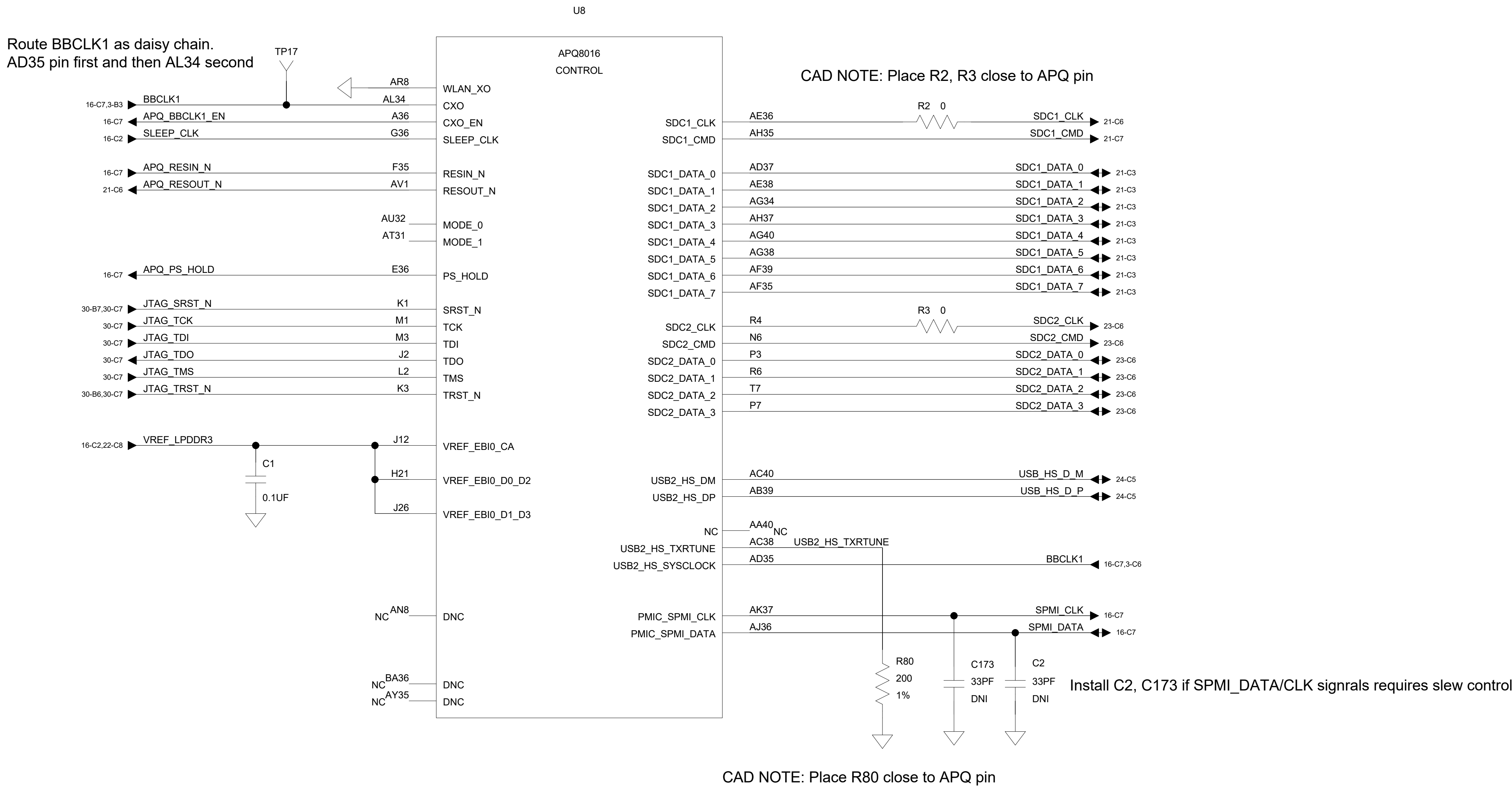
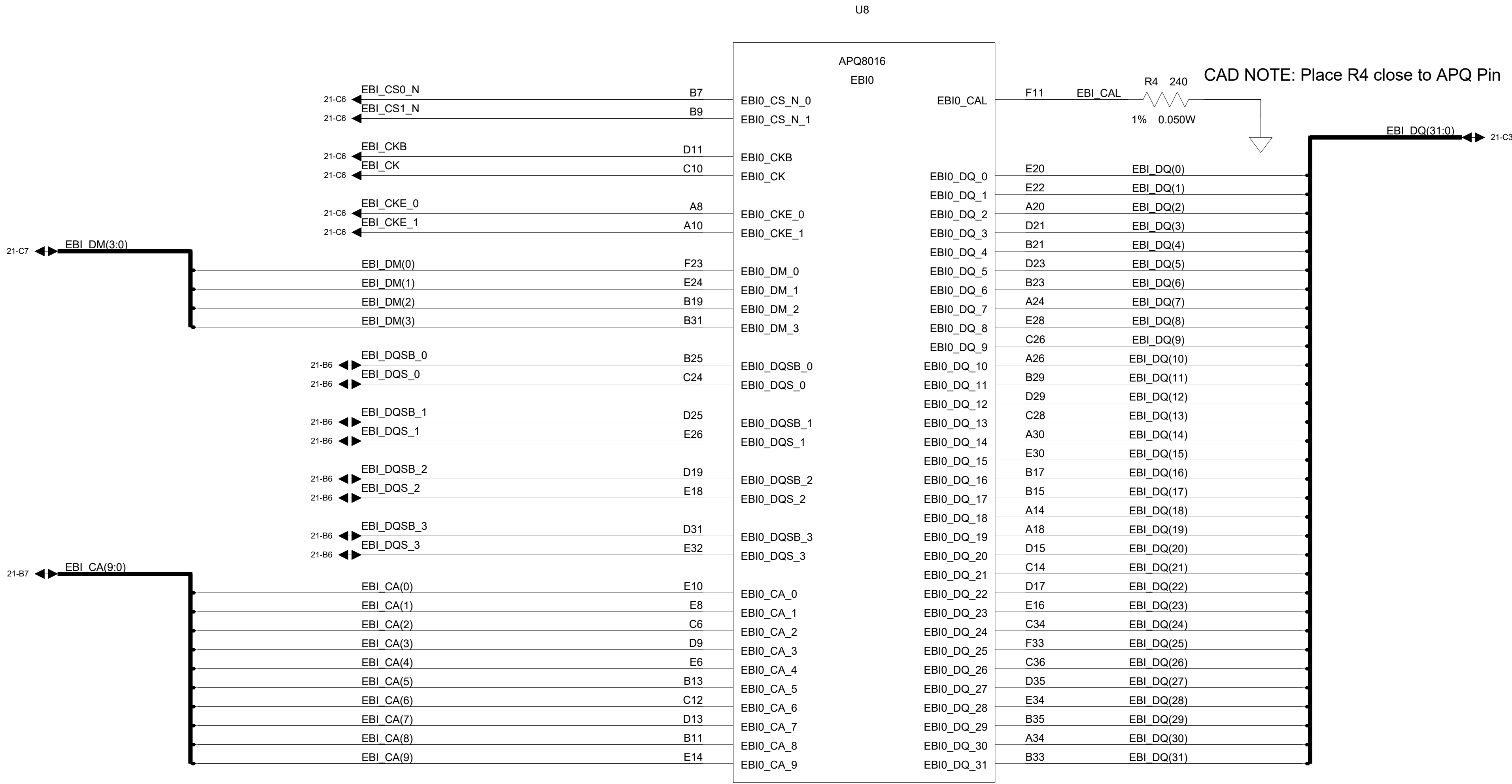


DragonBoard 410c

CONTRACT NO.		TITLE DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
DRAWN BY					
ENGINEER					
PROJECT ENGINEER					
QUALITY ASSURANCE					
CONFIGURATION		SIZE	DRAWING NO		REV
DESIGN ACTIVITY APPROVAL		D	LM25-P0436-1		A
DESIGN APPROVAL		SCALE NONE	RELEASE DATE 14.6.2017		SHEET 1 OF 33





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UART0 (LS EXP CONN)

