

02-22-2016

- \* Re-label L1 & L2 from 2.5A to 7A

03-09-2016 (Rev 2C)

- \* Add pin 17 (GND) to PTN5110

03-12-2016

- \* Replace Q6, Q7, Q8, Q9, Q12, Q13, Q14, Q14 with correct part
- \* Replace J5 with correct part number from Mouser
- \* Replace D20, D22, D23, D25, D26 with low reverse current version

03-13-2016

- \* Rename signal DC\_BARREL\_ON to nDC\_BARREL\_ON
- \* Add Q22 to indicate VBAT\_PRESENT

08-02-2016

- \* change C107 to 1uF
- \* remove U4, change pullup on R30/R31 to BYPASS
- \* R54 is DNS, R59 is 3.6K instead of 100K
- \* Added R138
- \* R51 is DNS
- \* C48 is 4.7uF instead of 10uF
- \* U11 and its components are DNS
- \* Added Q23, Q24, R139, R140
- \* R123 is 30K and R125 is 3.6K instead of 100K
- \* R72 and R90 are 1K instead of 100K
- \* Remove Q16, D45, R98, R99, Q17, R100
- \* Changed U15 (3290) to correct footprint
- \* Remove footnote to control Q17
- \* Changed VARIABLE\_PS\_LS\_ENA to nVARIABLE\_PS\_LS\_ENA

08-16-2016

- \* Add J23 for VBUS load or LCD connection

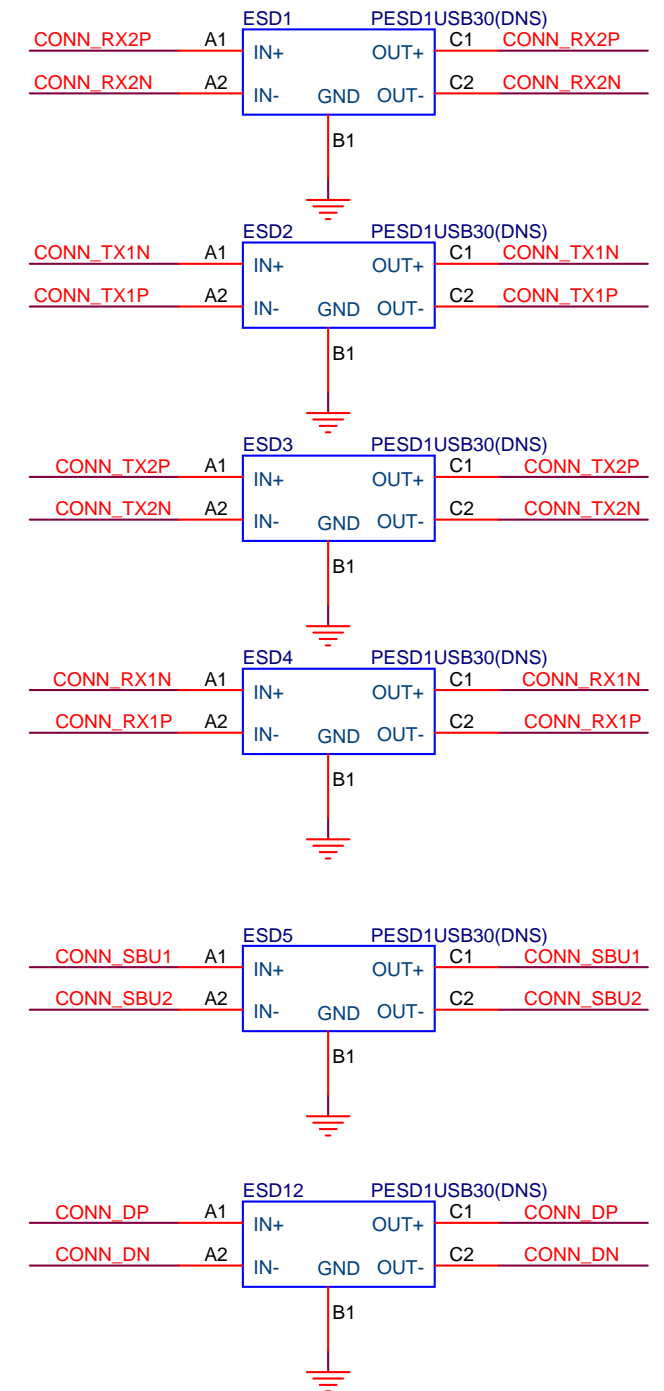
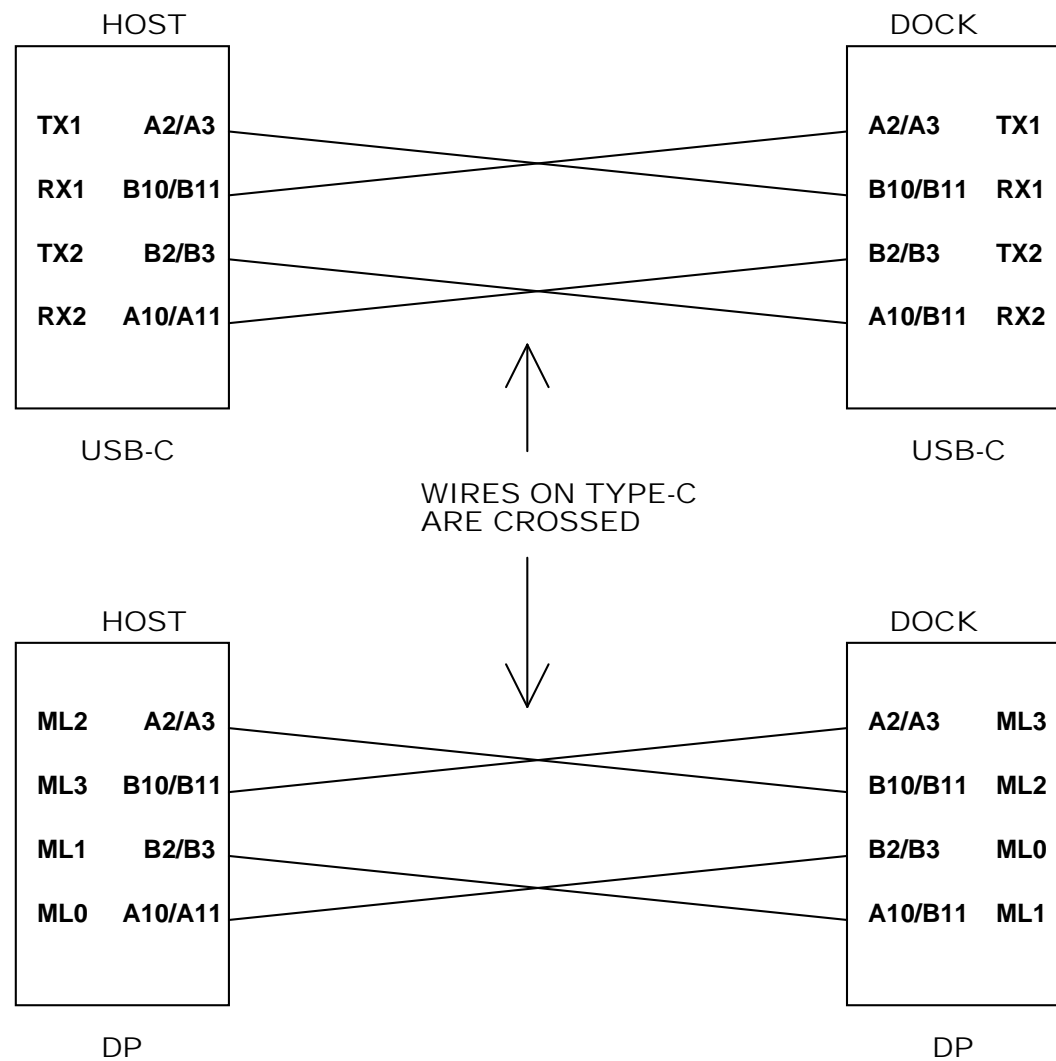
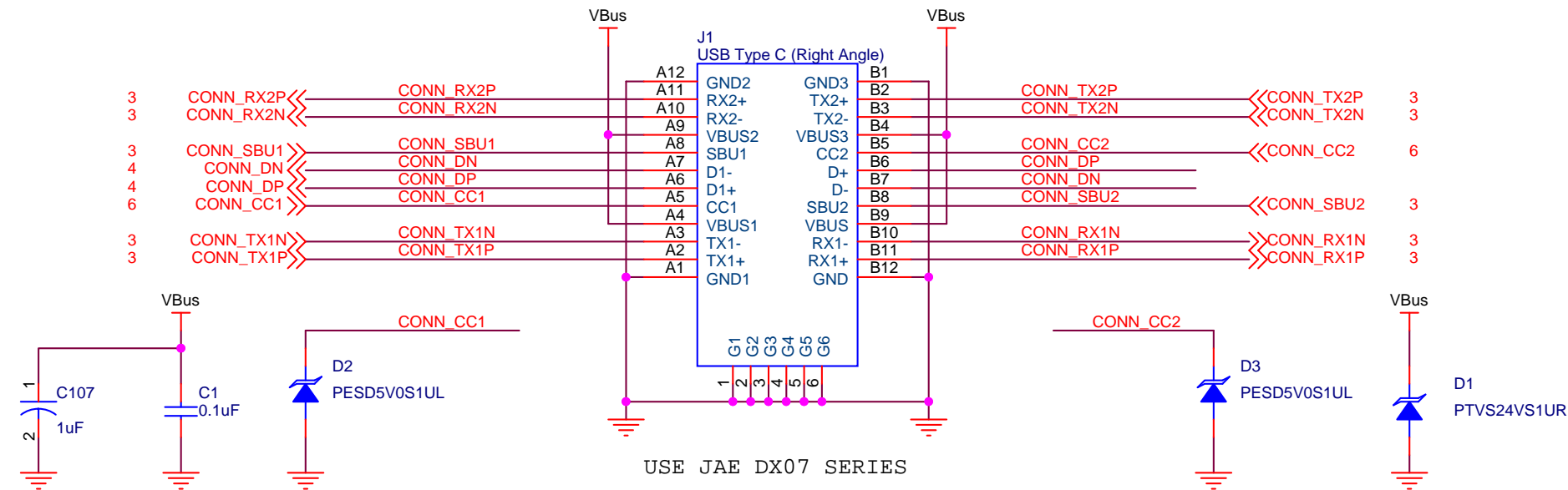
08-17-2016

