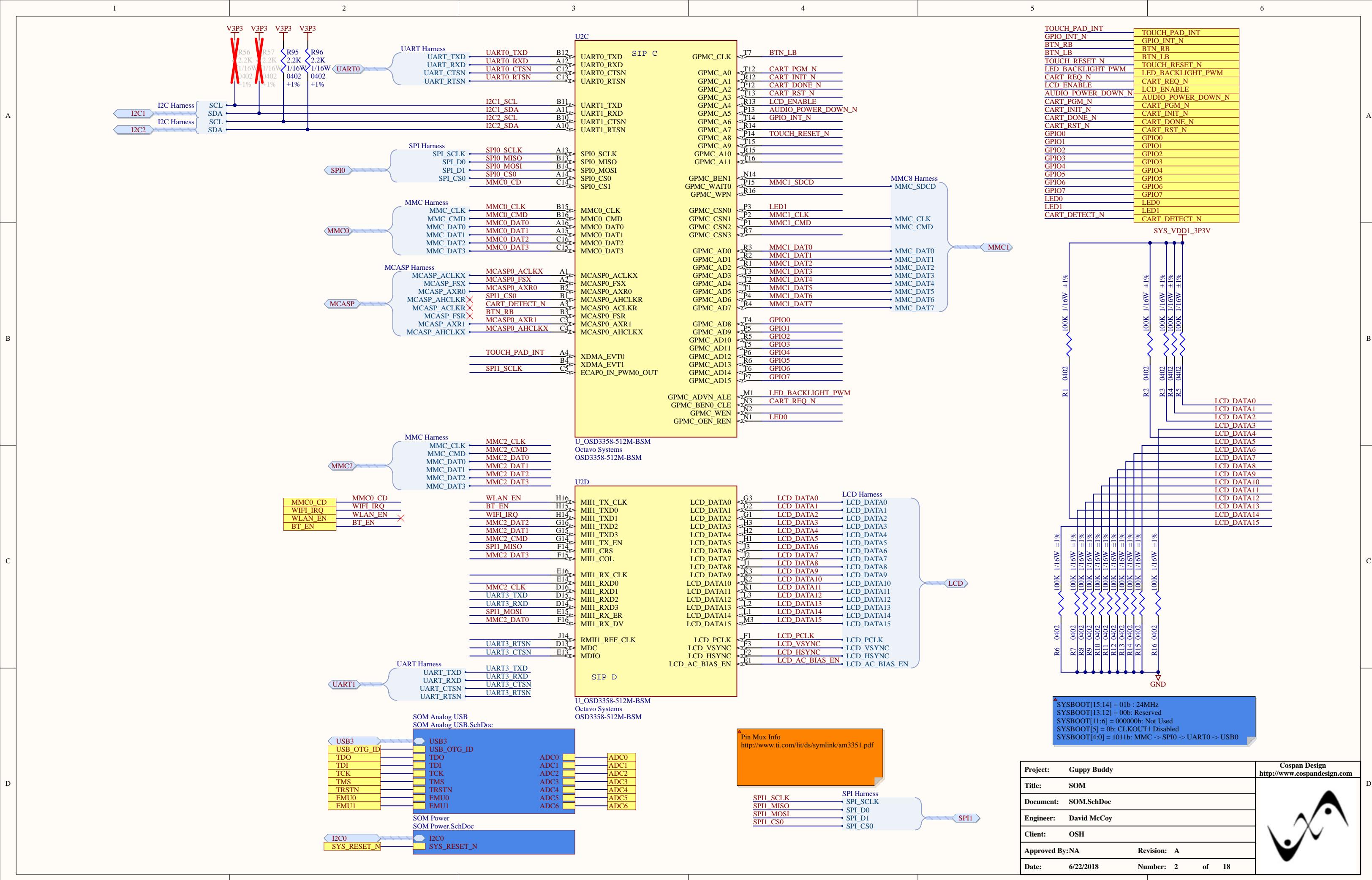


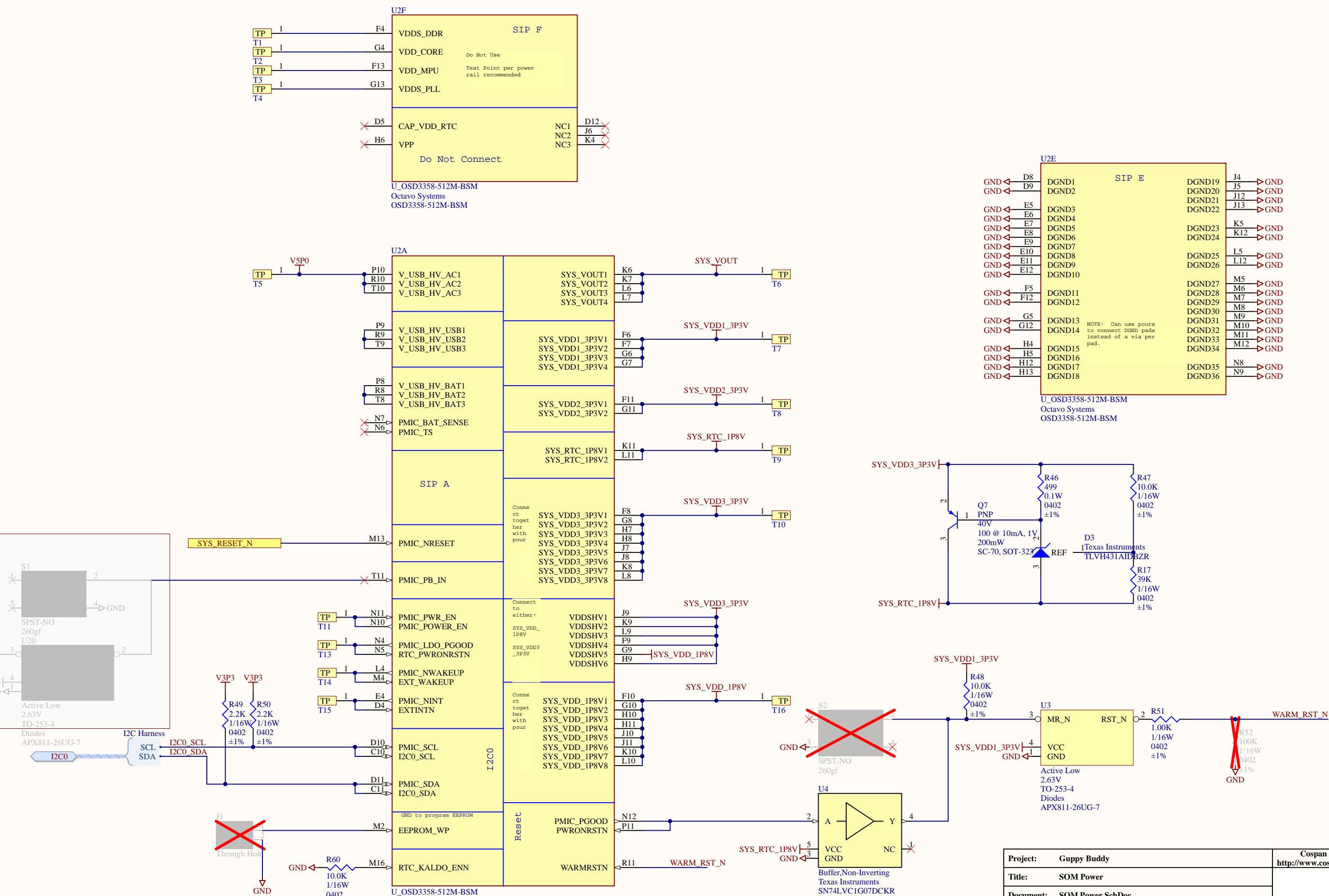
DTB Builder  
https://github.com/RobertCNelson/dtb-rebuilder