UART1 (LS EXP CONN)
DEBUG UART

I2C0 (LS EXP CONN)
SENSORS I2C

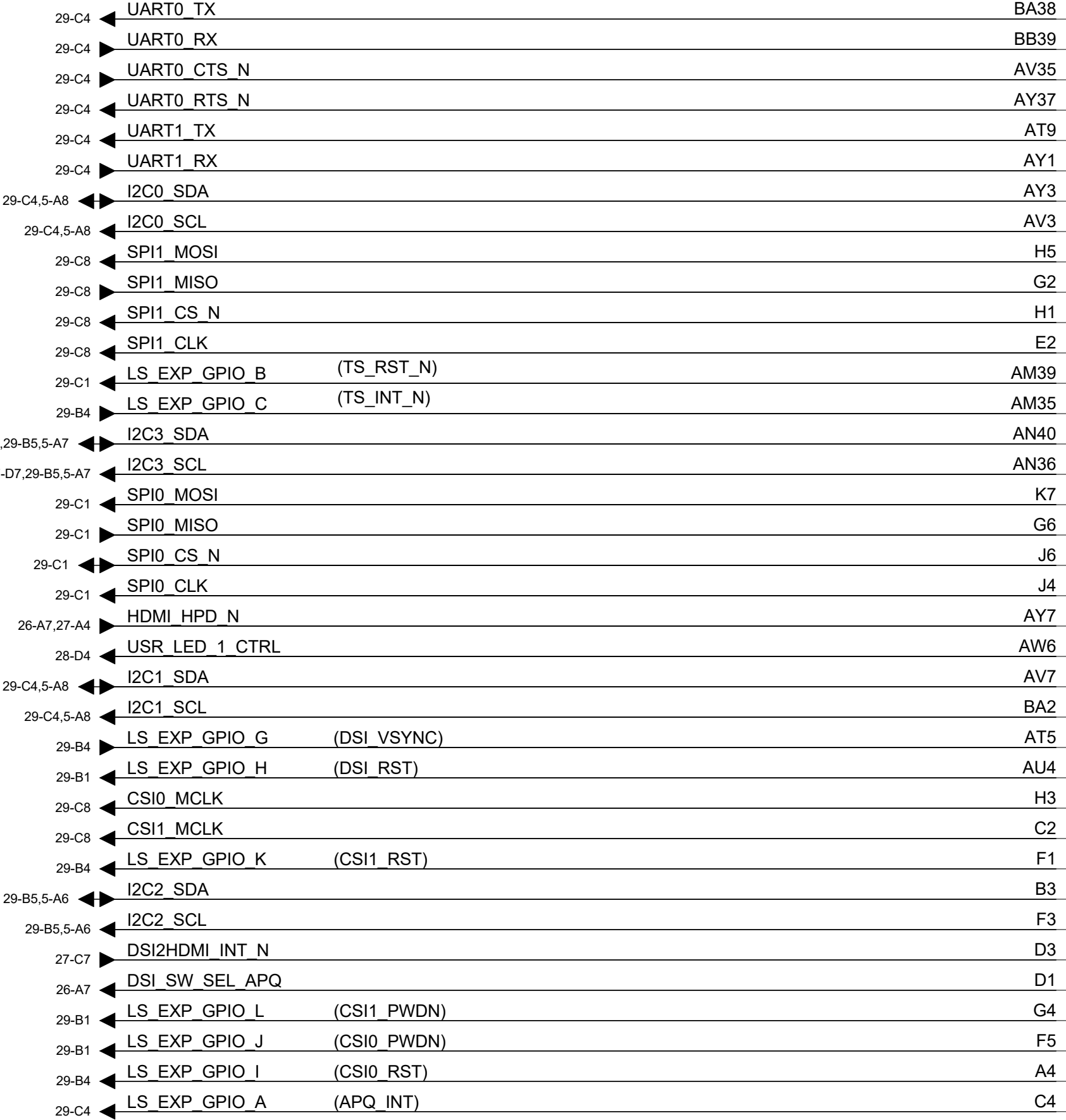
SPI1 (HS EXP CONN)

I2C3 (HS EXP CONN - OPT)
DSI2HDMI, USB HUB (OPT)

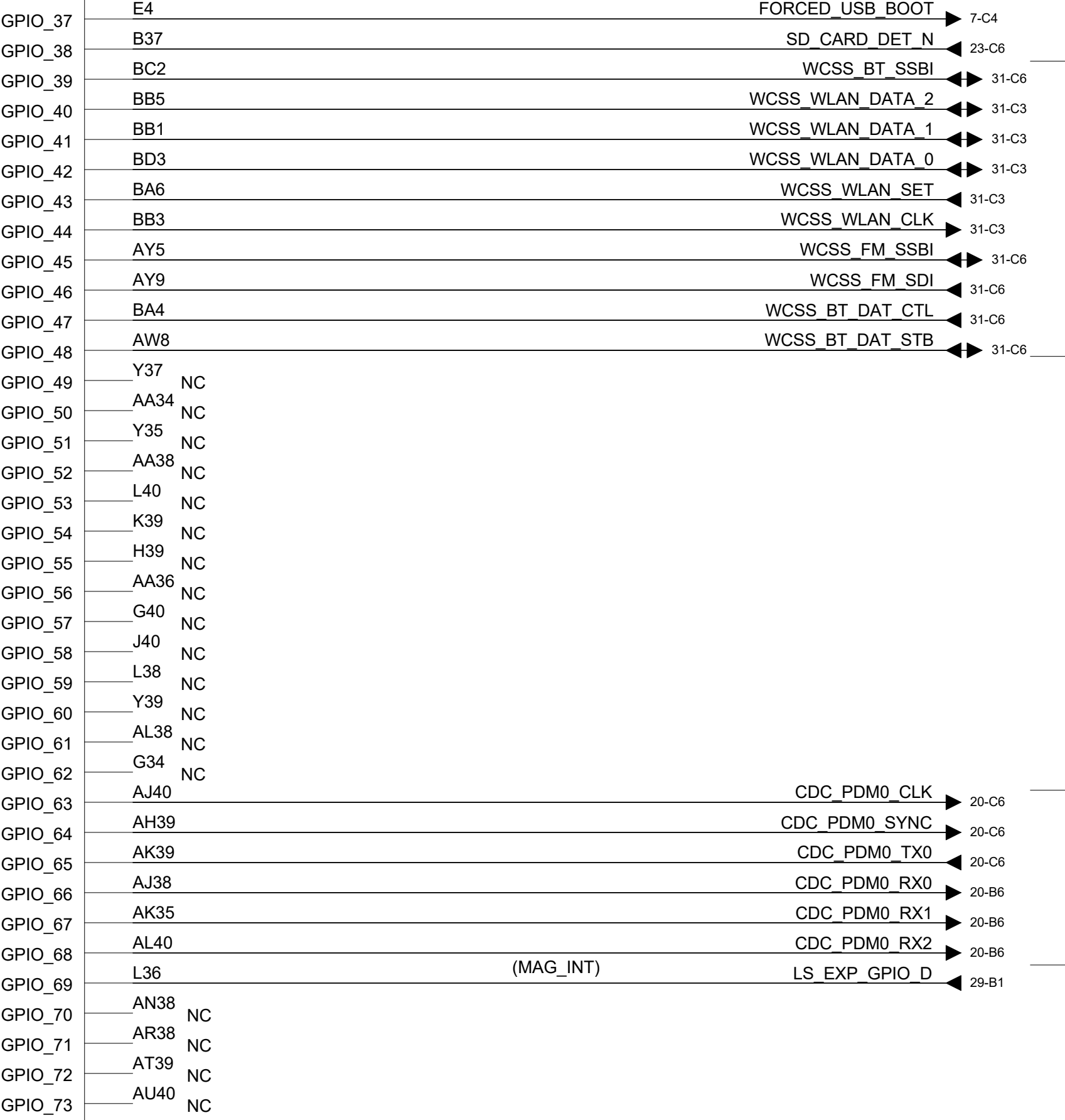
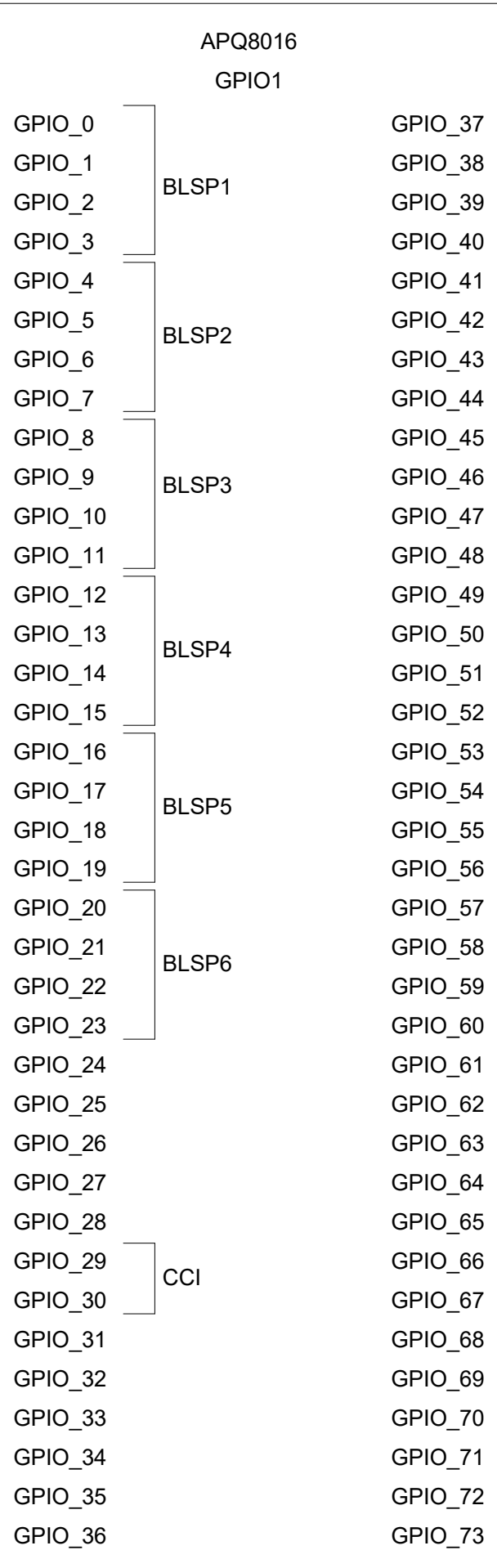
SPI0 (LS EXP CONN)
TOUCH SCREEN I2C