- \* Change U7 footprint from SOT996-2 to SOT833-1

02-16-2017

- \* Added loading options

Title		
<Title>		
Size	Document Number	Rev
Custom	<Doc>	<Rev C
Date:	Thursday, February 16, 2017	Sheet 1 of 1



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Title <b>Type-C Connector</b>		
Size B	Document Number USB Type-C Alternative Mode Demo Board DOCK	Rev A2
Date: Wednesday, August 17, 2016	Sheet 2	of 13

4LANE\_DP=1: Select DP Path  
4LANE\_DP=0: Select USB3 Path

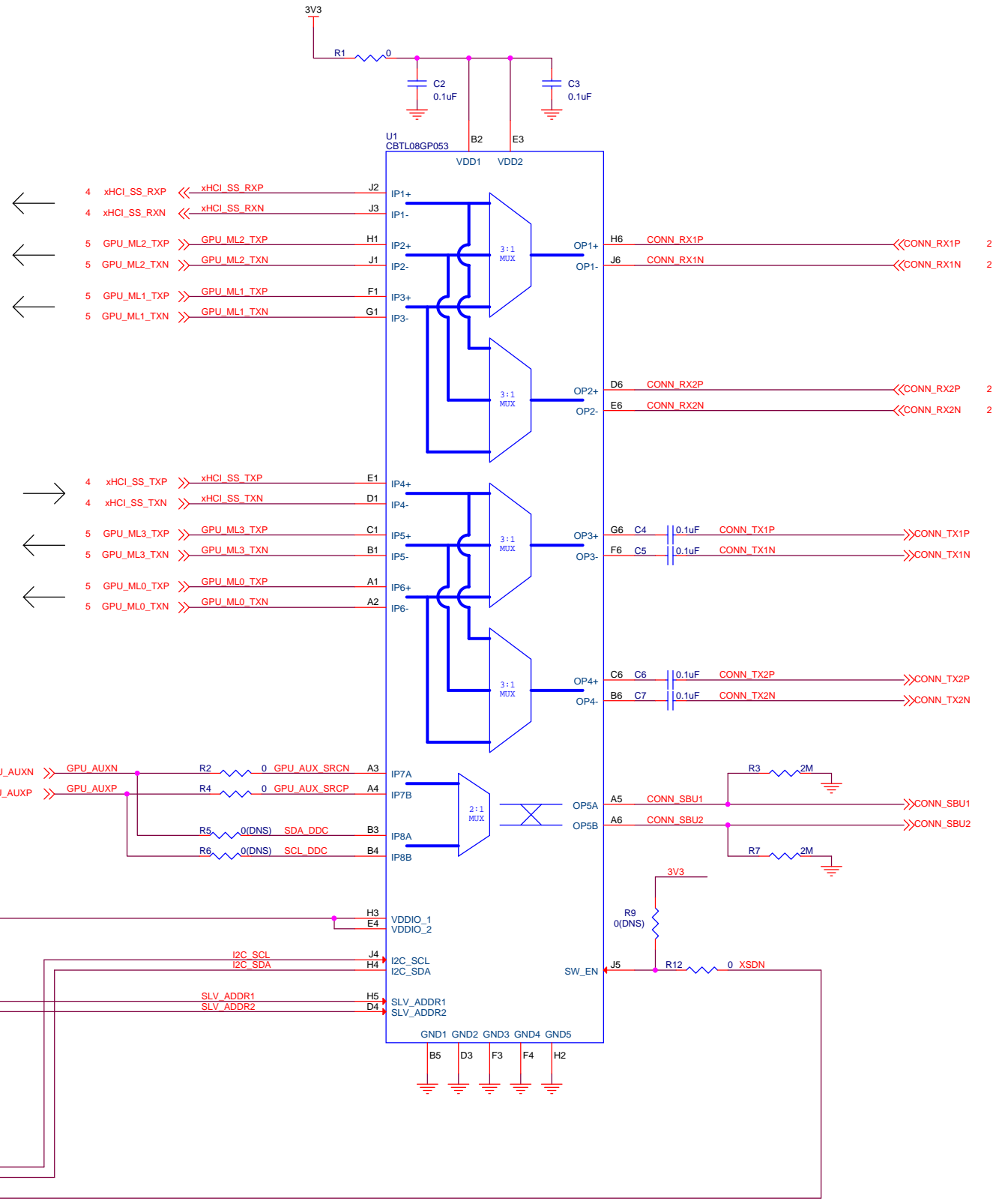
XSDN	4LANE_DP	CC_ORIENT	Function
0	X	X	All switches Hi-Z
1	0	0	USB3 path + 2 lanes DP. Normal plug orientation
1	0	1	USB3 path + 2 lanes DP. Flipped plug orientation
1	1	0	4 lanes DP. Normal plug orientation
1	1	1	4 lanes DP. Flipped plug orientation

Table 3-1: USB Type-C Receptacle DFP\_D Pin Assignment Summary

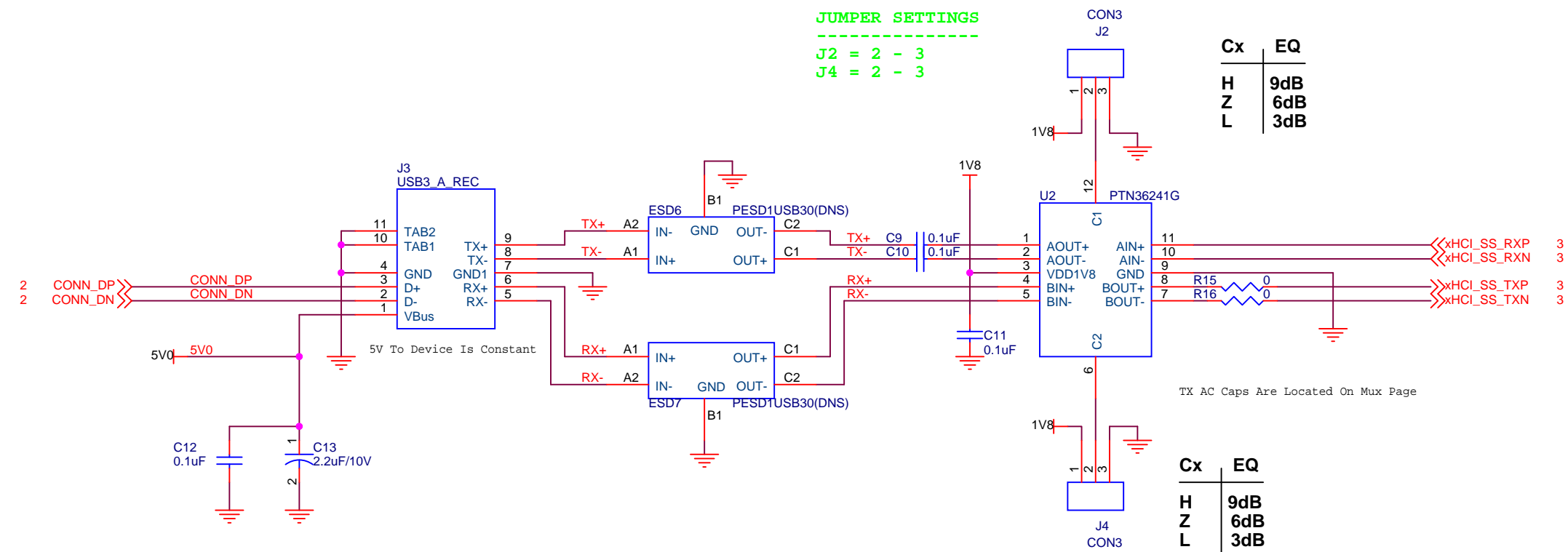
Receptacle Pin Number	Pin Assignment Cable	A	B	C	D	E	F
		USB Type-C to USB Type-C or Protocol Converter	USB Type-C to USB Type-C or Protocol Converter	USB Type-C to USB Type-C or Protocol Converter	USB Type-C to USB Type-C or Protocol Converter	USB Type-C to DP	USB Type-C to DP
DisplayPort Signaling		GEN2_BR	GEN2_BR	DP_BR	DP_BR	DP_BR	DP_BR
A11 - A10	RX2	Open <sup>a</sup> /ML2	Open <sup>a</sup> /ML1	ML0	ML0	ML0	ML0
A2 - A3	TX1	ML1	SSTX	ML2	SSTX	ML2	SSTX
B11 - B10	RX1	Open <sup>a</sup> /ML3	SSRX	ML3	SSRX	ML3	SSRX
B2 - B3	TX2	ML0	ML0	ML1	ML1	ML1	ML1
A8	SBU1	AUX_CH_P	AUX_CH_P	AUX_CH_P	AUX_CH_P	AUX_CH_P	AUX_CH_P
B8	SBU2	AUX_CH_N	AUX_CH_N	AUX_CH_N	AUX_CH_N	AUX_CH_N	AUX_CH_N