Project:	Guppy Buddy	Cospan Design http://www.cospandesign.com
Title:	Block Diagram	
Document:	Block Diagram.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	6/23/2018	Number: 1 of 18







<b>Project:</b>	<b>Guppy Buddy</b>	<b>Cospa Design</b> <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
<b>Title:</b>	<b>SOM Power</b>	
<b>Document:</b>	<b>SOM Power.SchDoc</b>	
<b>Engineer:</b>	<b>David McCoy</b>	
<b>Client:</b>	<b>OSH</b>	
<b>Approved By:</b> NA	<b>Revision:</b> A	
<b>Date:</b>	<b>7/3/2018</b>	<b>Number:</b> 3 <b>of</b> 18

A

A

B

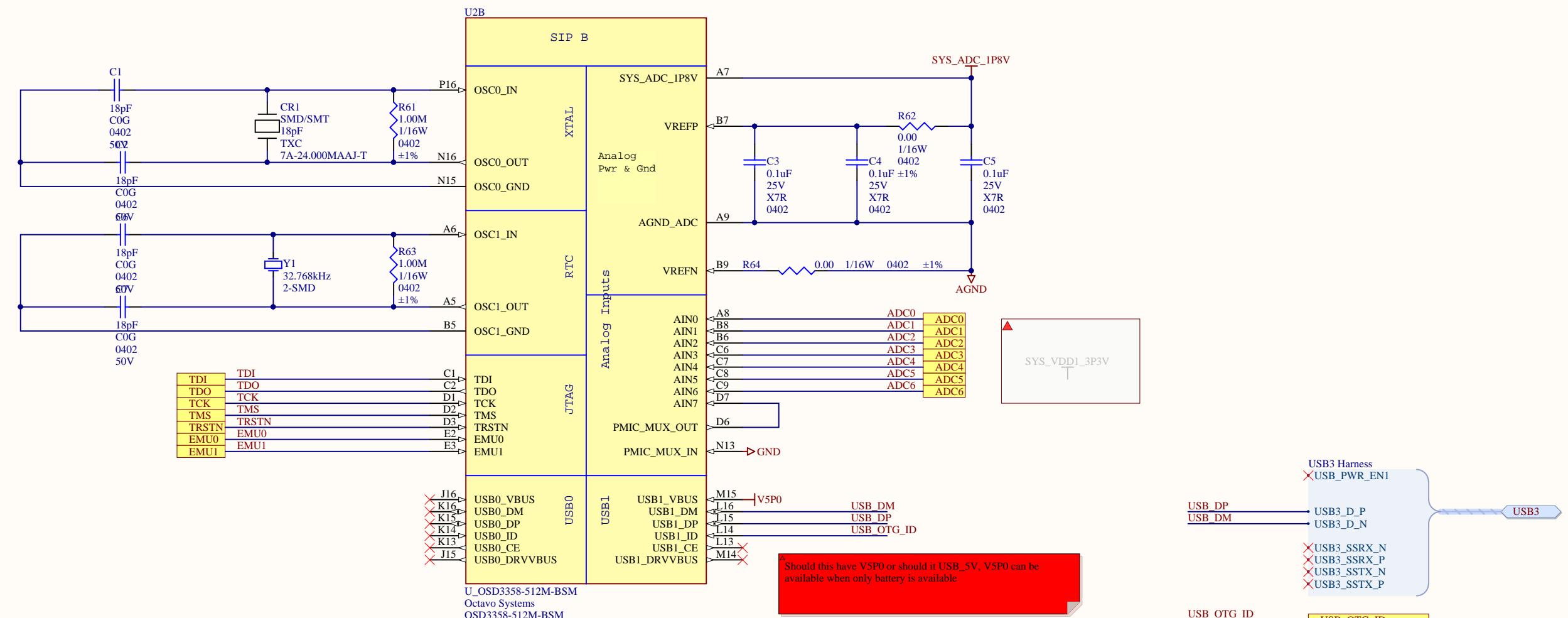
B

C