I2C1 (LS EXP CONN)

I2C2 (HS EXP CONN)
CAMERA I2C



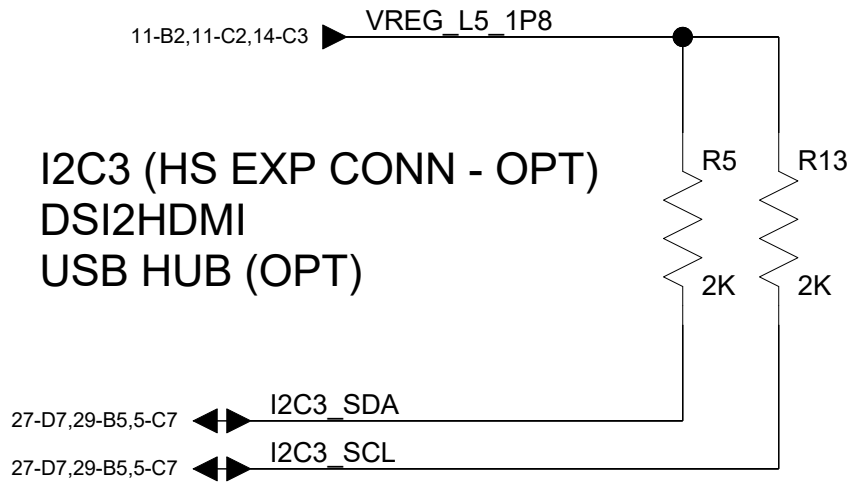
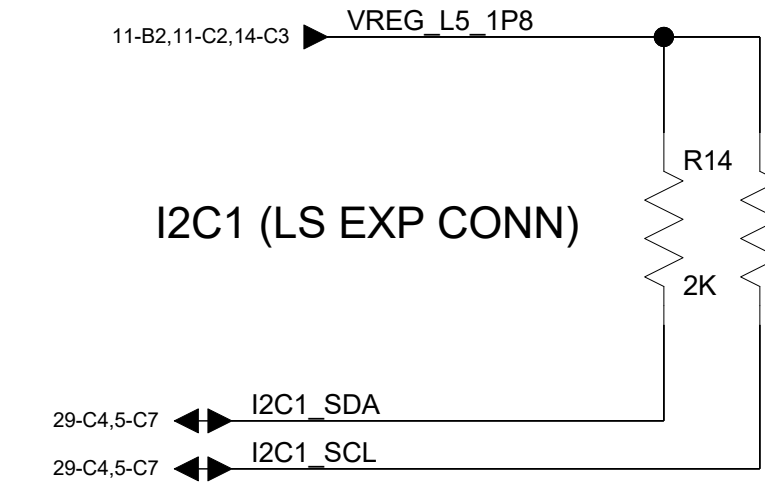
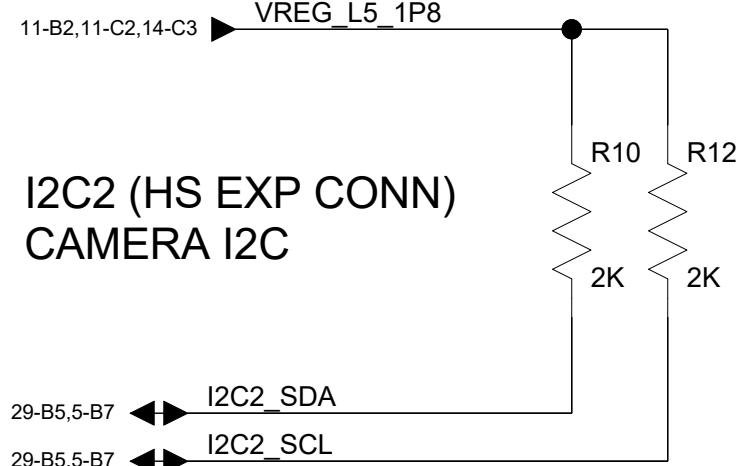
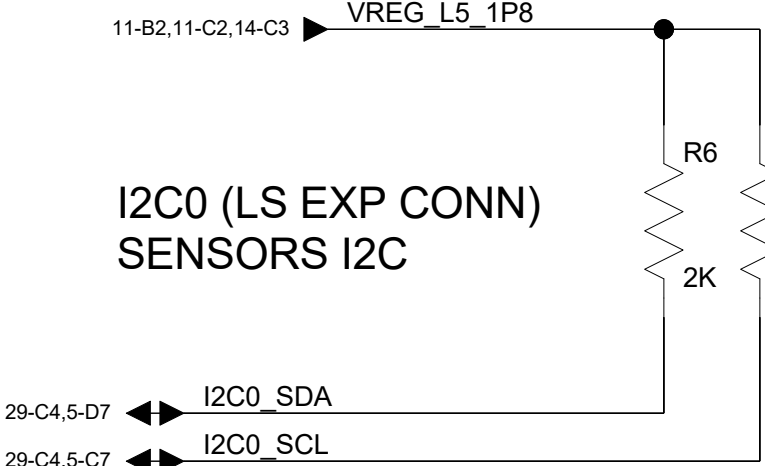
U8