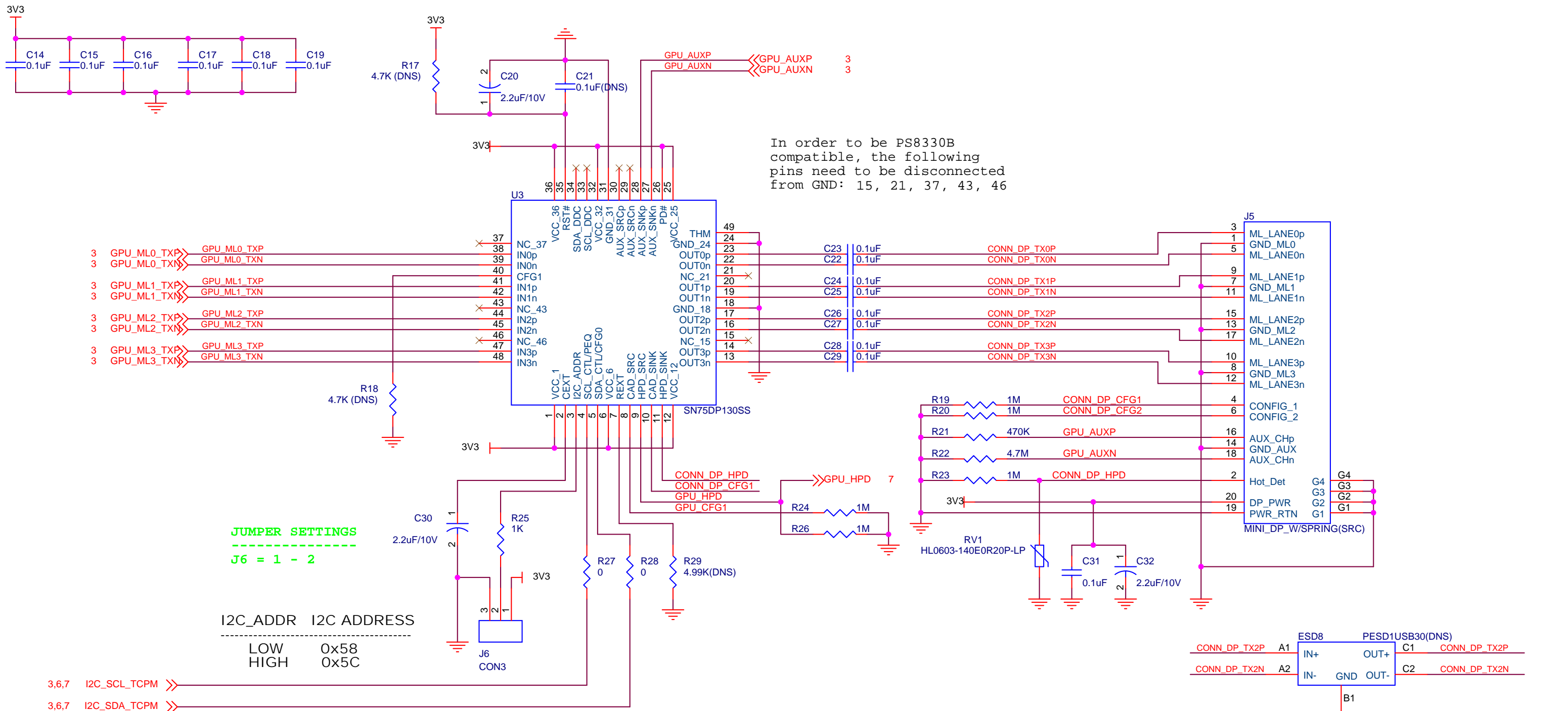
a. Connections marked as optionally Open are not used when Active cables are connected.

SLV_ADDR2	SLV_ADDR1	I2C slave address
0	0	0x60/0x61
0	1	0x64/0x65
1	0	0x68/0x69
1	1	0x6C/0x6D



5,6,7 I2C\_SCL\_TCPM >>  
5,6,7 I2C\_SDA\_TCPM >>  
7,10 XSDN >>





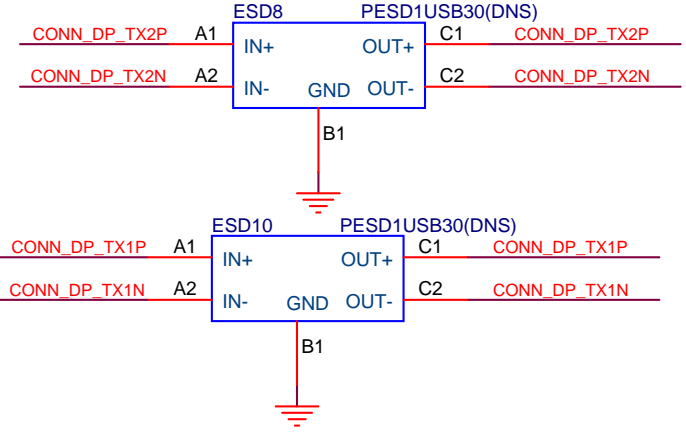
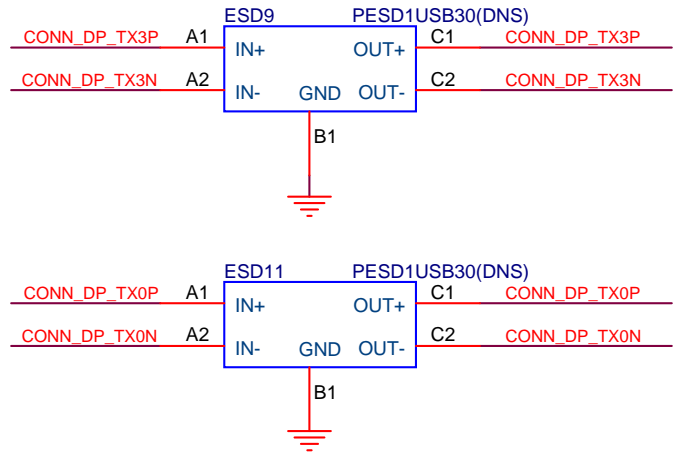
**JUMPER SETTINGS**  
 -----  
 J6 = 1 - 2

I2C_ADDR	I2C ADDRESS
LOW	0x58
HIGH	0x5C

3,6,7 I2C\_SCL\_TCPM >>  
 3,6,7 I2C\_SDA\_TCPM >>

**Table 4-11: Upstream Port Mini DisplayPort Connector Pin Assignment**

Top Row			Bottom Row		
Pin Number	Signal Type	Pin Name	Pin Number	Signal Type	Pin Name
1	GND	GND	2	Out	Hot Plug Detect
3	In	ML_Lane 3 (n)	4	CONFIG (see note 1)	CONFIG1
5	In	ML_Lane 3 (p)	6	CONFIG (see note 1)	CONFIG2
7	GND	GND	8	GND	GND
9	In	ML_Lane 2 (n)	10	In	ML_Lane 0 (n)
11	In	ML_Lane 2 (p)	12	In	ML_Lane 0 (p)
13	GND	GND	14	GND	GND
15	In	ML_Lane 1 (n)	16	I/O	AUX_CH (p)
17	In	ML_Lane 1 (p)	18	I/O	AUX_CH (n)
19	GND	GND	20	PWR Out (see note 2)	DP_PWR