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D

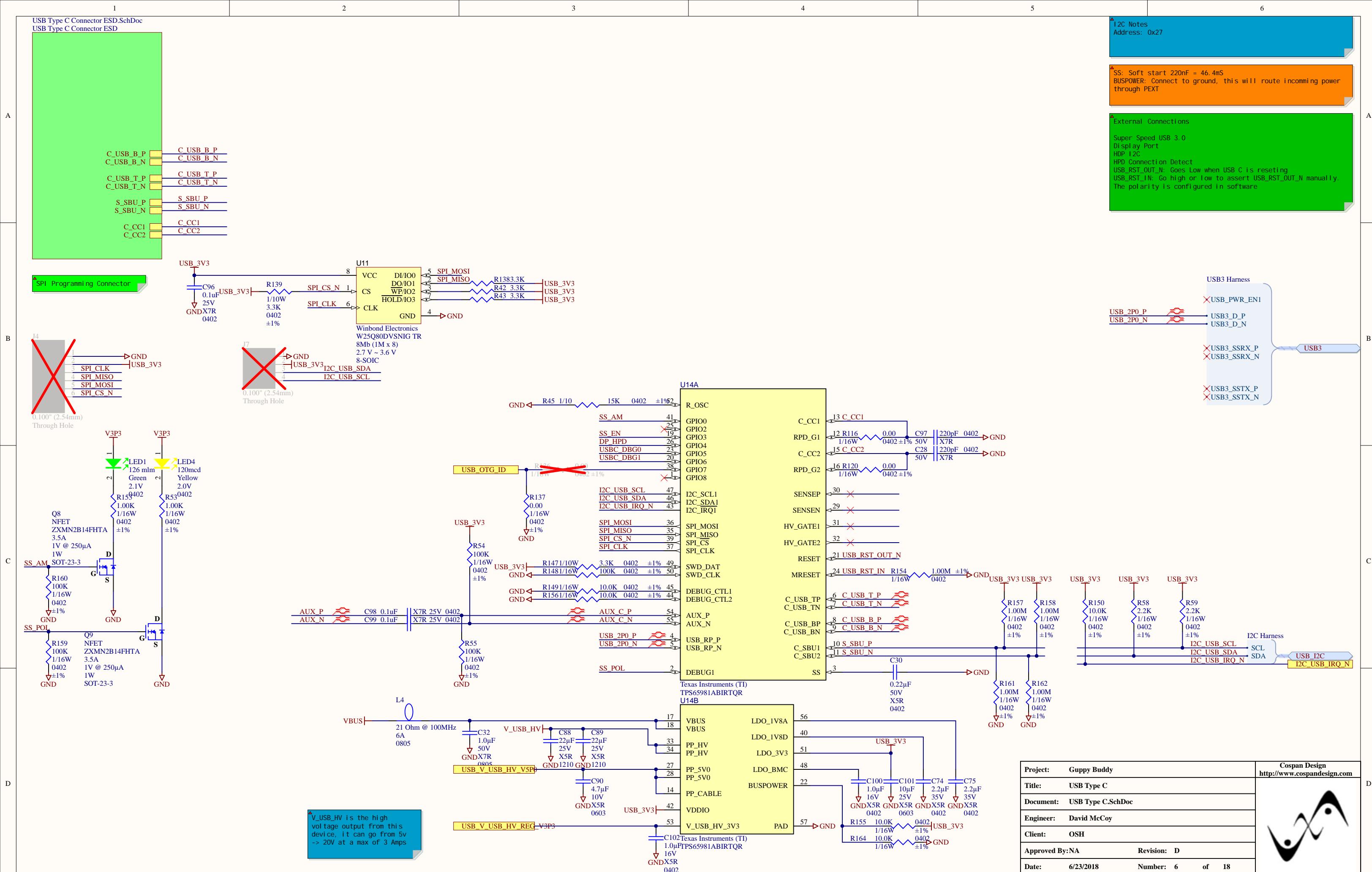


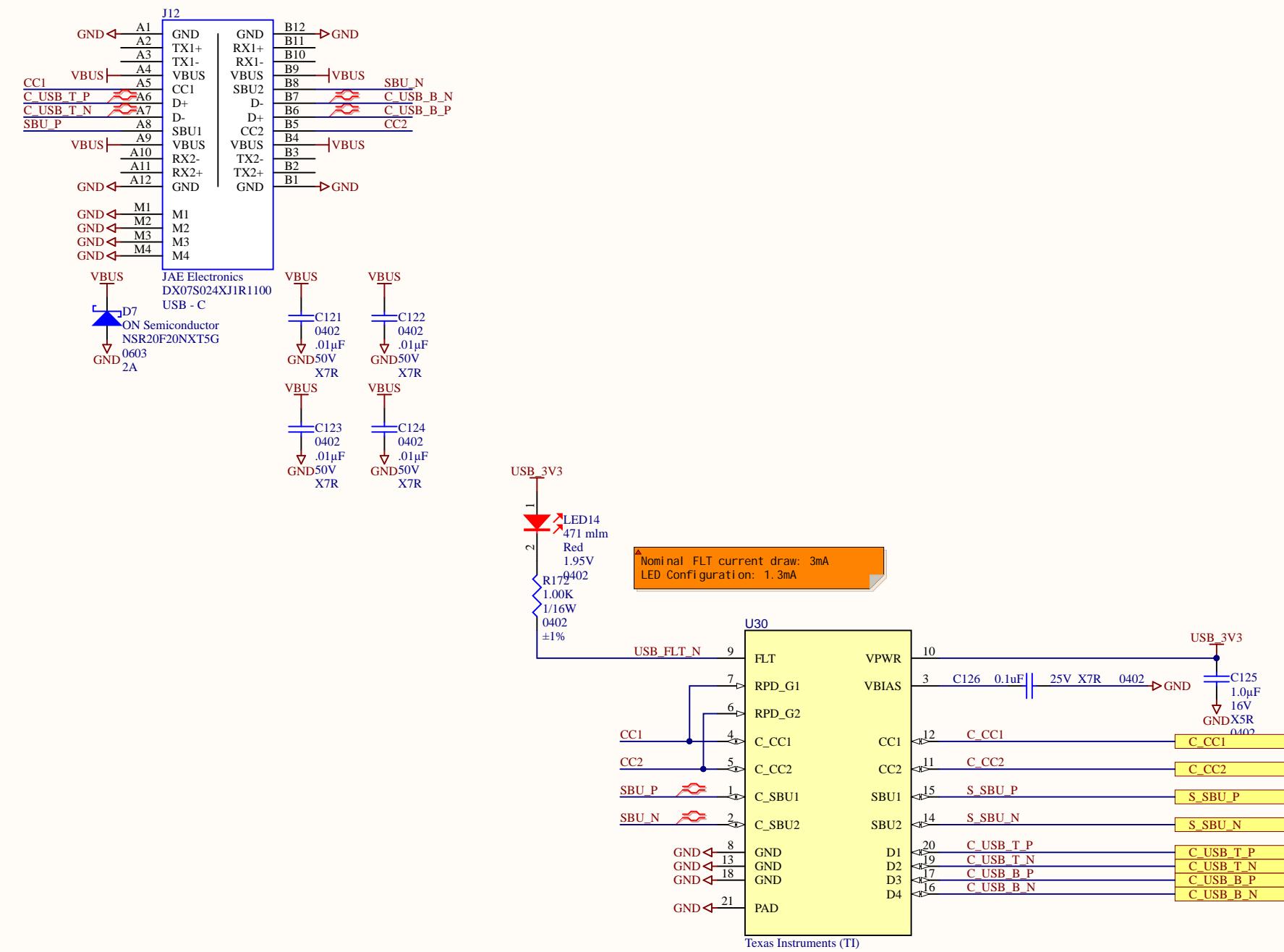
[https://octavosystems.com/app\\_notes/osd335x-design-tutorial/osd335x-lesson-2-minimal-linux-boot/osd335x-lesson-2-usb-circuitry/](https://octavosystems.com/app_notes/osd335x-design-tutorial/osd335x-lesson-2-minimal-linux-boot/osd335x-lesson-2-usb-circuitry/)

Project:	Guppy Buddy	Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Title:	SOM/Analog/USB	
Document:	SOM Analog USB.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	6/23/2018	Number: 4 of 18