WCSS (WLAN/BT/FM) SIGNALS

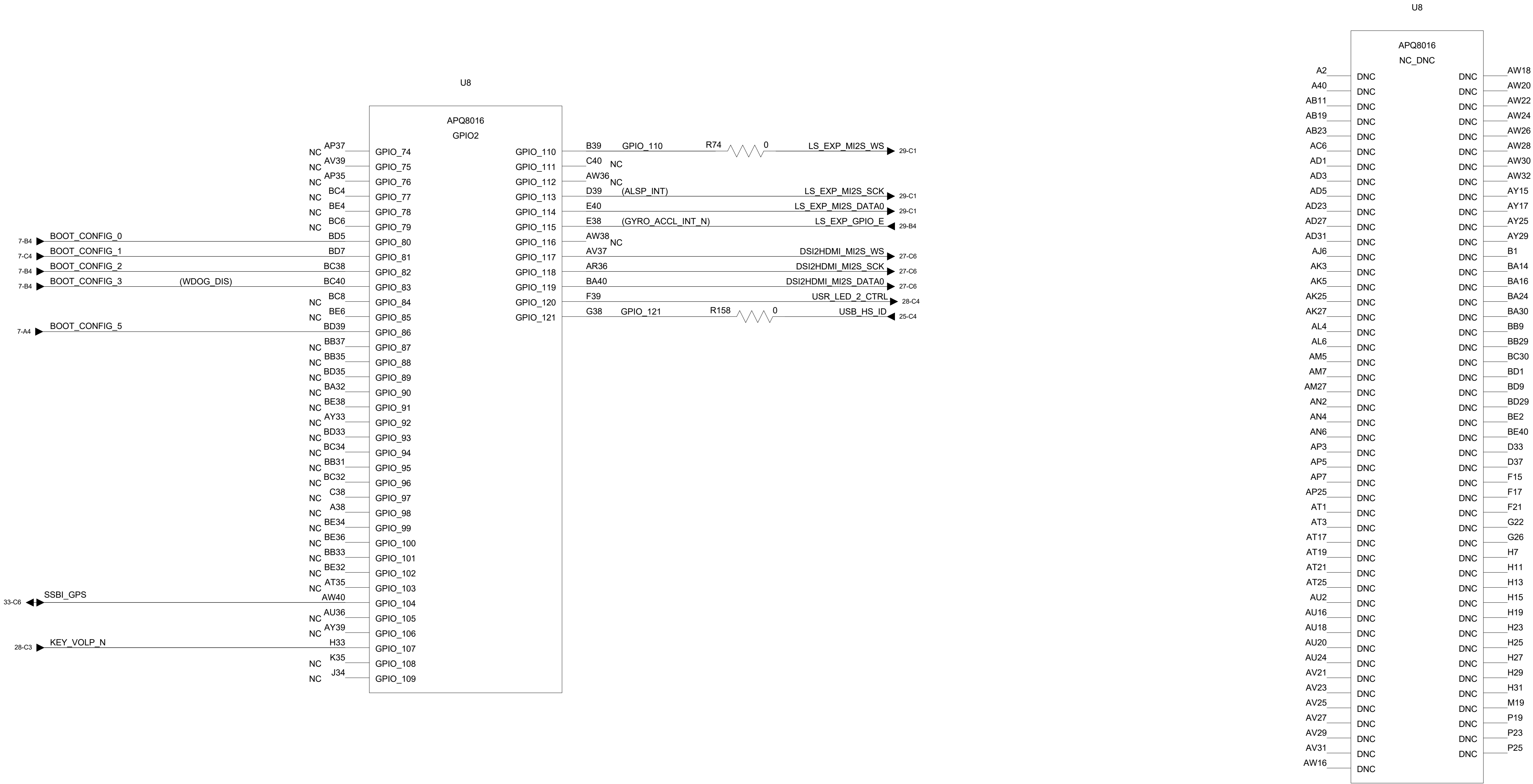
PM8916 CODEC SIGNALS

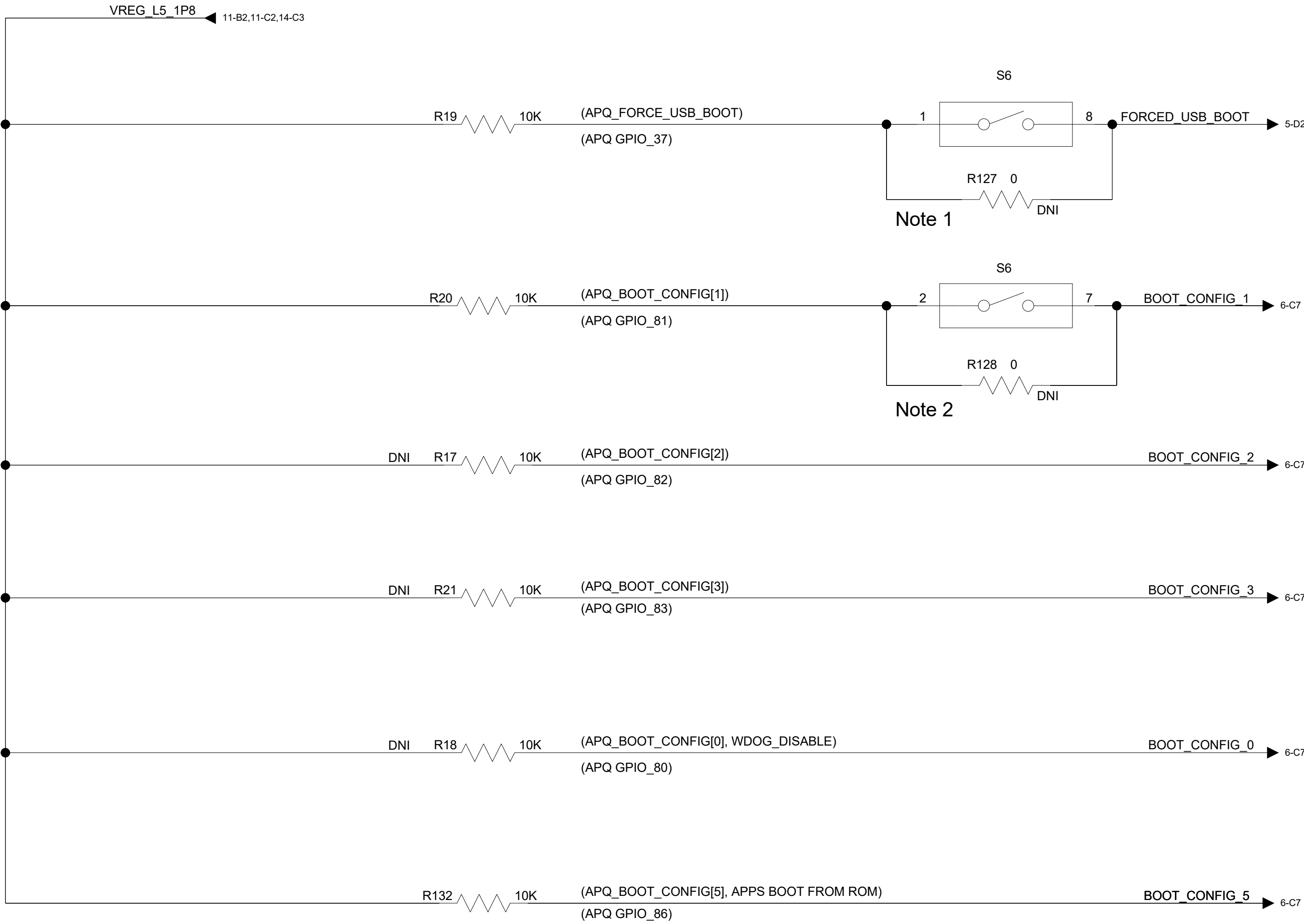
I2C PULL-UP RESISTORS



APQ8016 - GPIO 0-73

TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE	DRAWING NO	REV	
D		LM25-P0436-1	
SCALE NONE		SHEET 5	OF 33





BOOT CONFIGURATIONS	
BOOT_CONFIG[3:1]	BOOT OPTIONS
0b000	SDC1 --> SDC2 --> USB2.0
0b001	SDC2 --> SDC1 --> USB2.0
0b010	SDC1 --> USB2.0
0b011	USB2.0

Default Boot Config (0b000) is eMMC on the SDC1

Note 1: Short between resistors pads to force boot from USB when dip-switch is not installed
Note 2: Short between resistors pads to boot from uSD when dip-switch is not installed



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D

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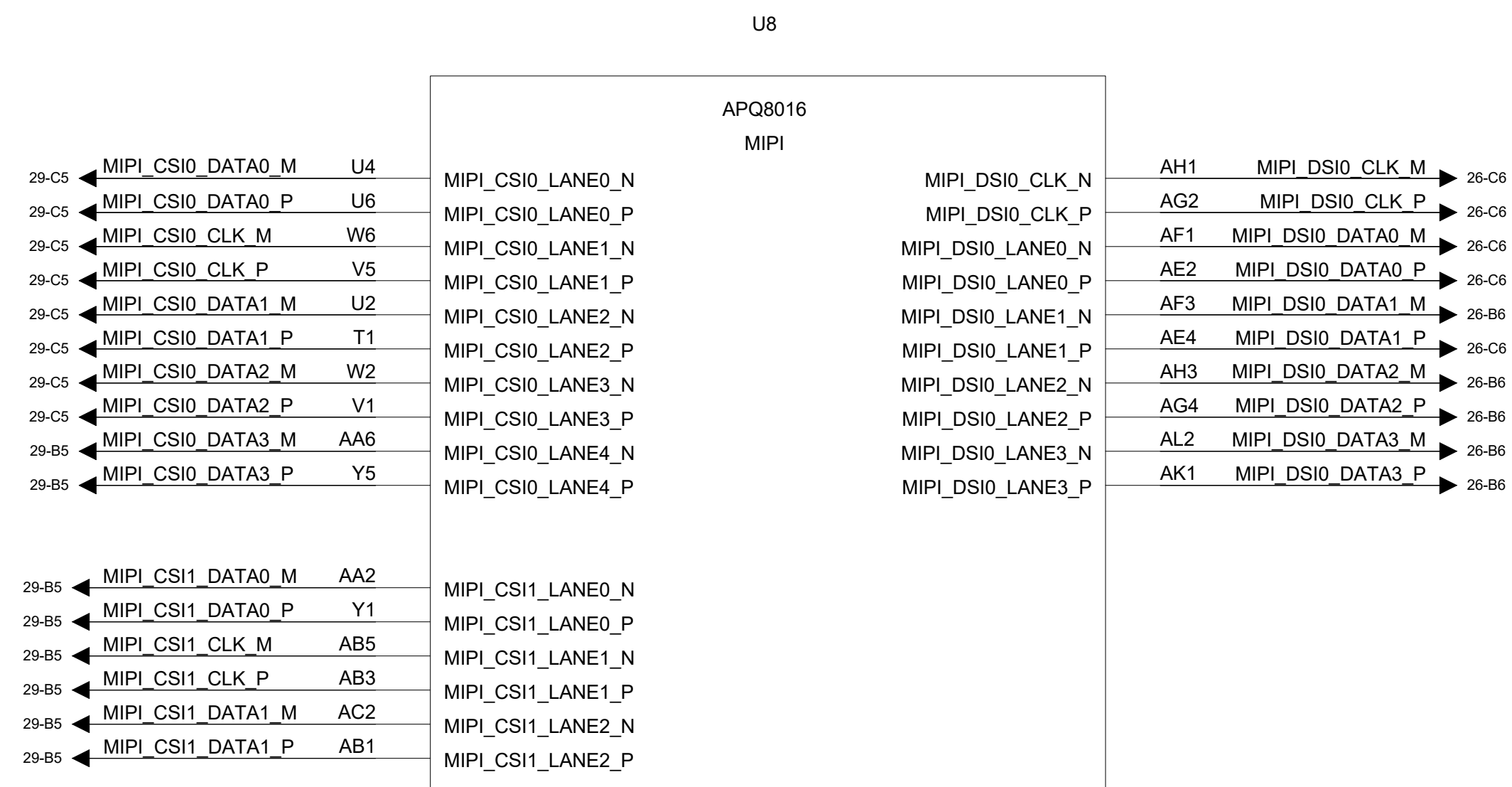
C