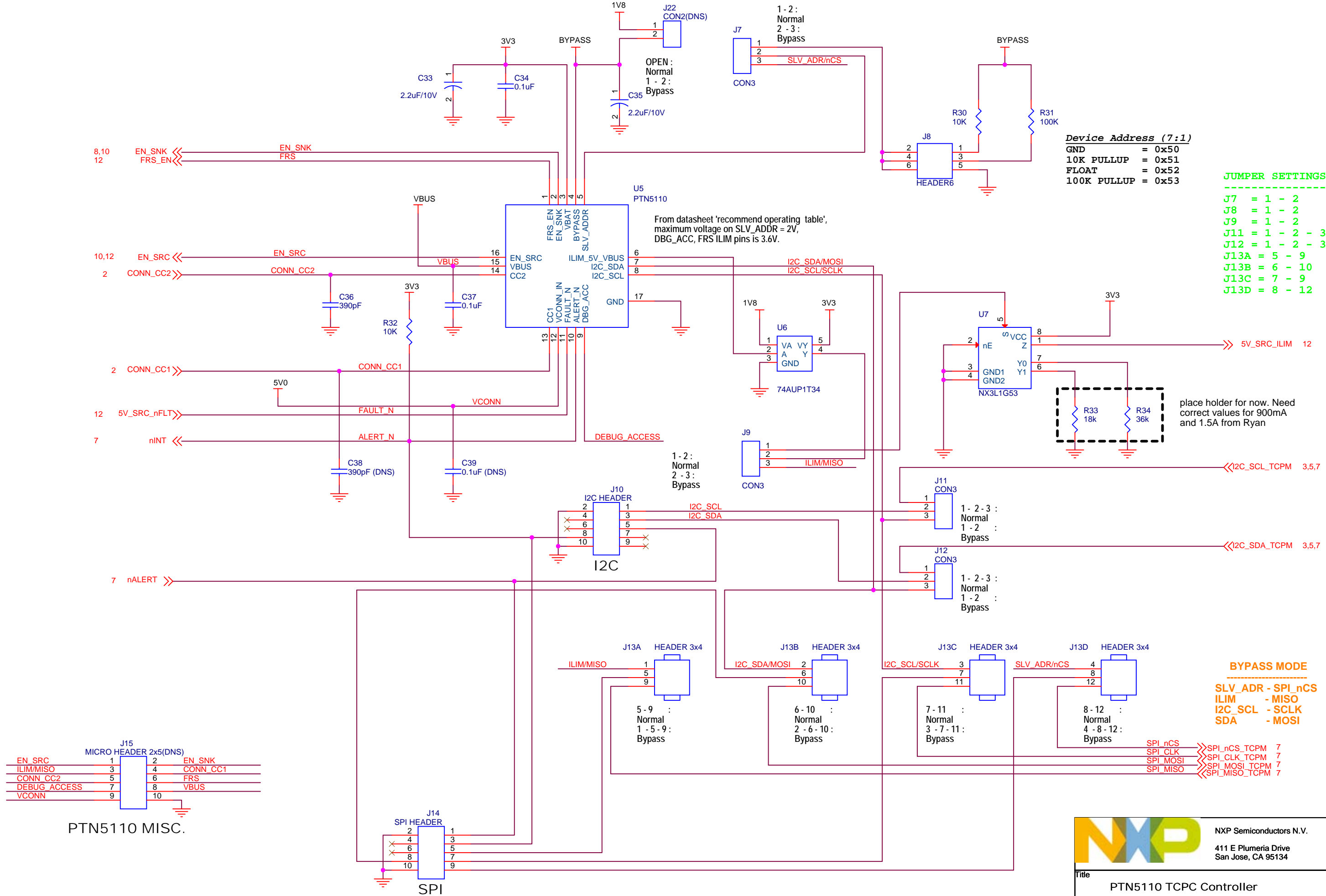


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Title: **DisplayPort Redriver**

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Date: Thursday, February 16, 2017 Sheet 5 of 13



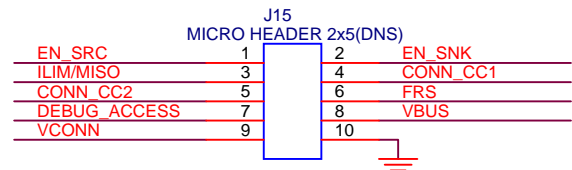
**Device Address (7:1)**  
 GND = 0x50  
 10K PULLUP = 0x51  
 FLOAT = 0x52  
 100K PULLUP = 0x53

**JUMPER SETTINGS**  
 -----  
 J7 = 1 - 2  
 J8 = 1 - 2  
 J9 = 1 - 2  
 J11 = 1 - 2 - 3  
 J12 = 1 - 2 - 3  
 J13A = 5 - 9  
 J13B = 6 - 10  
 J13C = 7 - 9  
 J13D = 8 - 12

From datasheet 'recommend operating table',  
 maximum voltage on SLV\_ADDR = 2V,  
 DBG\_ACC, FRS\_ILIM pins is 3.6V.

place holder for now. Need  
 correct values for 900mA  
 and 1.5A from Ryan

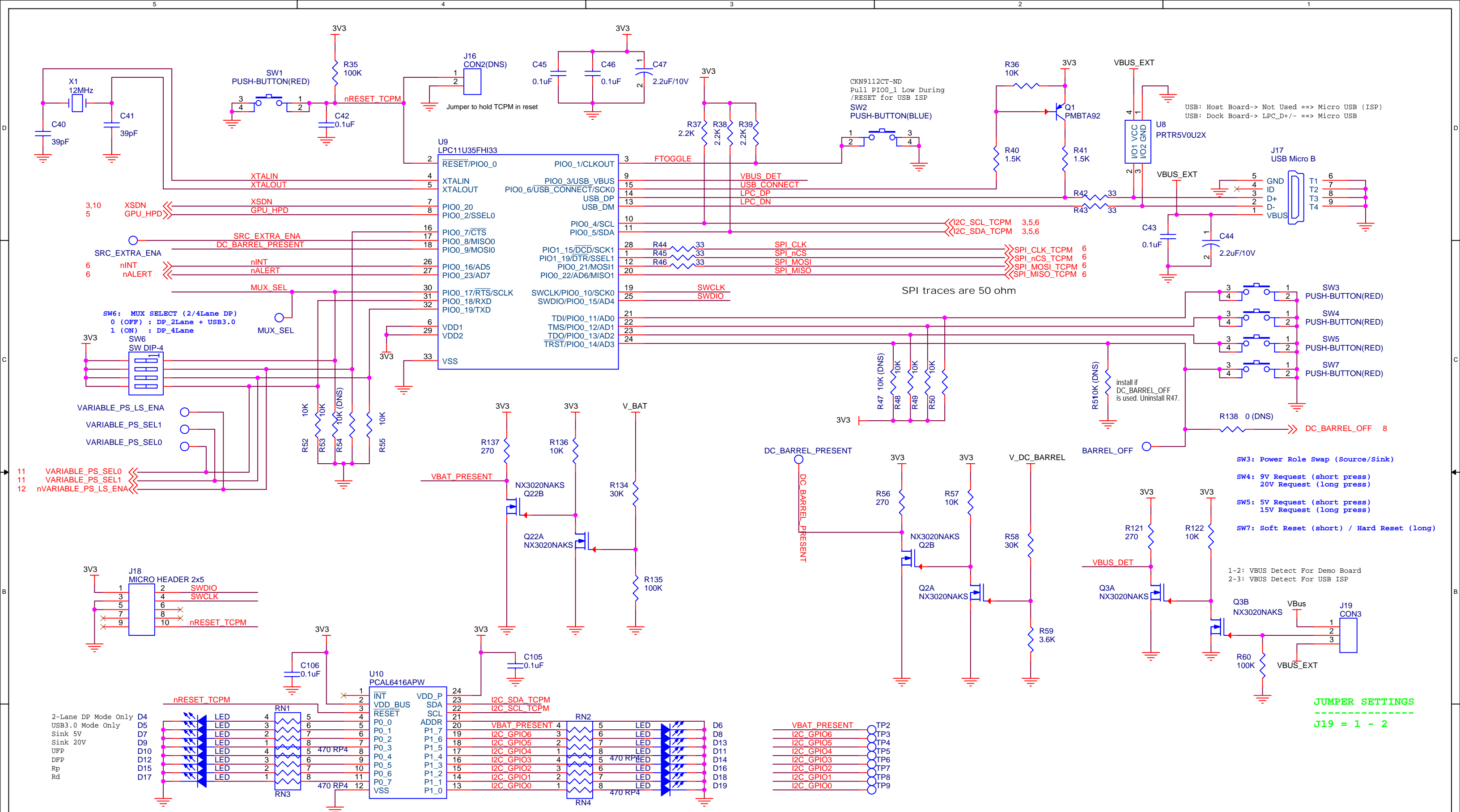
**BYPASS MODE**  
 -----  
 SLV\_ADDR - SPI\_nCS  
 ILIM - MISO  
 I2C\_SCL - SCLK  
 SDA - MOSI