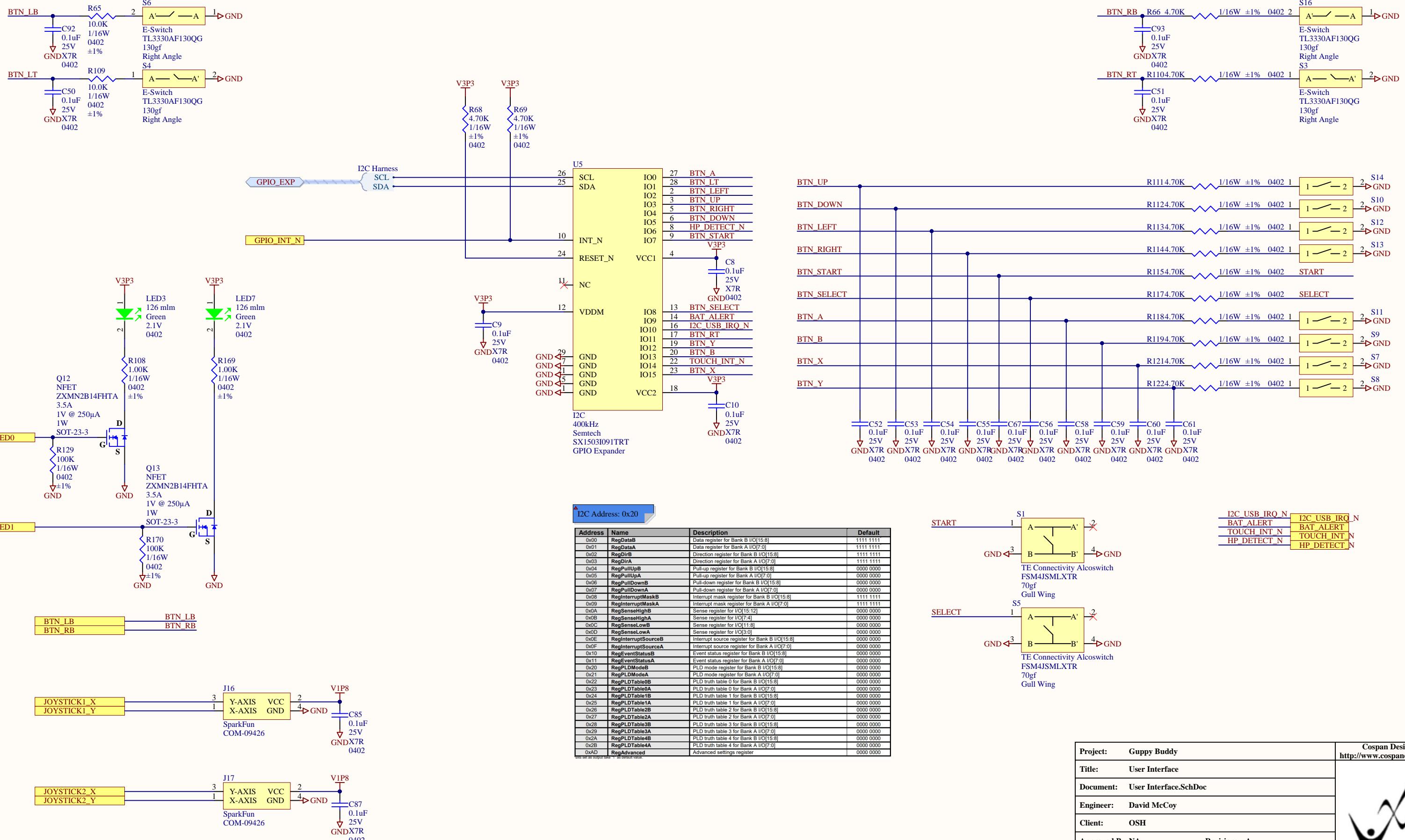






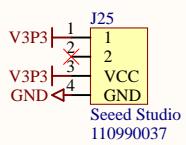
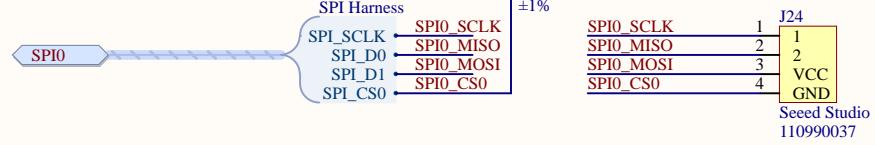
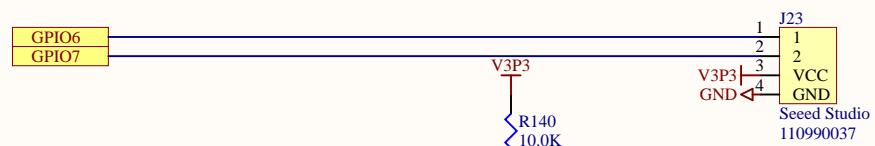
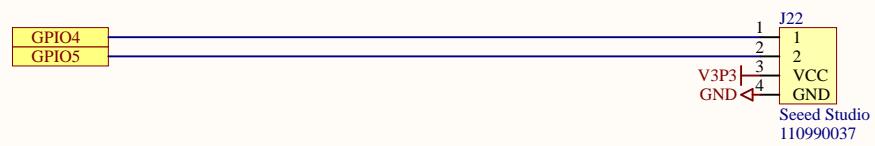
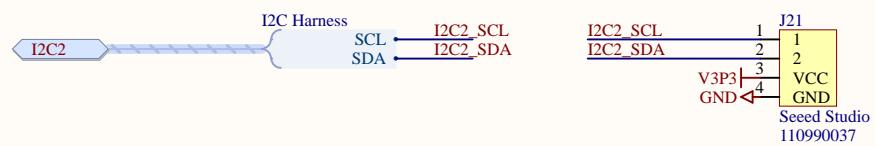
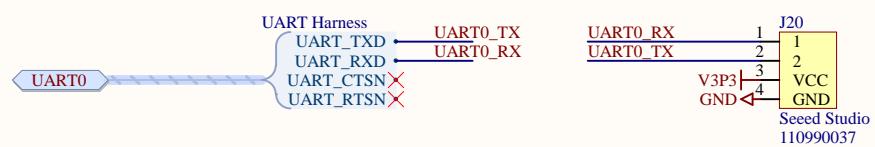


Project:	Guppy Buddy			Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>	
Title:	USB Type C Connection				
Document:	USB Type C Connector ESD.SchDoc				
Engineer:	David McCoy				
Client:	OSH				
Approved By:	NA	Revision:	D		
Date:	6/23/2018	Number:	7	of 18	



Address	Name	Description	Default
0x00	RegDataB	Data register for Bank B I/O[15:8]	1111 1111
0x01	RegDataA	Data register for Bank A I/O[7:0]	1111 1111
0x02	RegDirB	Direction register for Bank B I/O[15:8]	1111 1111
0x03	RegDirA	Direction register for Bank A I/O[7:0]	1111 1111
0x04	RegPullUpB	Pull-up register for Bank B I/O[15:8]	0000 0000
0x05	RegPullUpA	Pull-up register for Bank A I/O[7:0]	0000 0000
0x06	RegPullDownB	Pull-down register for Bank B I/O[15:8]	0000 0000
0x07	RegPullDownA	Pull-down register for Bank A I/O[7:0]	0000 0000
0x08	RegInterruptMaskB	Interrupt mask register for Bank B I/O[15:8]	1111 1111
0x09	RegInterruptMaskA	Interrupt mask register for Bank A I/O[7:0]	1111 1111
0x0A	RegSenseHighB	Sense register for I/O[15:12]	0000 0000
0x0B	RegSenseHighA	Sense register for I/O[7:4]	0000 0000
0x0C	RegSenseLowB	Sense register for I/O[11:8]	0000 0000
0x0D	RegSenseLowA	Sense register for I/O[3:0]	0000 0000
0x0E	RegInterruptSourceB	Interrupt source register for Bank B I/O[15:8]	0000 0000
0x0F	RegInterruptSourceA	Interrupt source register for Bank A I/O[7:0]	0000 0000
0x10	RegEventStatusB	Event status register for Bank B I/O[15:8]	0000 0000
0x11	RegEventStatusA	Event status register for Bank A I/O[7:0]	0000 0000
0x20	RegPLDModeB	PLD mode register for Bank B I/O[15:8]	0000 0000
0x21	RegPLDModeA	PLD mode register for Bank A I/O[7:0]	0000 0000
0x22	RegPLDTable0B	PLD truth table 0 for Bank B I/O[15:8]	0000 0000
0x23	RegPLDTable0A	PLD truth table 0 for Bank A I/O[7:0]	0000 0000
0x24	RegPLDTable1B	PLD truth table 1 for Bank B I/O[15:8]	0000 0000
0x25	RegPLDTable1A	PLD truth table 1 for Bank A I/O[7:0]	0000 0000
0x26	RegPLDTable2B	PLD truth table 2 for Bank B I/O[15:8]	0000 0000
0x27	RegPLDTable2A	PLD truth table 2 for Bank A I/O[7:0]	0000 0000
0x28	RegPLDTable3B	PLD truth table 3 for Bank B I/O[15:8]	0000 0000
0x29	RegPLDTable3A	PLD truth table 3 for Bank A I/O[7:0]	0000 0000
0x2A	RegPLDTable4B	PLD truth table 4 for Bank B I/O[15:8]	0000 0000
0x2B	RegPLDTable4A	PLD truth table 4 for Bank A I/O[7:0]	0000 0000
0x4D	RegAdvanced ..	Advanced settings register ..	0000 0000

A



Project:	Guppy Buddy	Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Title:	Low Speed Expansion	
Document:	Low Speed Expansion.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	6/22/2018	Number: 9 of 18