B

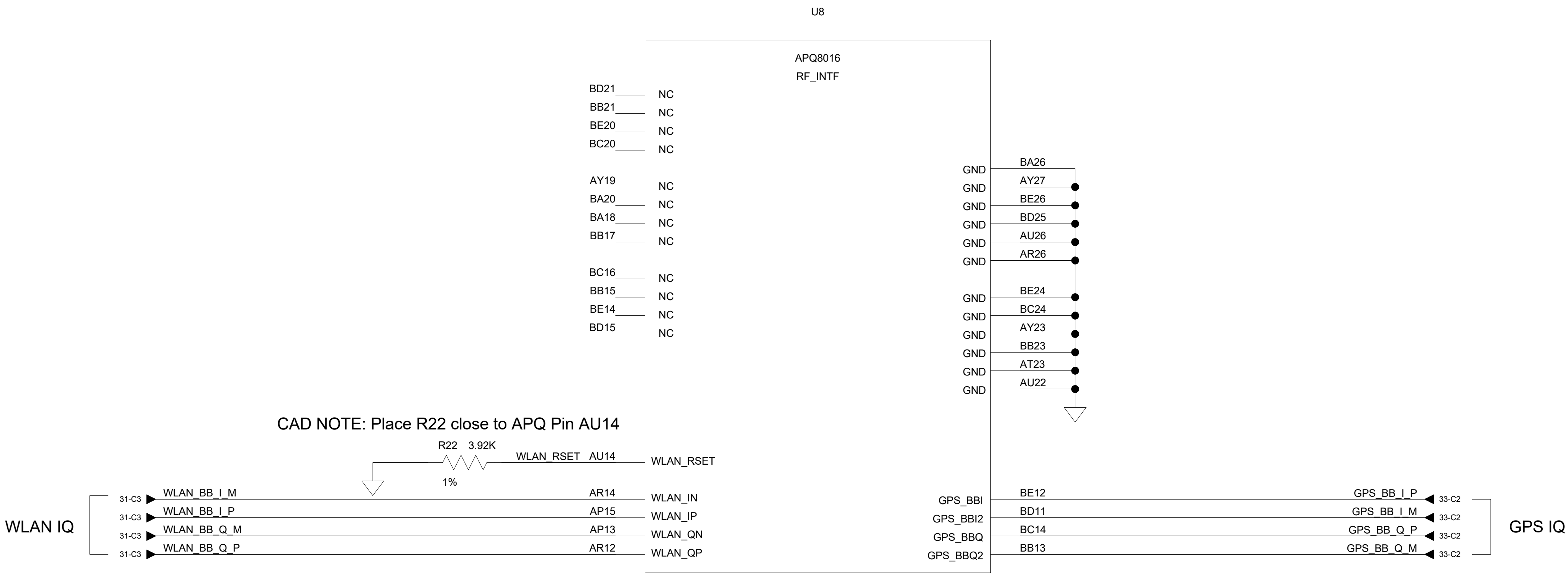
B

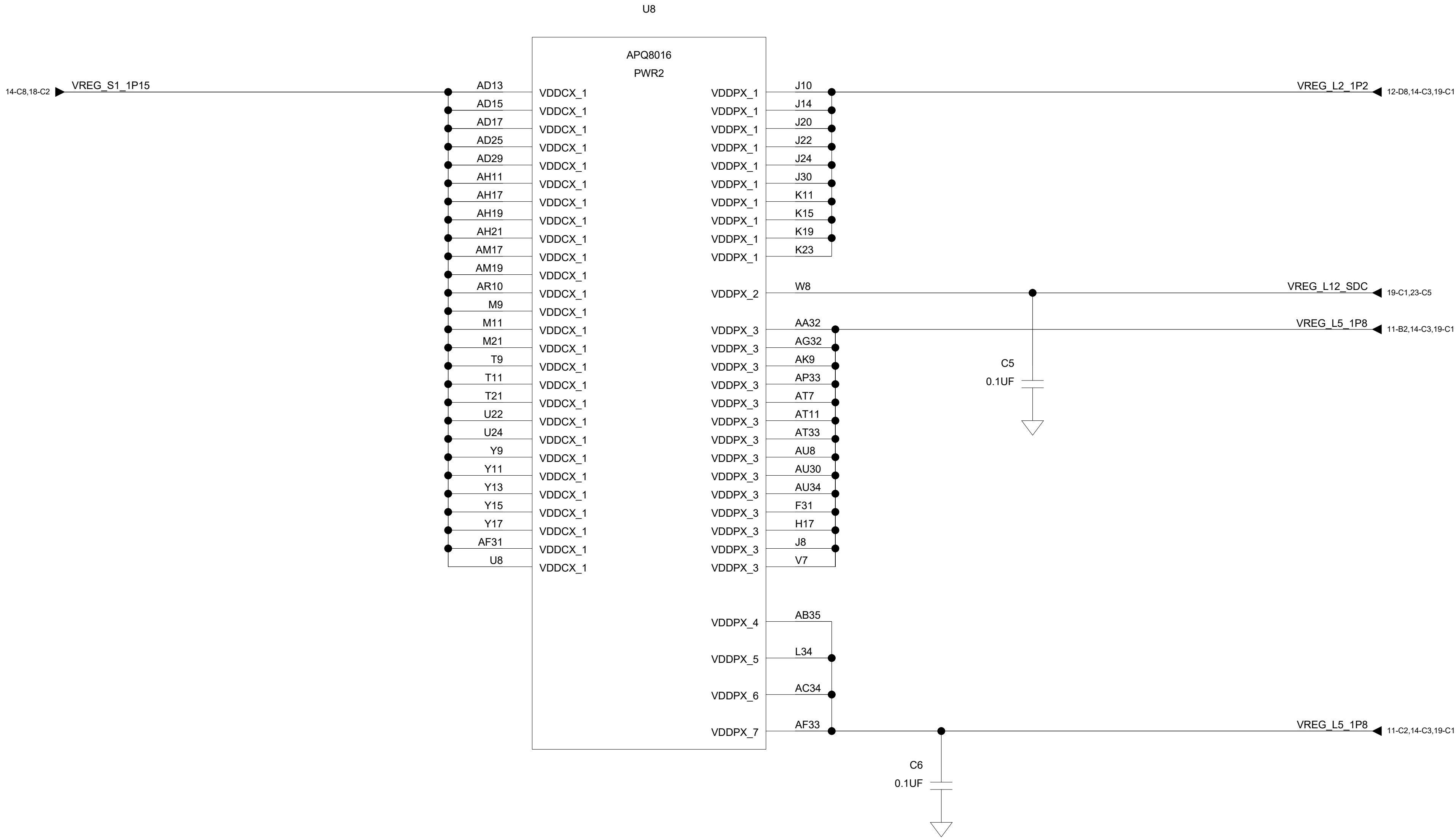
A

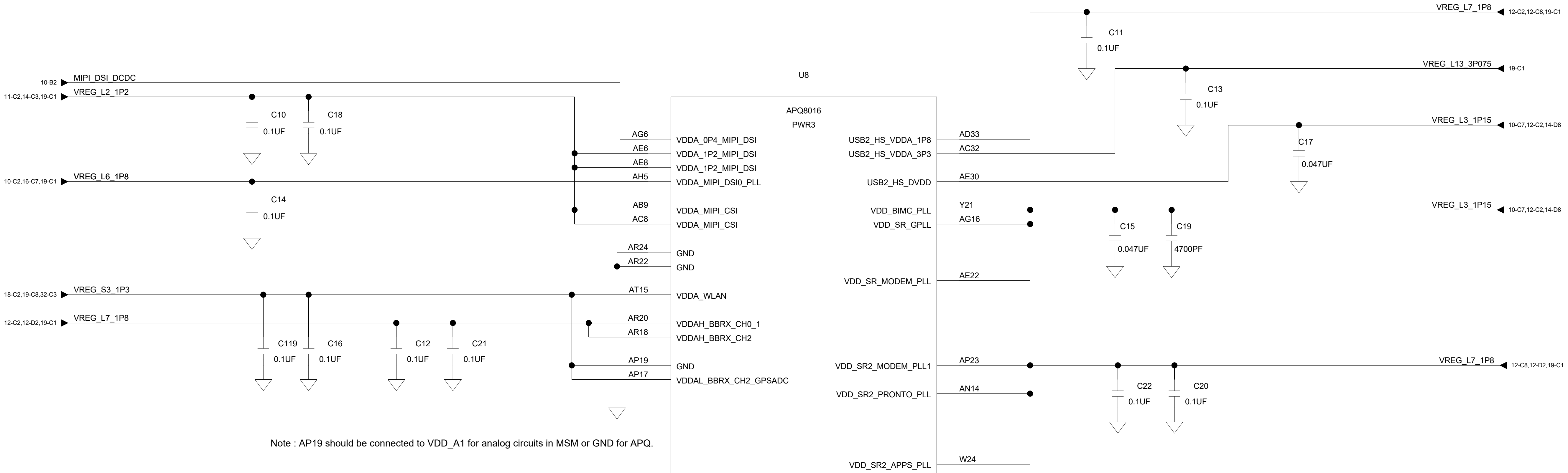
A

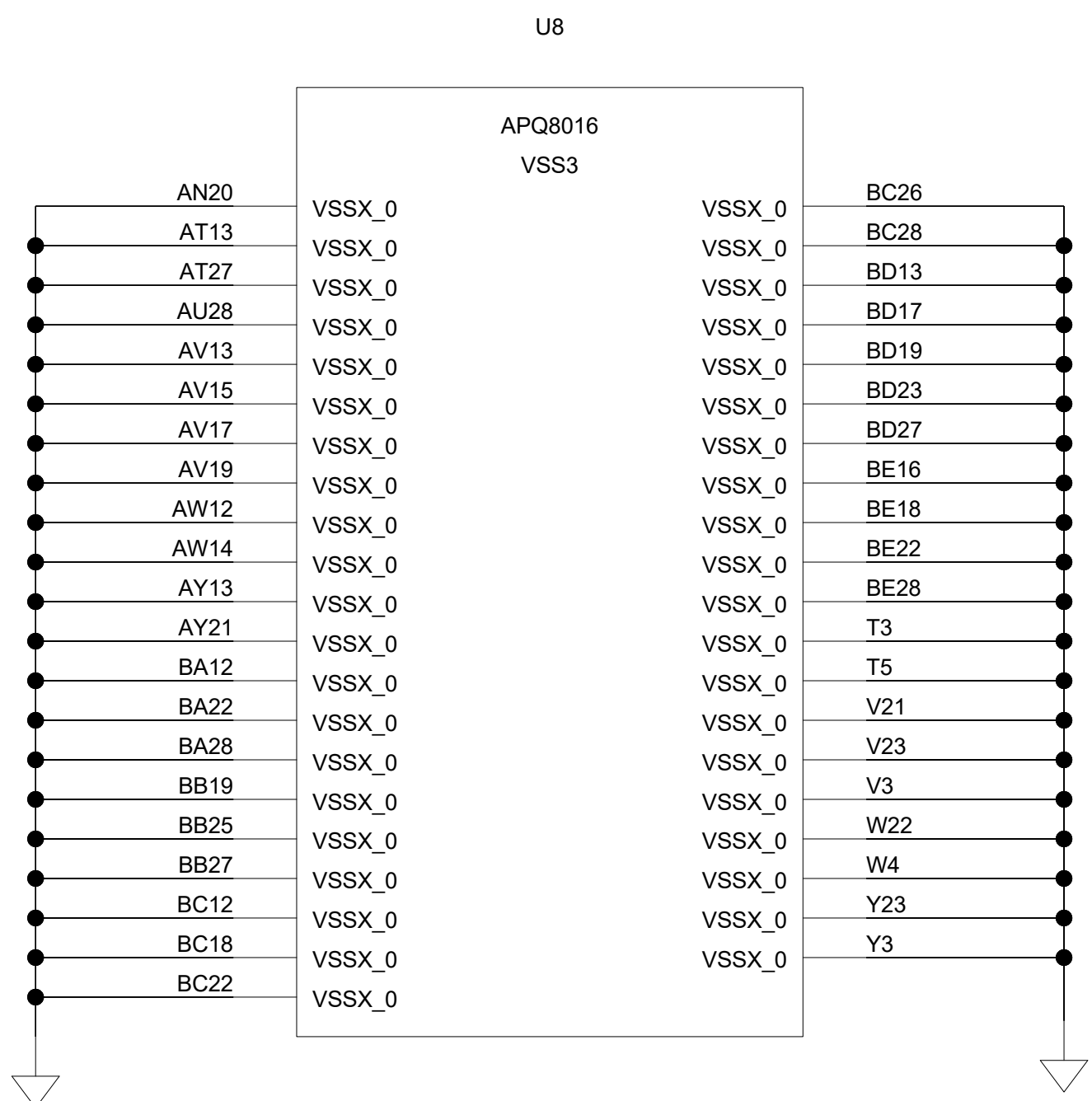