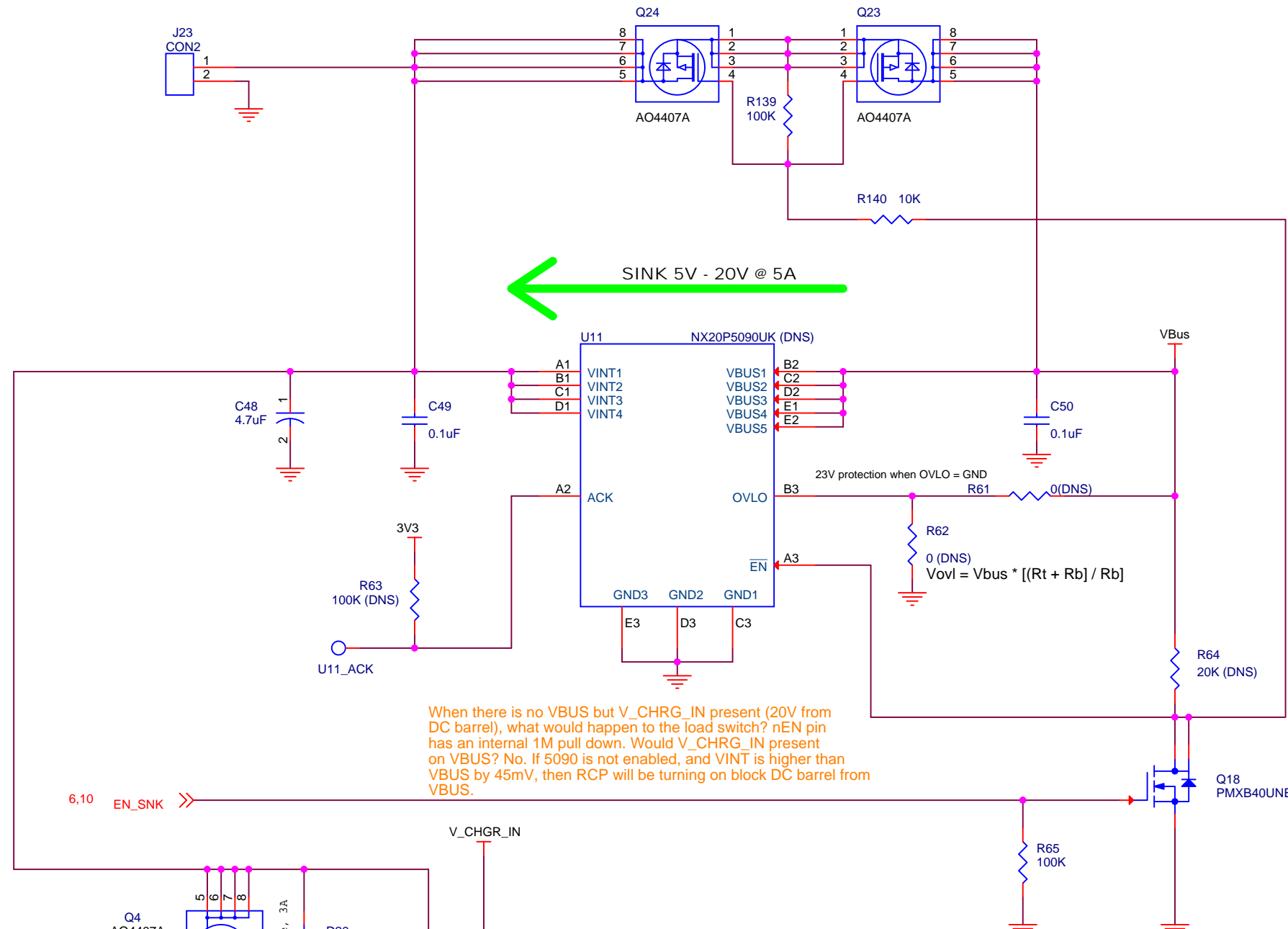
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Title		
PTN5110 TCPC Controller		
Size	Document Number	Rev
	CustomUSB Type-C Alternative Mode Demo Board DOCK	A2
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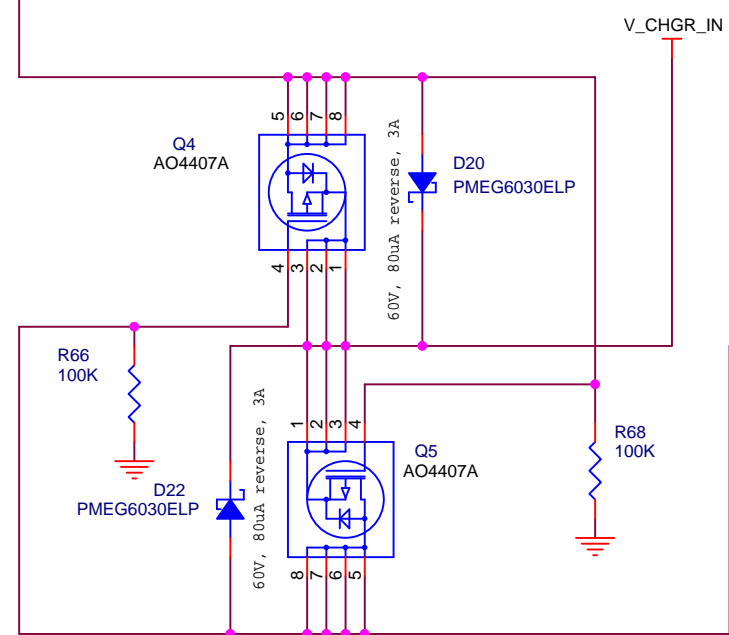
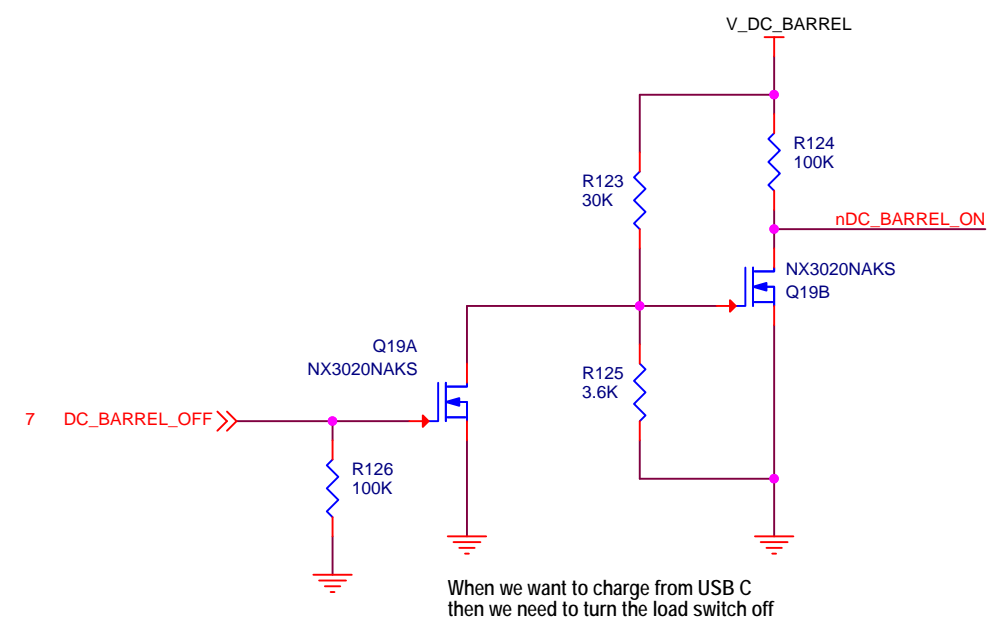




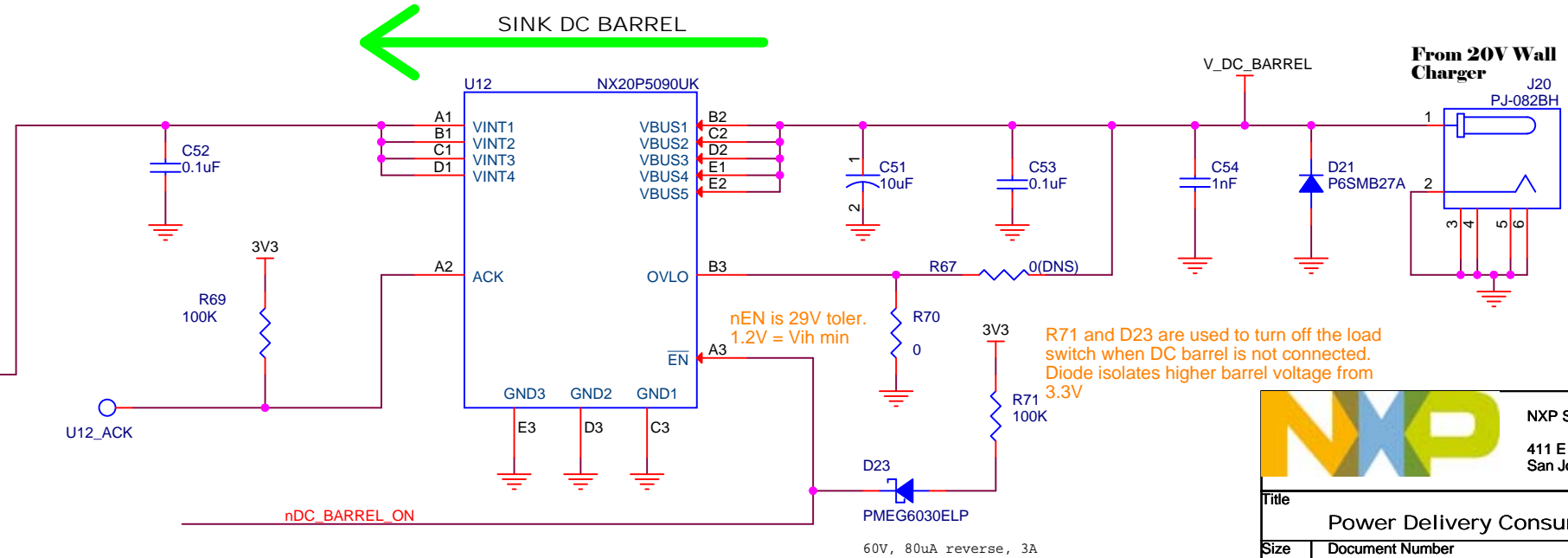




When there is no VBUS but V\_CHRG\_IN present (20V from DC barrel), what would happen to the load switch? nEN pin has an internal 1M pull down. Would V\_CHRG\_IN present on VBUS? No. If 5090 is not enabled, and VINT is higher than VBUS by 45mV, then RCP will be turning on block DC barrel from VBUS.