A

A

B

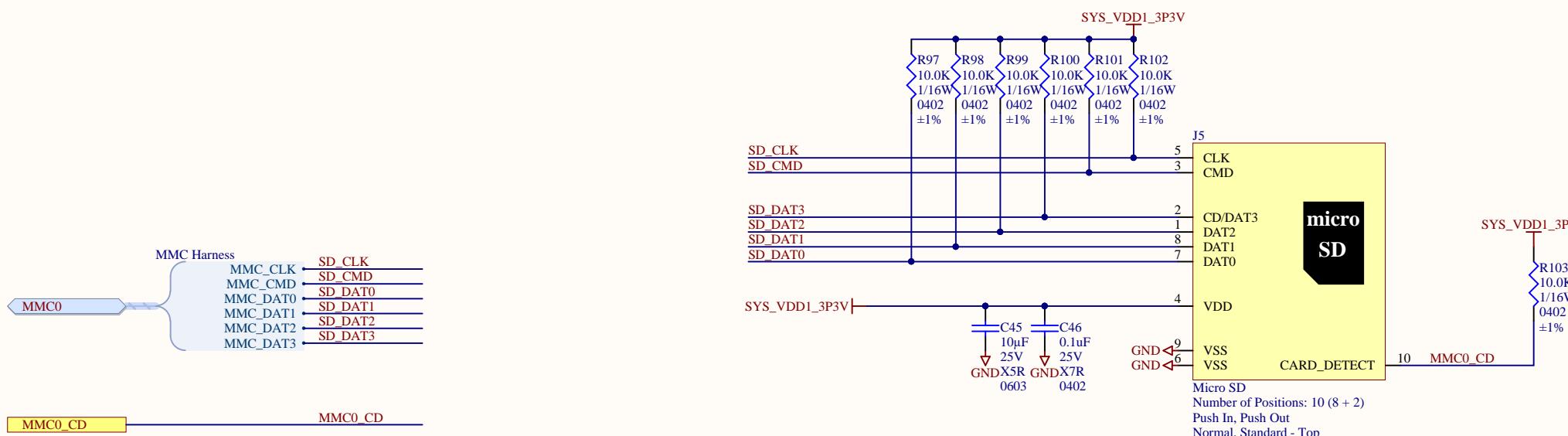
B

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D

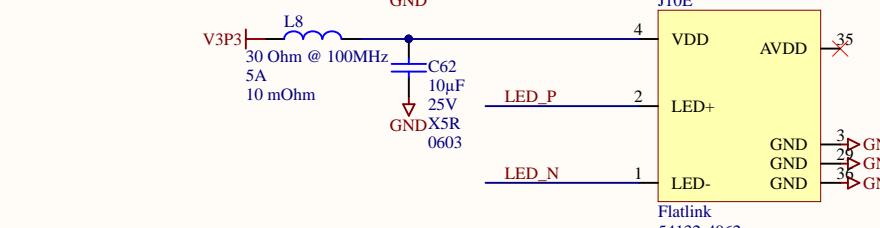
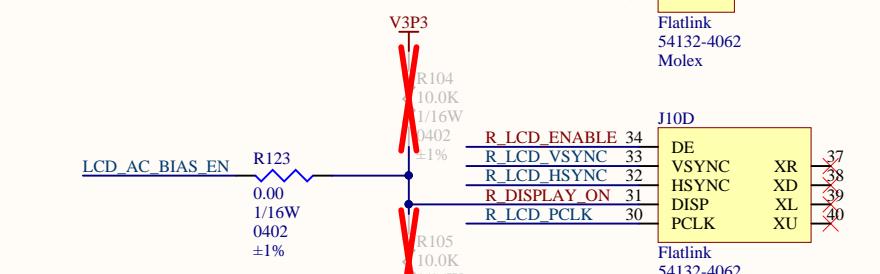
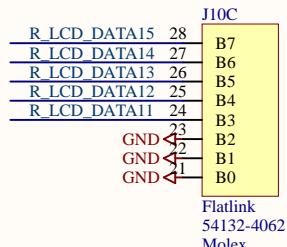
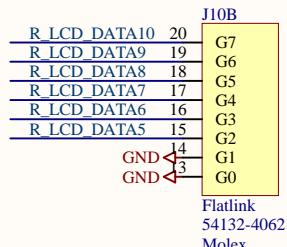
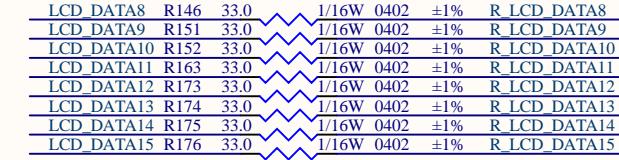
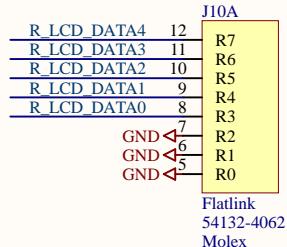


SDCARD Interface  
[https://octavosystems.com/app\\_notes/osd335x-design-tutorial/osd335x-lesson-2-minimal-linux-boot/osd335x-lesson-2-adding-non-volatile-storage/](https://octavosystems.com/app_notes/osd335x-design-tutorial/osd335x-lesson-2-minimal-linux-boot/osd335x-lesson-2-adding-non-volatile-storage/)

Project:	Guppy Buddy	Cospan Design
Title:	SD Card	<a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Document:	SDCard.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	6/23/2018	Number: 10 of 18

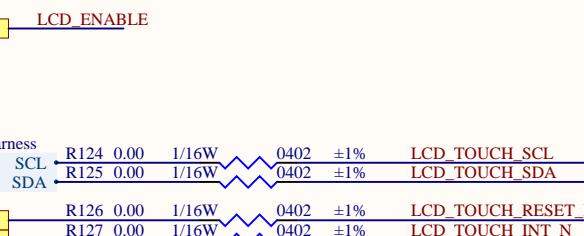
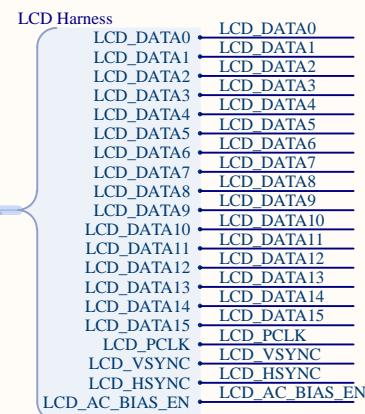
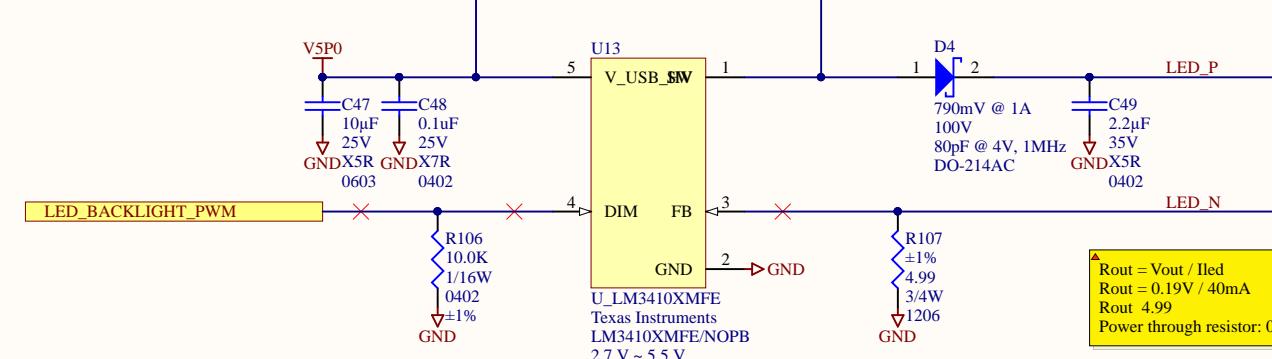
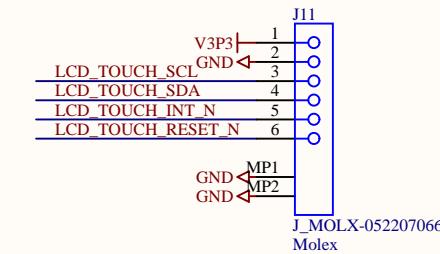
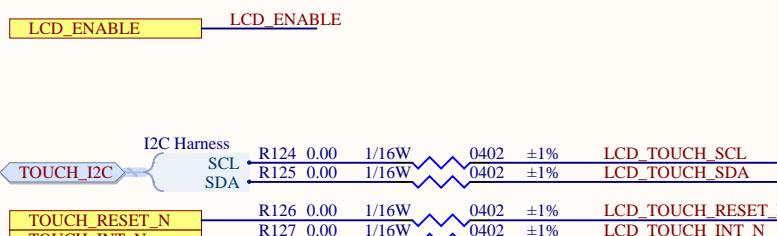
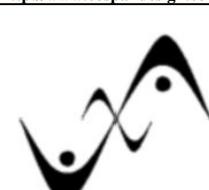