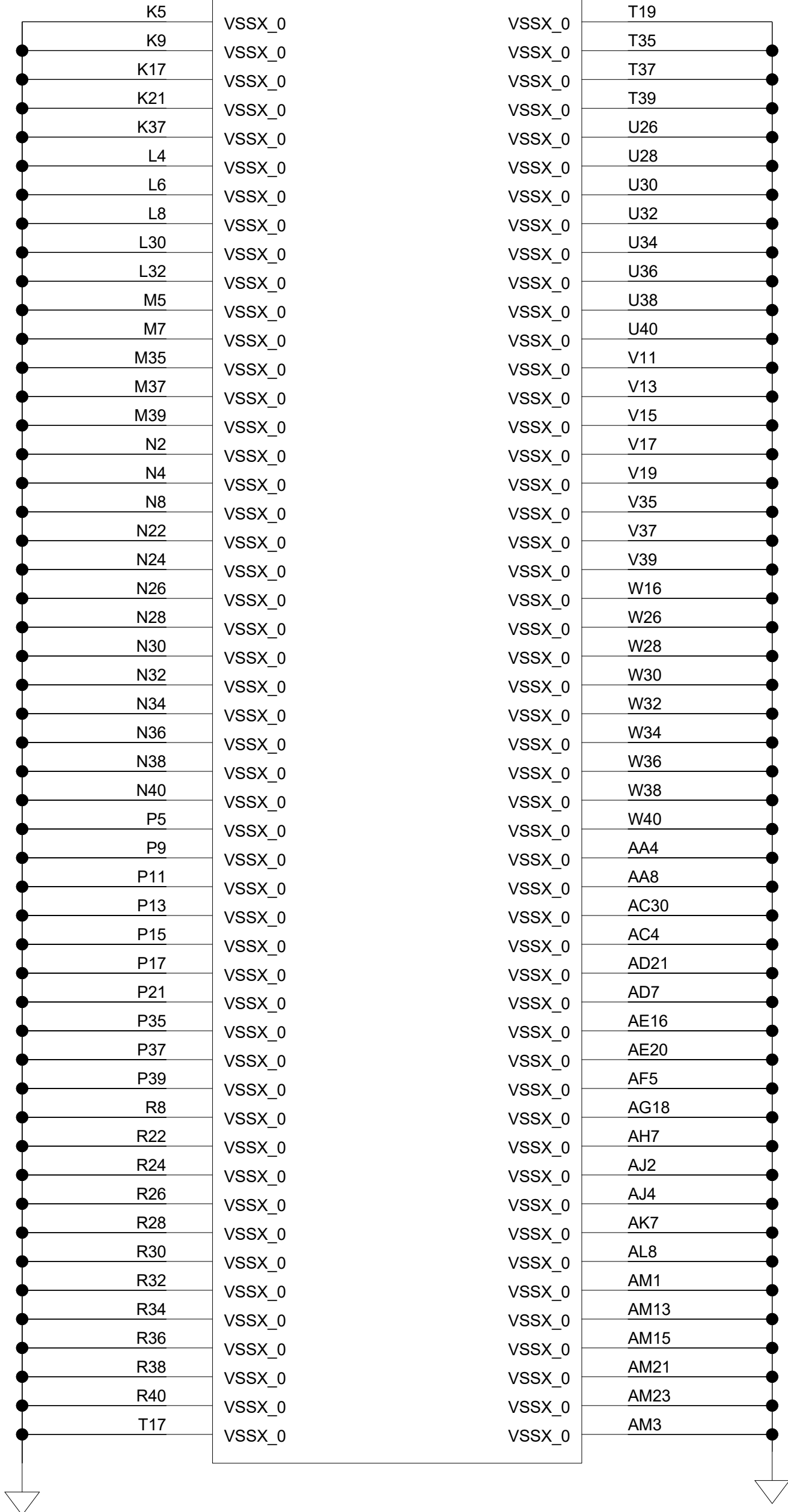


TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE		DRAWING NO	REV
D		LM25-P0436-1	A
SCALE	NONE		SHEET 8 OF 33