If VBUS is one Vth (~2.2V) more than Vbarrel, then VBUS is driving charger input.  
 If Vbarrel is one Vgs more than VBUS, then Vbarel is driving charger input.  
 If VBUS = Vbarrel, then both FETs are off, and both diodes are conducting. Host needs to determine whether VBUS or Vbarrel is used to drive the charger. Then host turns off VBUS or Vbarrel.

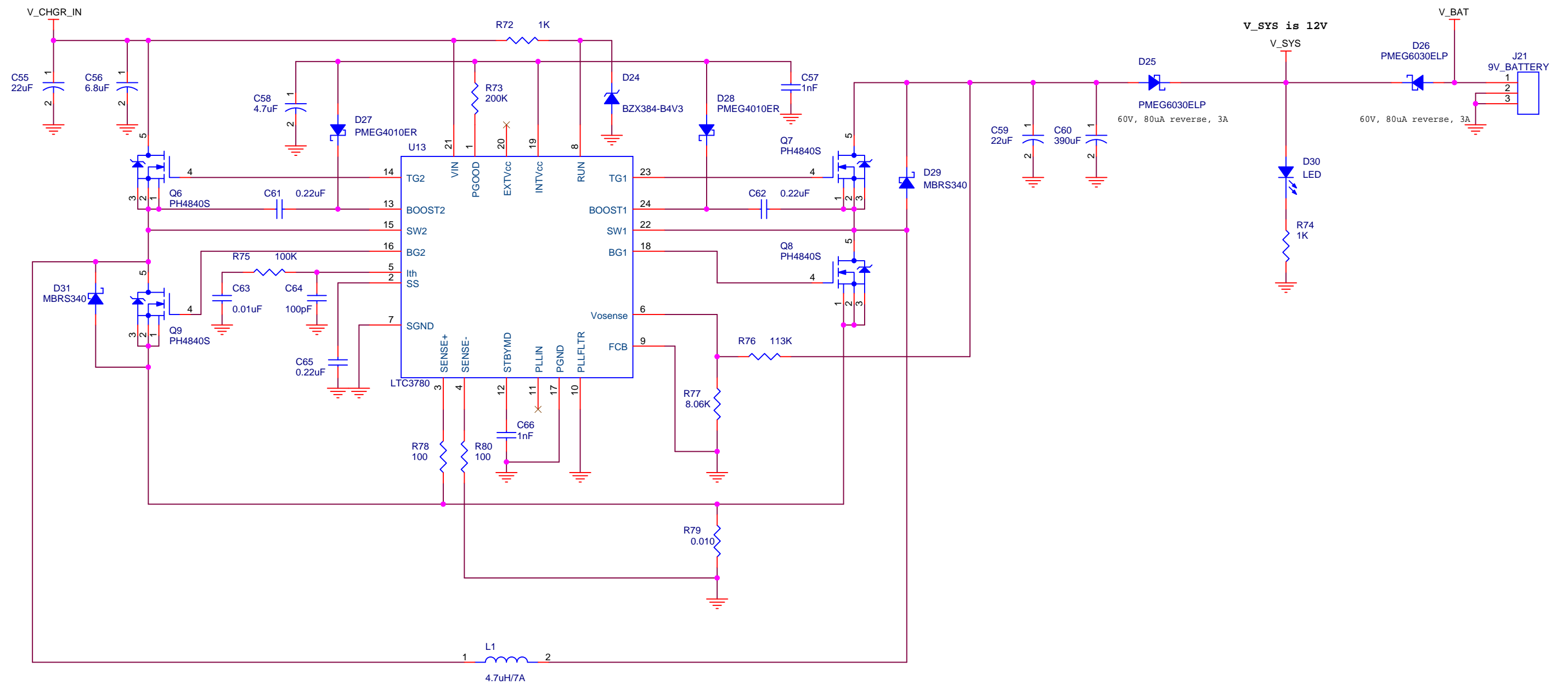


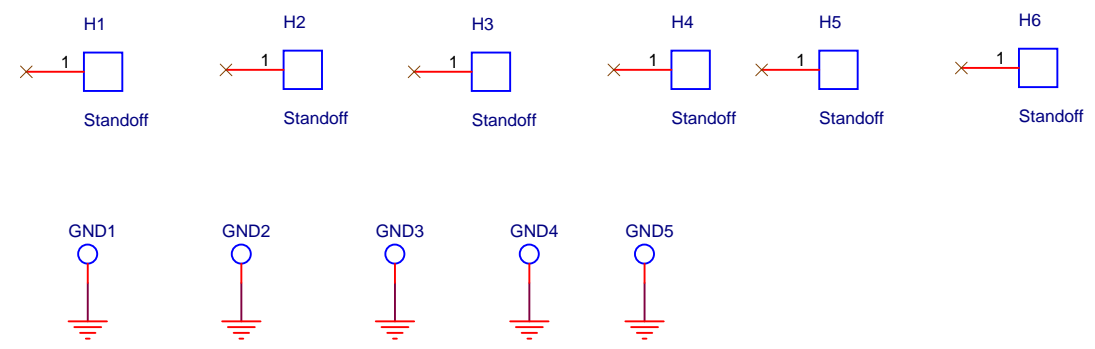
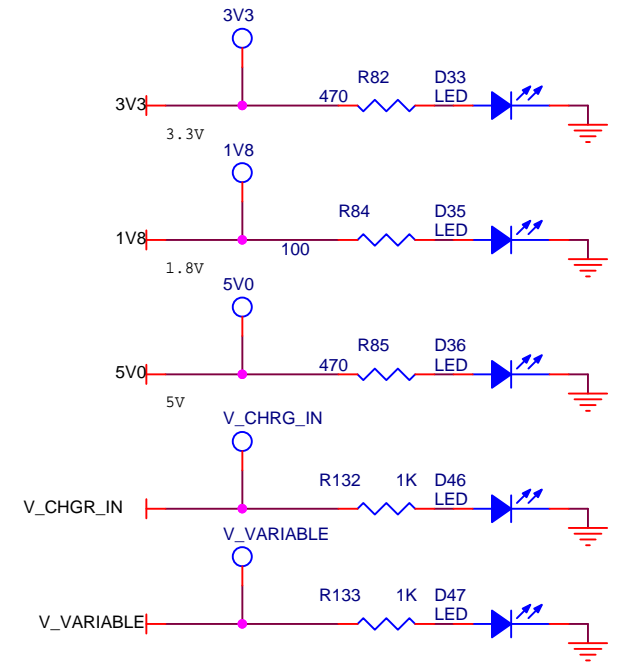
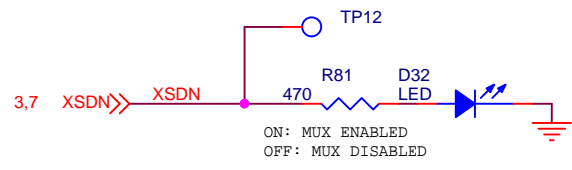
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Title: **Power Delivery Consumer**