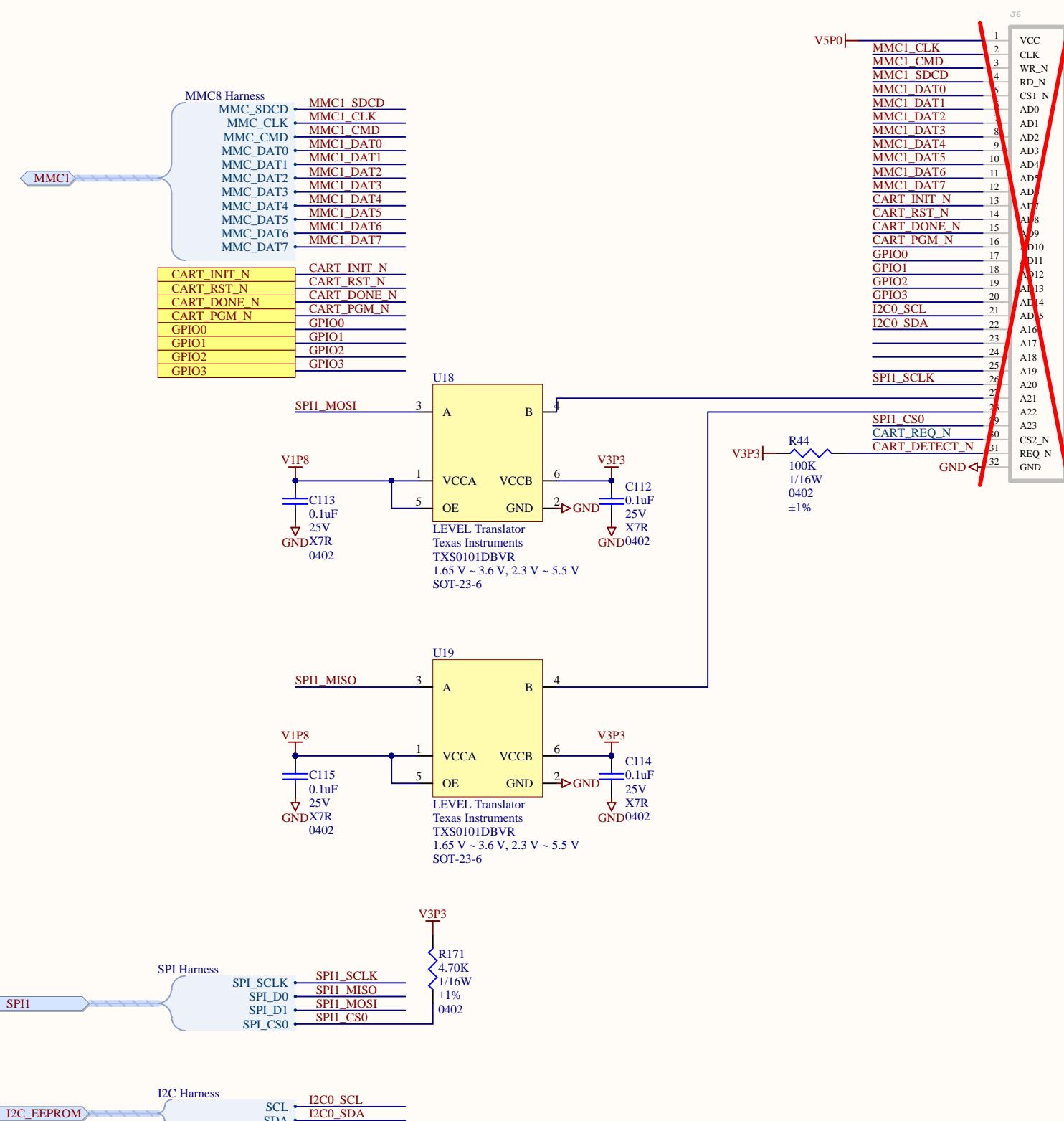
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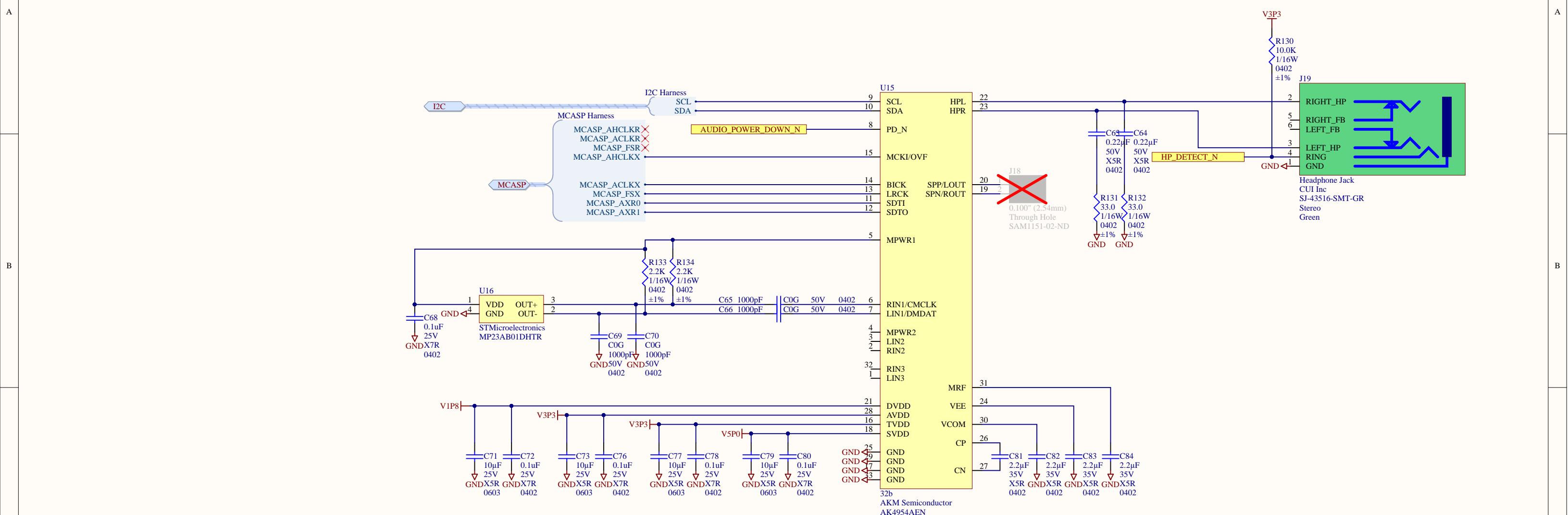
Project:	Guppy Buddy	
Title:	LCD	
Document:	LCD.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	
Revision:	A	
Date:	7/4/2018	
Number:	11 of 18	