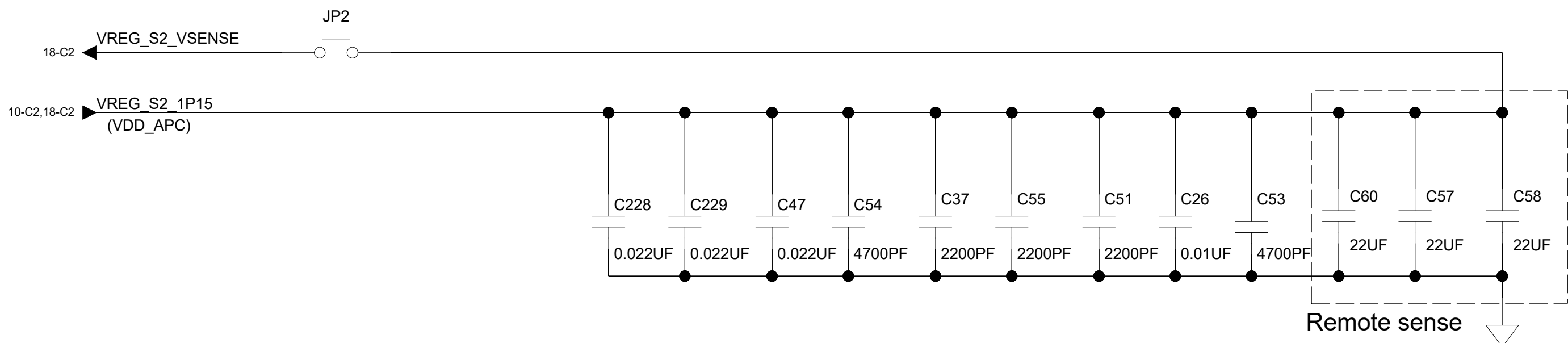
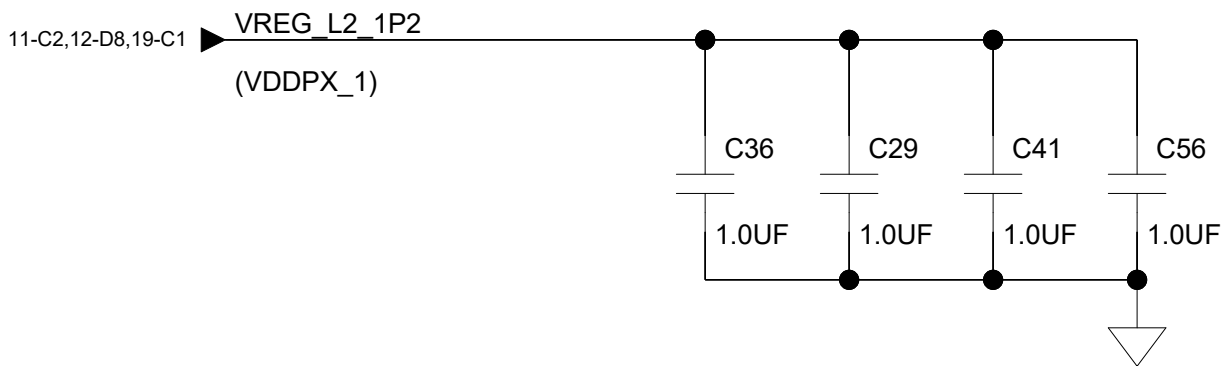
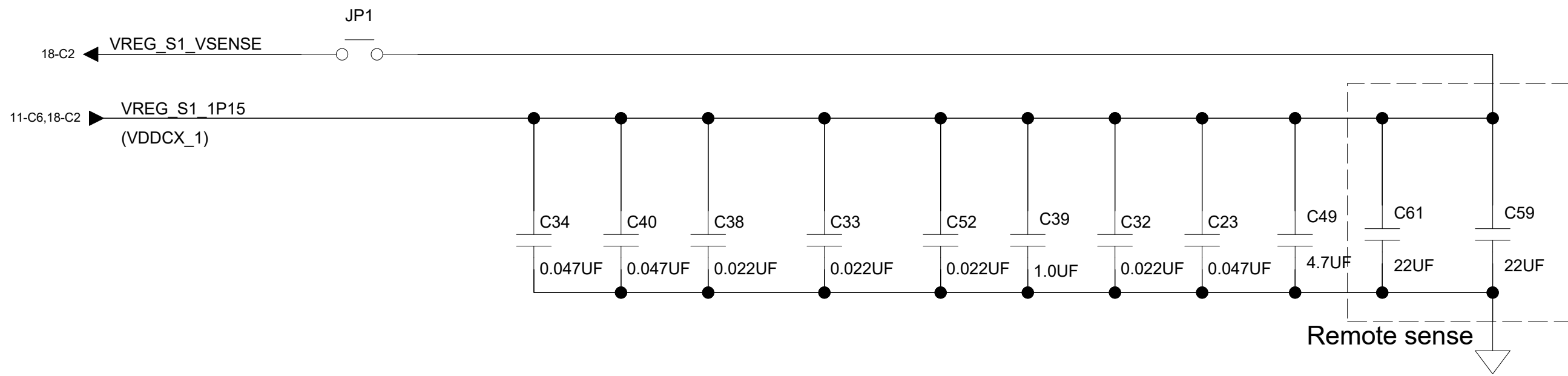
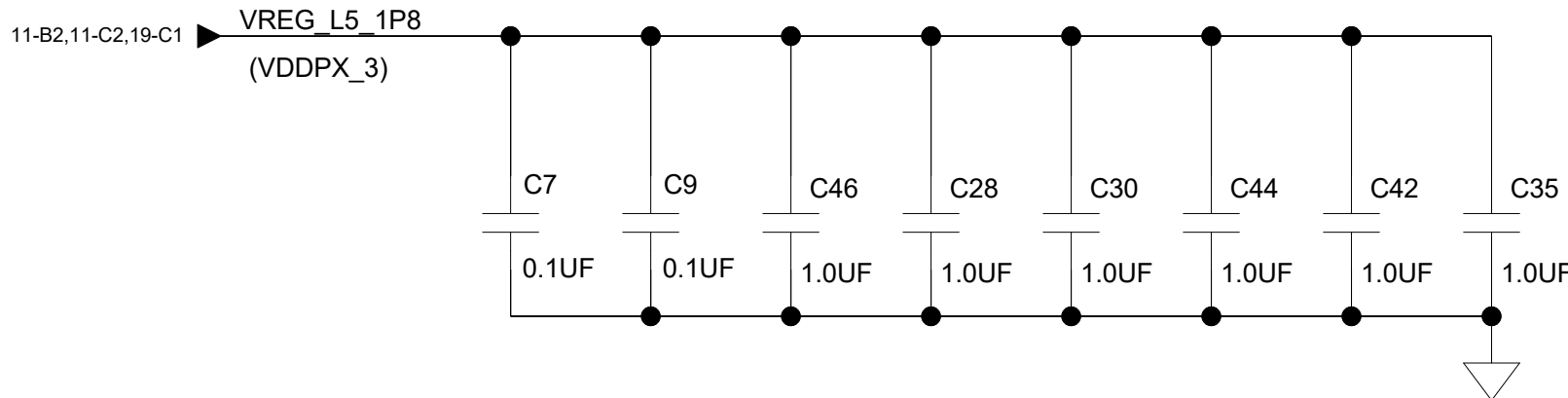
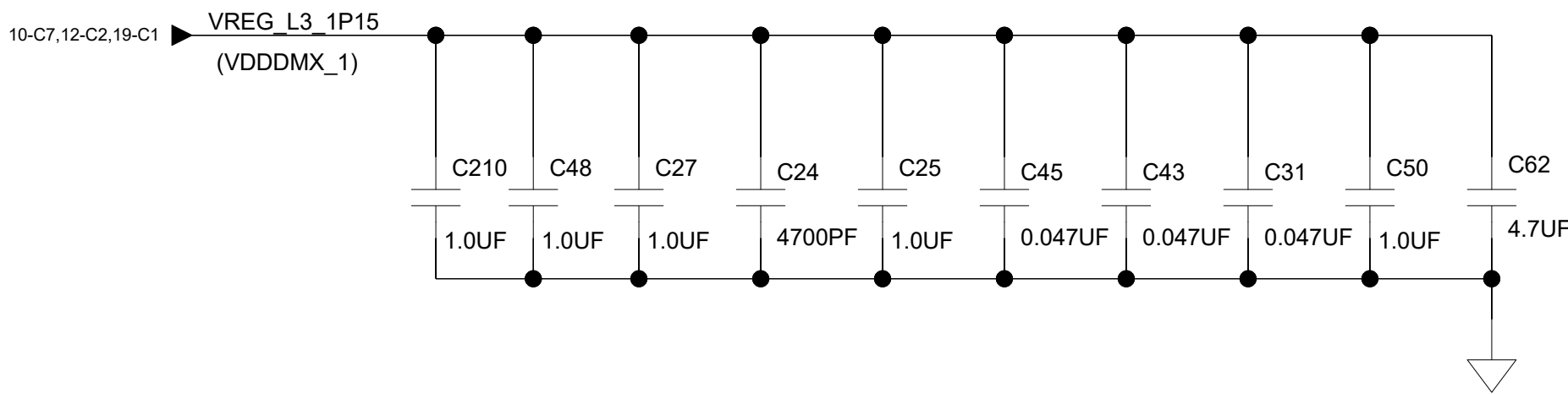