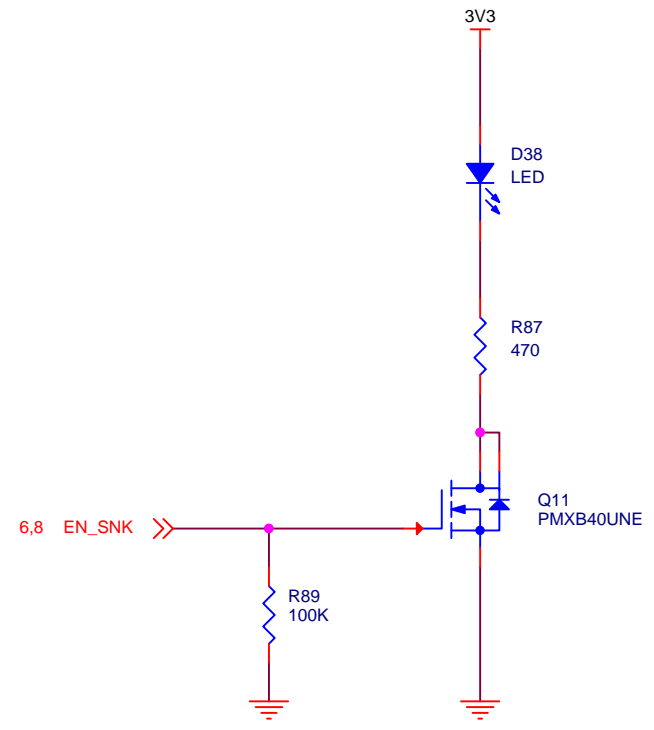
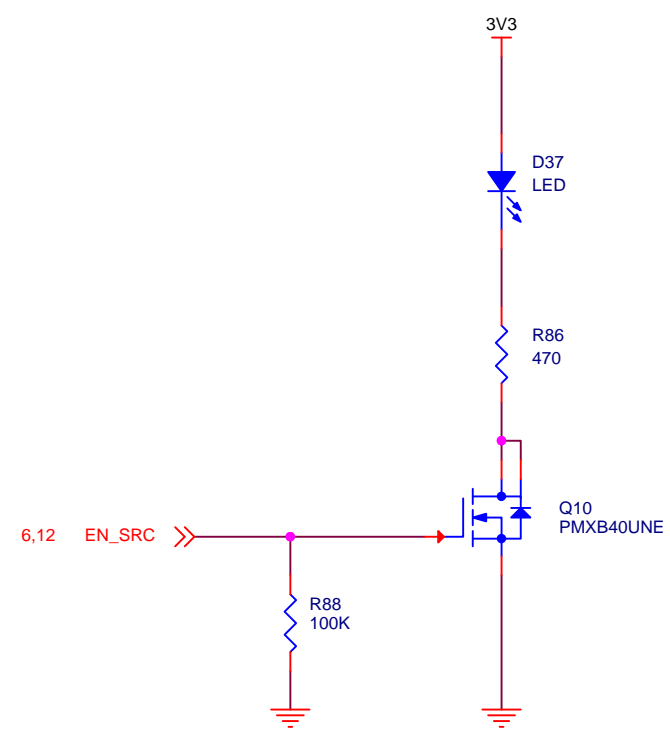
Size	Document Number	Rev
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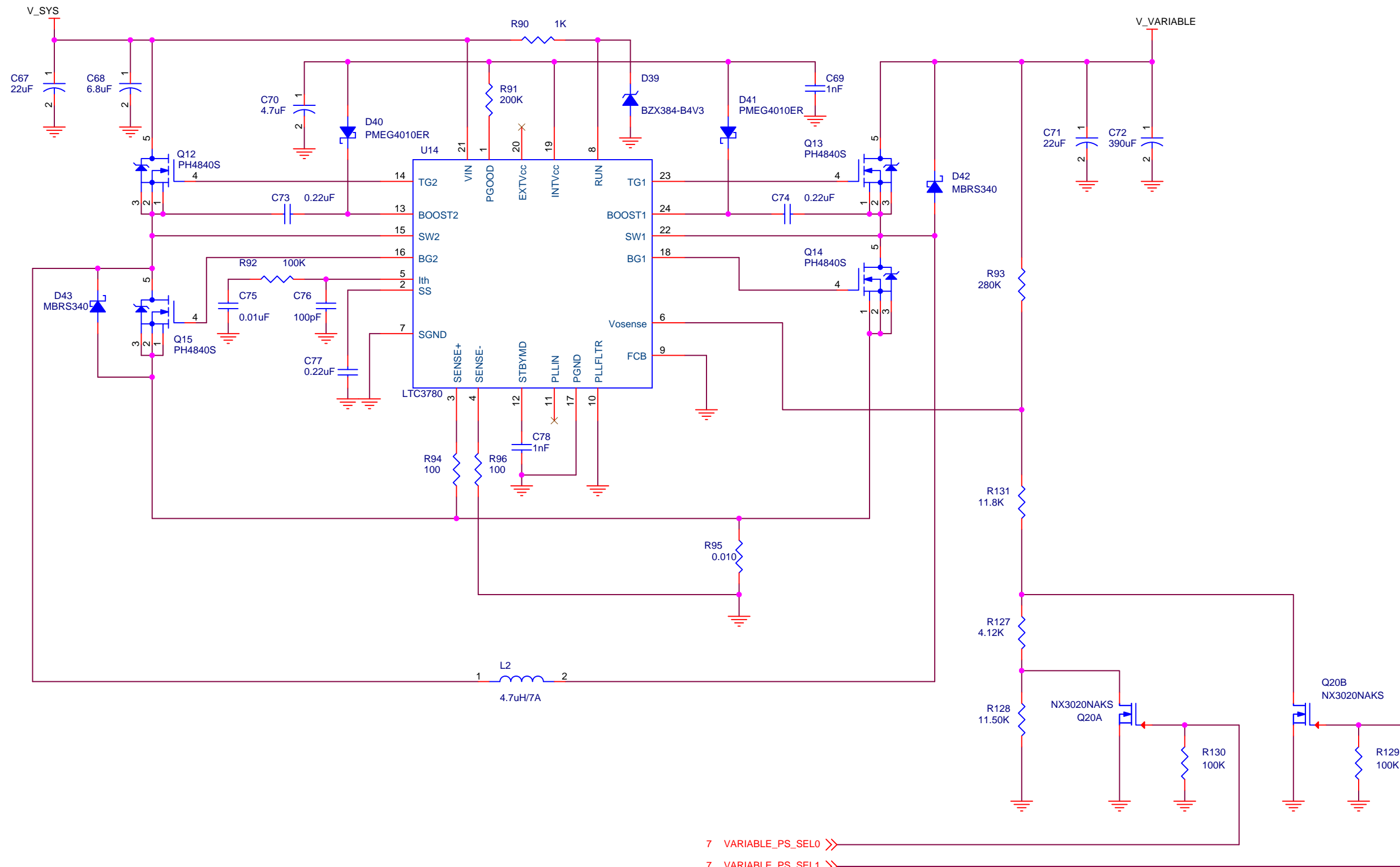
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PLACE GND TEST POINTS AROUND THE BOARD






7 VARIABLE\_PS\_SEL0 >>  
 7 VARIABLE\_PS\_SEL1 >>

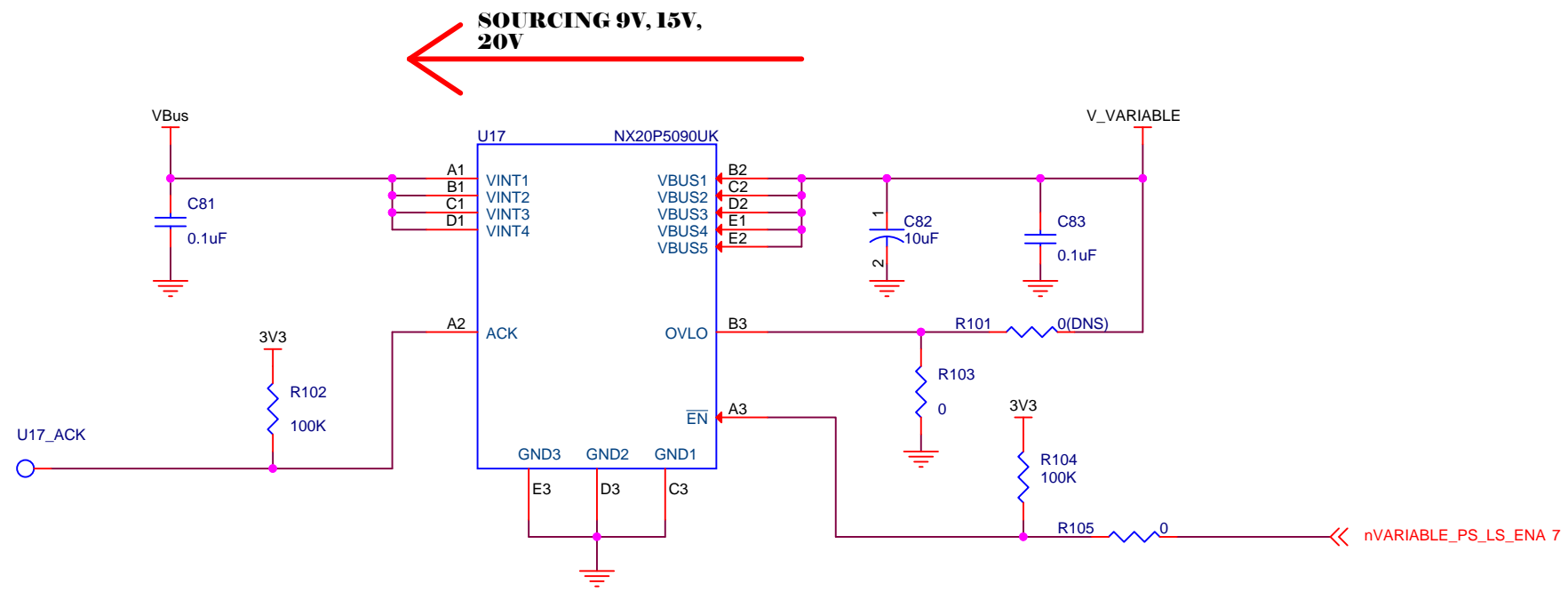
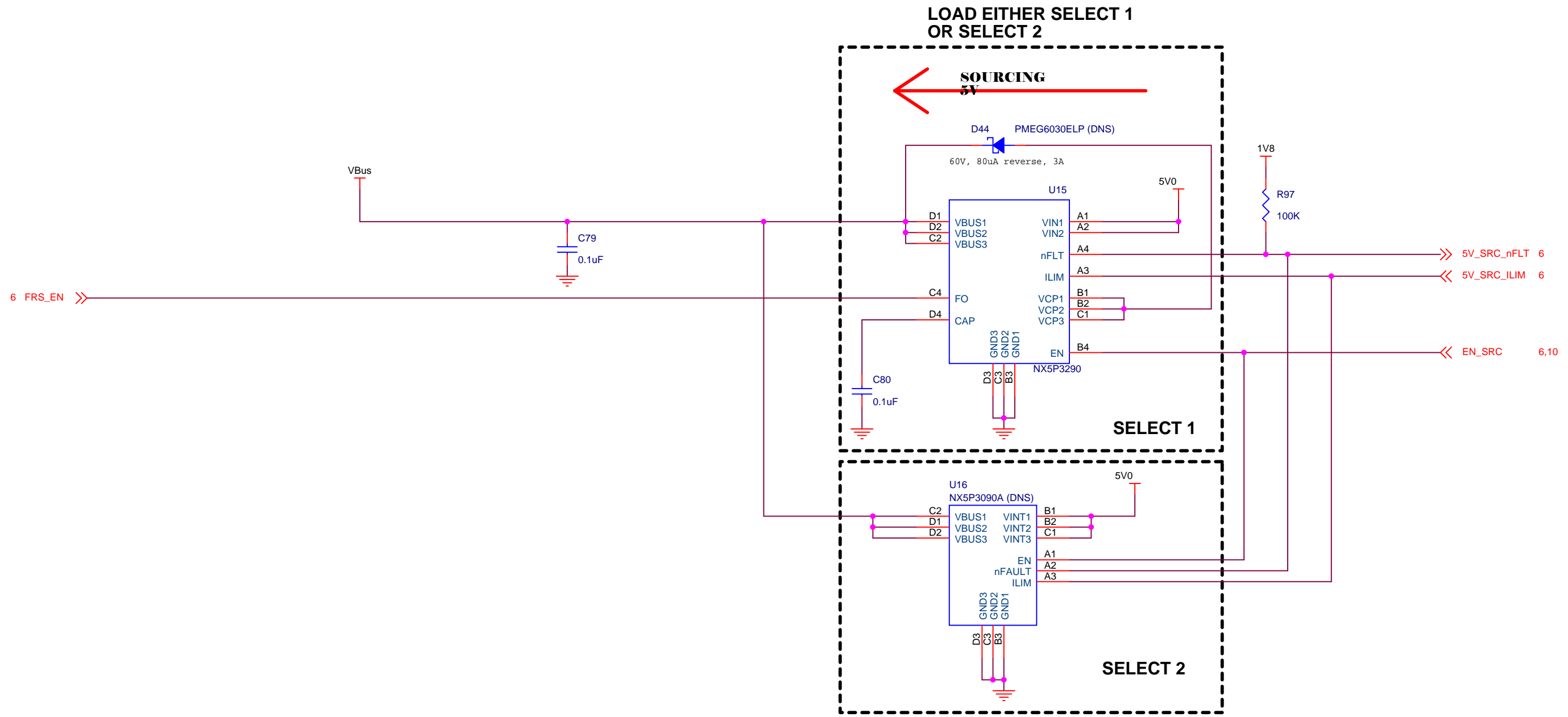
SEL1	SELO	Vout
0	0	9V
0	1	15V
1	X	20V