Cospan Design  
<http://www.cospandesign.com>





Project:	Guppy Buddy	Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Title:	Cart	
Document:	Cart.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	7/2/2018	Number: 12 of 18



Project:	Guppy Buddy	Cospan Design
Title:	Audio Codec	<a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Document:	Audio Codec.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	6/23/2018	Number: 13 of 18



**GPI00 (ALERT): Alert output to host (Open Drain)**  
**GPI01 (SYSPRES): System presence indicator (weak pull up)**  
**Max Charge Current: 3A (We can't do more because the inductor would be oversaturated if we charge with more)**  
**VFB: 1.22V**  
**AFFUSE should be hooked up to ground when not used  
Datasheet: (9.3.2.4)**

**Layout Notes:**  
- Input Caps should be close to the switching FETs supply and ground connections, use the shortest possible copper trace connection. Caps should be on the same layer as the FETs. Vias connecting adapter and FET should be placed between caps and FET.  
- IC should be placed close to the switching FET gate pins to keep the gate-drive signal traces short. IC can be on the other side of board.  
- Inductor should be close to FET. Minimize copper area (reduce EMI) but wide enough for current. Do not use multiple layer for this connection.  
- Charge current sense resistor should be next to inductor, use Kelvin routing.  
- Place output cap next to sense resistor.  
- Output cap ground connection must be tied to the same copper that connects input cap to ground before connecting to system ground.  
- Place sense resistor and filter components as close as possible to IC and directly adjacent to decoupling cap between HSRN and HSRP.  
- Route analog ground separately from power ground and use a single ground connection to tie the charger power ground to charged analog ground just beneath the IC, use the copper pour for analog ground but avoid power pins to reduce inductive and capacitive noise coupling. Connect analog ground to connection point or use a 0 ohm resistor to tie analog ground to power ground. Star connection under chip is recommended.  
- It is critical that the exposed thermal pad on the back side of the IC package be soldered to the PCB ground.

A

A

B

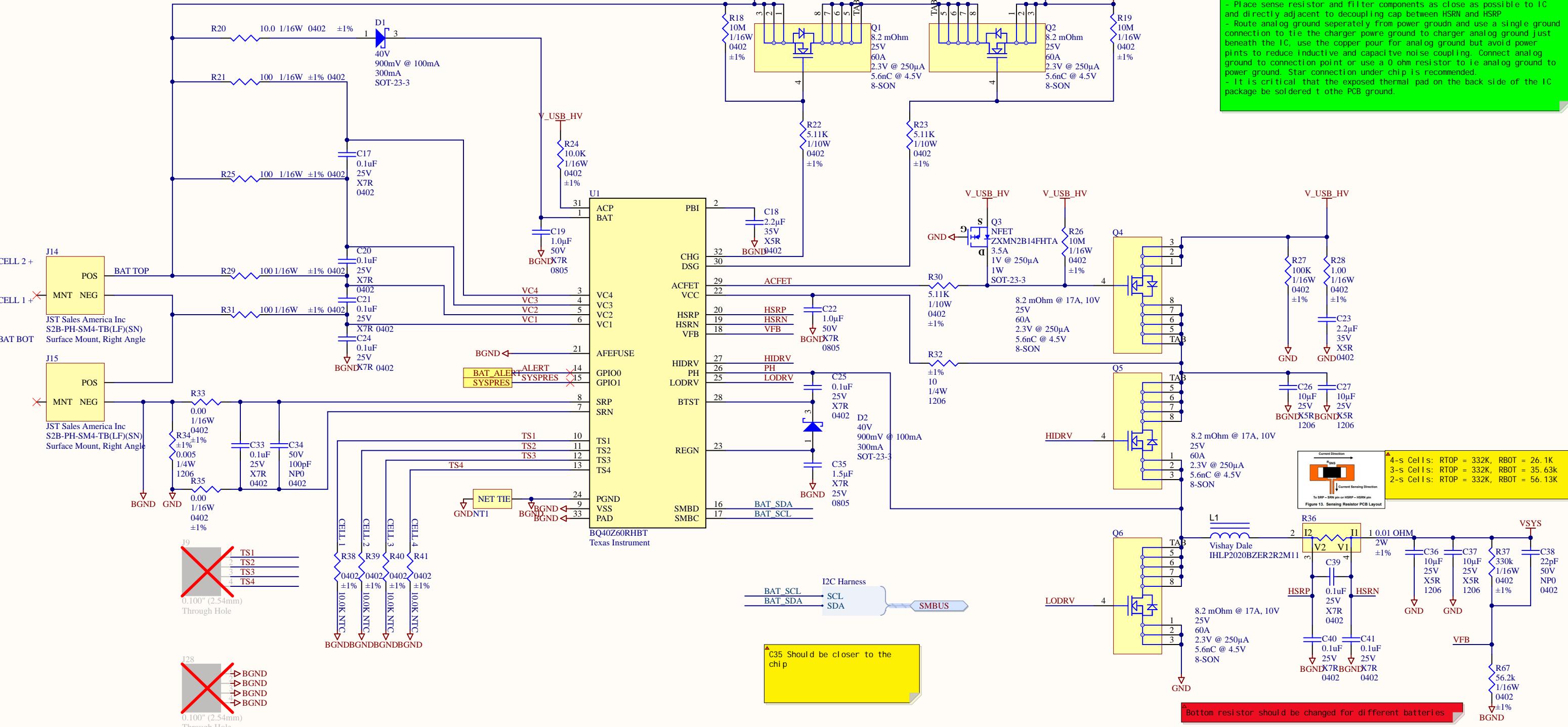
B

C

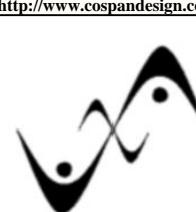
C

D

D



Project:	Guppy Buddy	Cospan Design
Title:	Battery Manager	<a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Document:	Battery Manager.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	6/26/2018	Number: 14 of 18



A

A

B

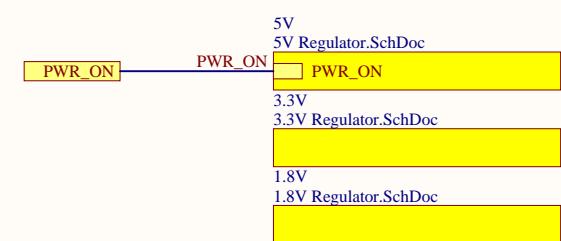
B

C

C

D

D



Project:	Guppy Buddy	Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Title:	Power	
Document:	Power.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	6/22/2018	Number: 15 of 18