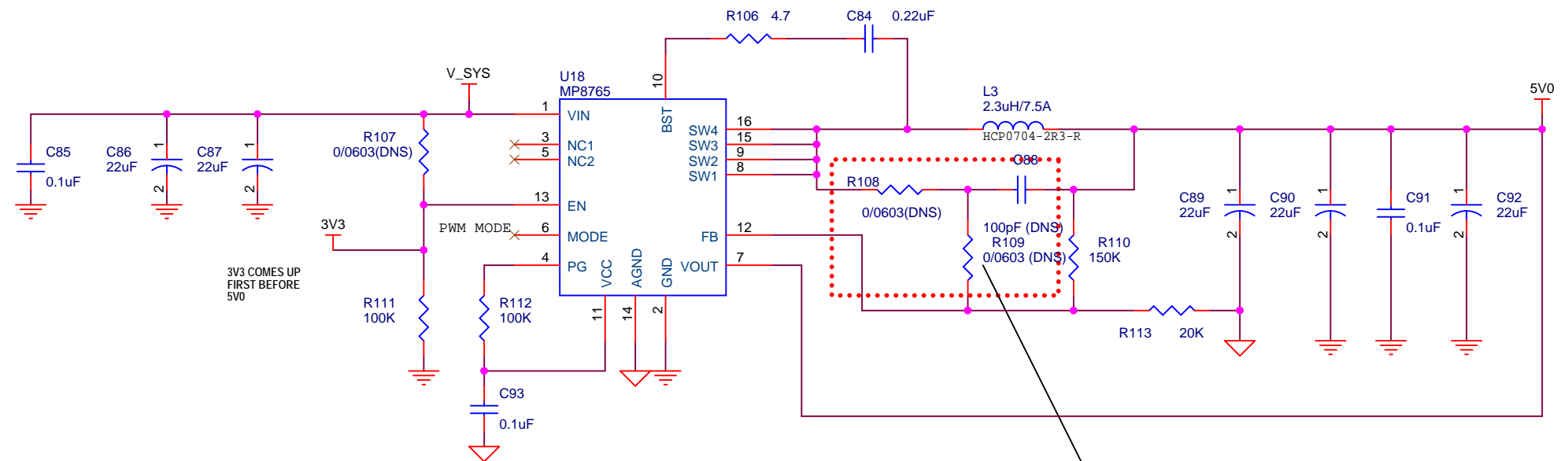
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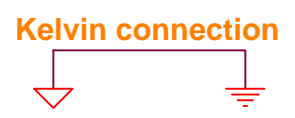
Title		Variable Power Supply
Size	Document Number	Rev
	CustomUSB Type-C Alternative Mode Demo Board DOCK	A2
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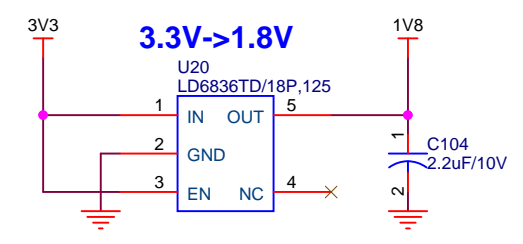
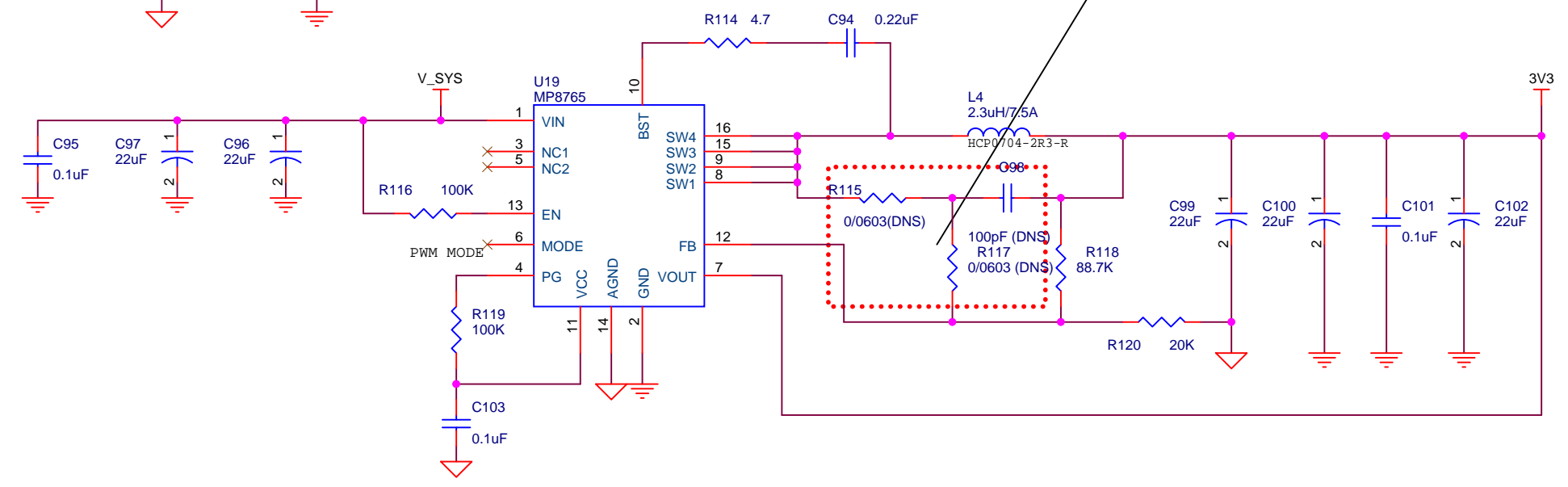


- Power Up Sequence:
1. 12V (Vsys)
  2. 3V3
  3. 1V8
  4. 5V0

See datasheet for layout example



These are not used for POS cap. Need them for ceramic cap



Title		3V3, 5V0, 1V8 LDO	
Size	Document Number	Rev	
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