A

A

B

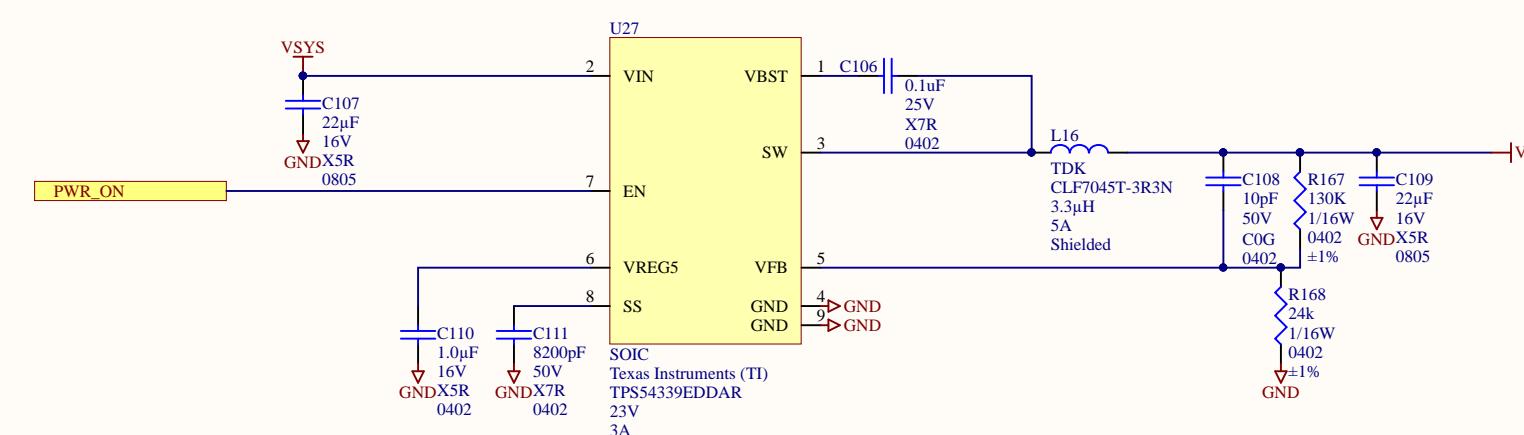
B

C

C

D

D



Project:	Guppy Buddy	Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Title:	5V Regulator	
Document:	5V Regulator.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	1/20/2016	Number: 16 of 18



A

A

B

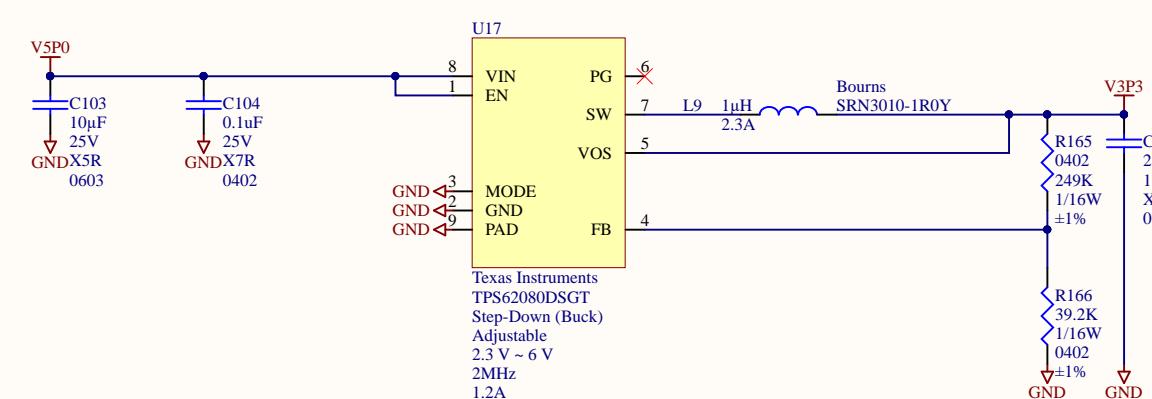
B

C

C

D

D



Project:	Guppy Buddy	Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Title:	3.3V Regulator	
Document:	3.3V Regulator.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	1/20/2016	Number: 17 of 18



A

A

B

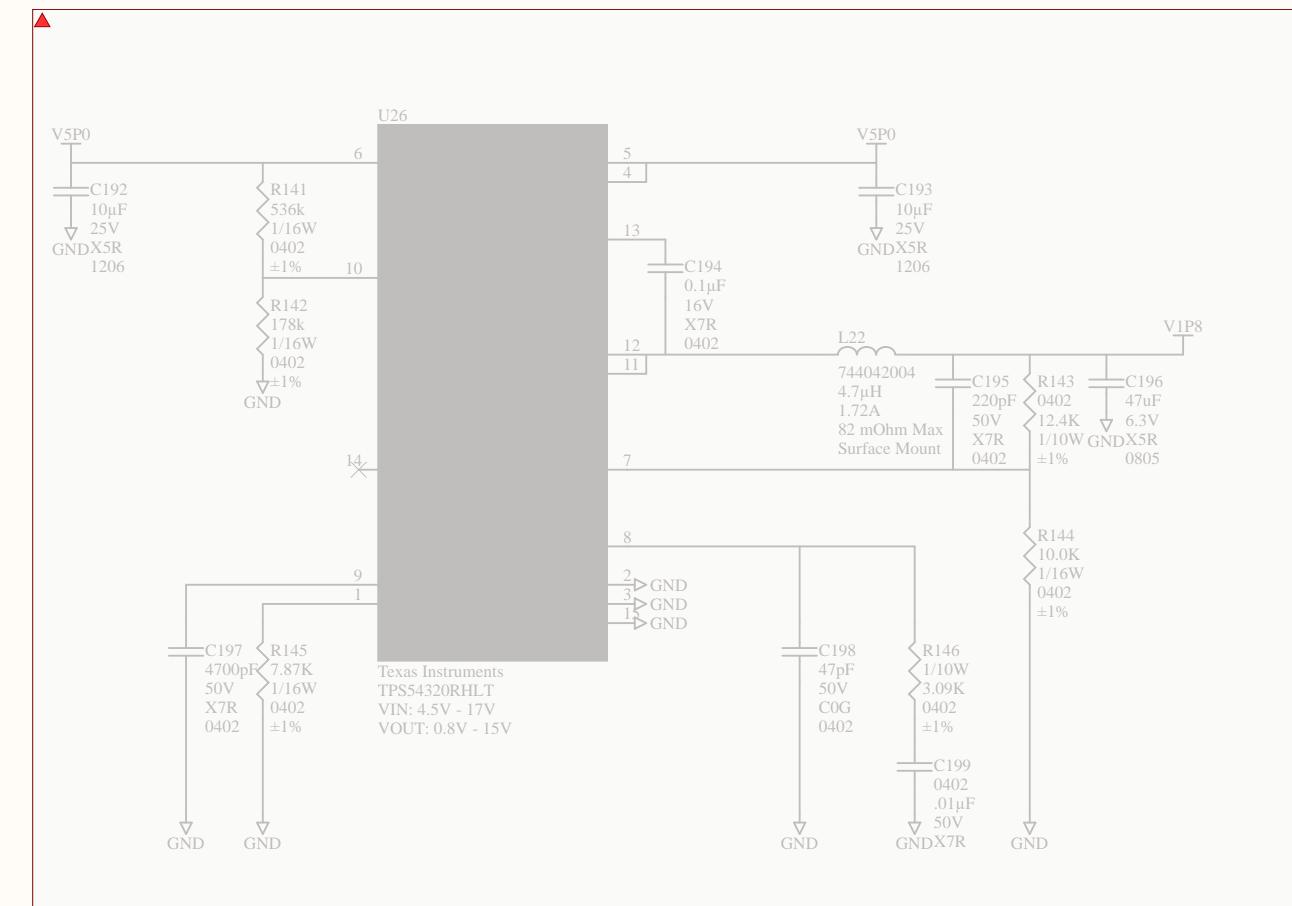
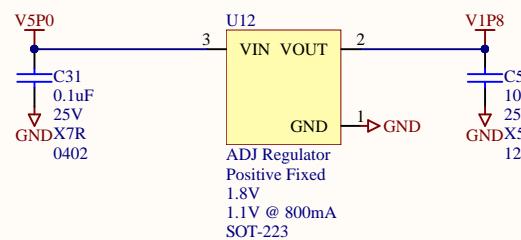
B

C

C

D

D



Project:	Guppy Buddy	Cospan Design <a href="http://www.cospandesign.com">http://www.cospandesign.com</a>
Title:	1.8V Regulator	
Document:	1.8V Regulator.SchDoc	
Engineer:	David McCoy	
Client:	OSH	
Approved By:	NA	Revision: A
Date:	1/20/2016	Number: 18 of 18