SH2
50-NU856-P1
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26
DNI



D

C

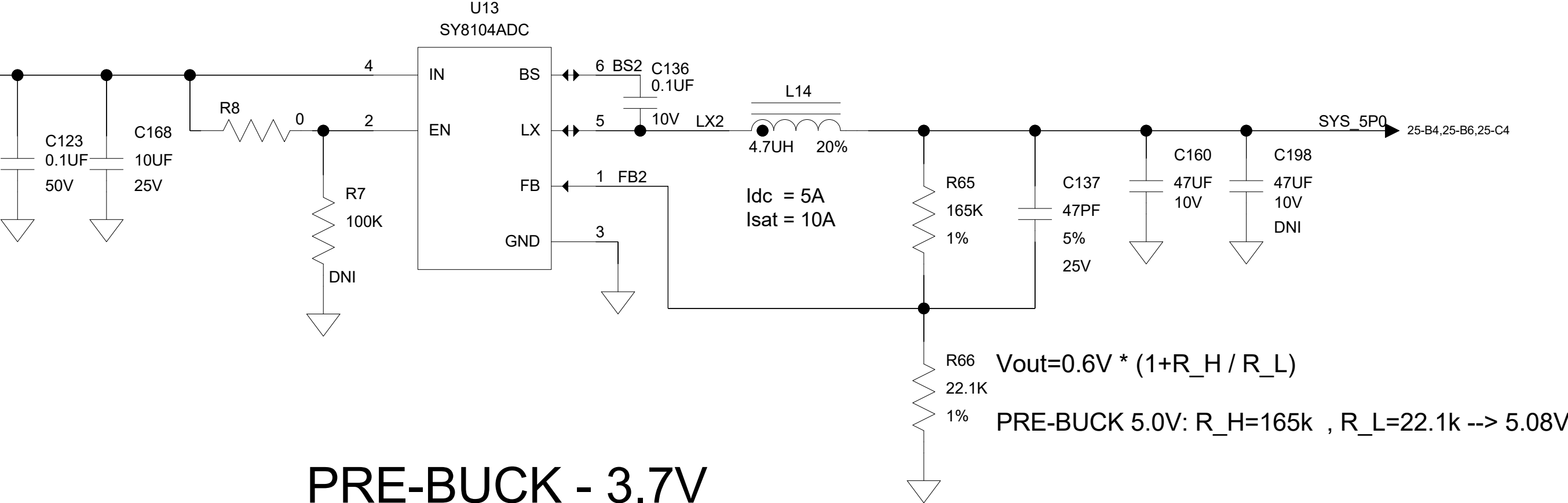
B

A

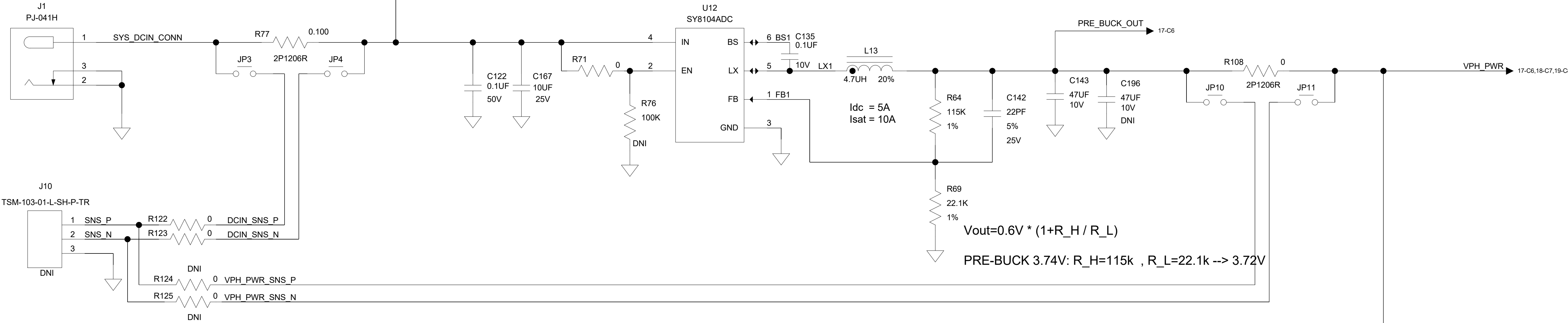
To/From LS EXP CONN

SYS_DCIN

PRE-BUCK - 5.0V



PRE-BUCK - 3.7V

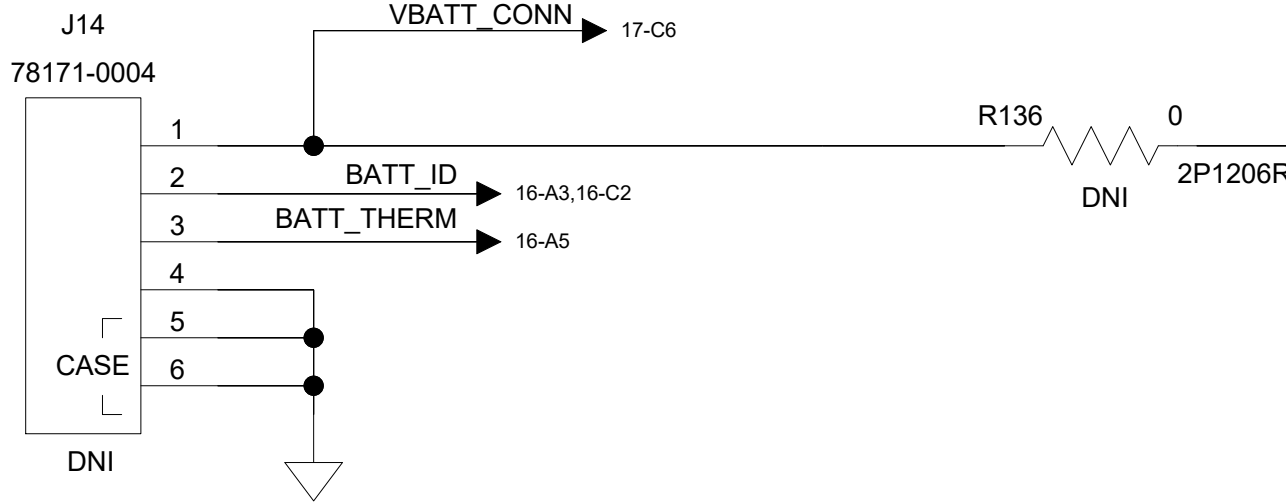


ARM ENERGY PROBE (PWR MEAS)

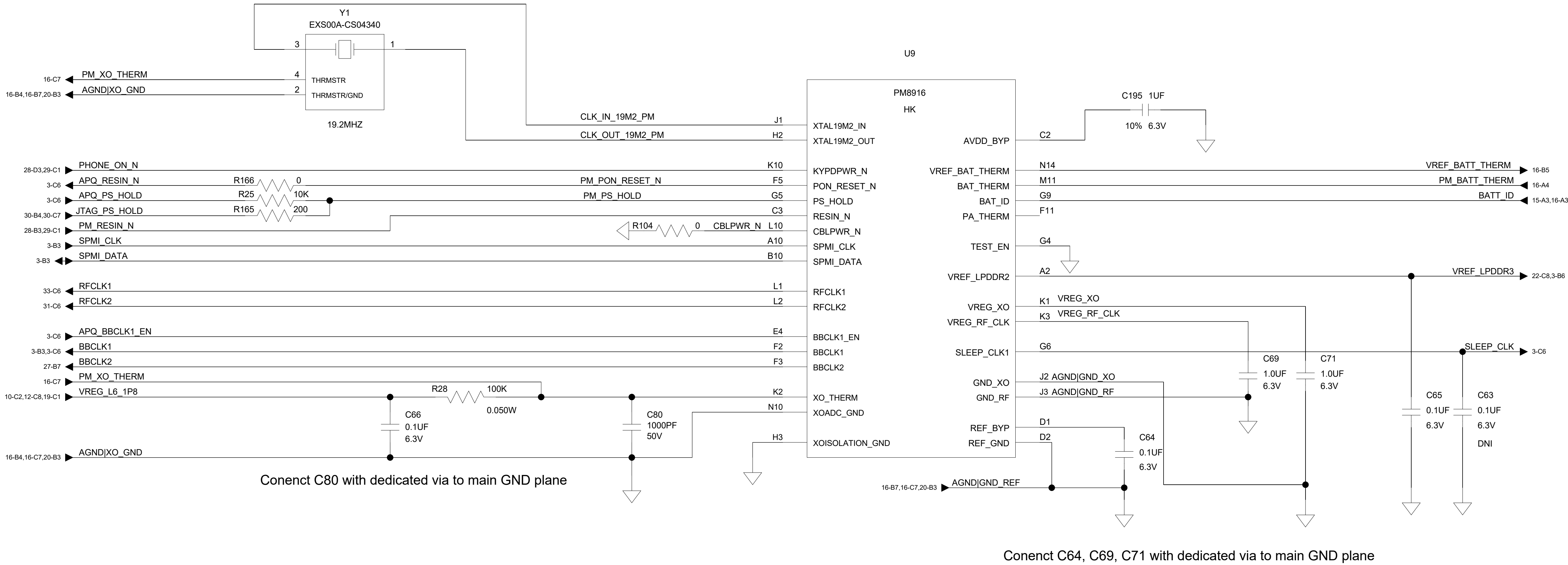
SUPPORTED	ASSY OPTION
YES	INSTALL J10
NO	DNI J10

VPH_PWR SOURCE

BOM CONFIG	SUPPORTED	ASSY OPTION
Hx0x, HX5X	3.7V BUCK	INSTALL R108 DNI J14, R136
NONE	BATTERY	DNI R108 INSTALL J14, R136

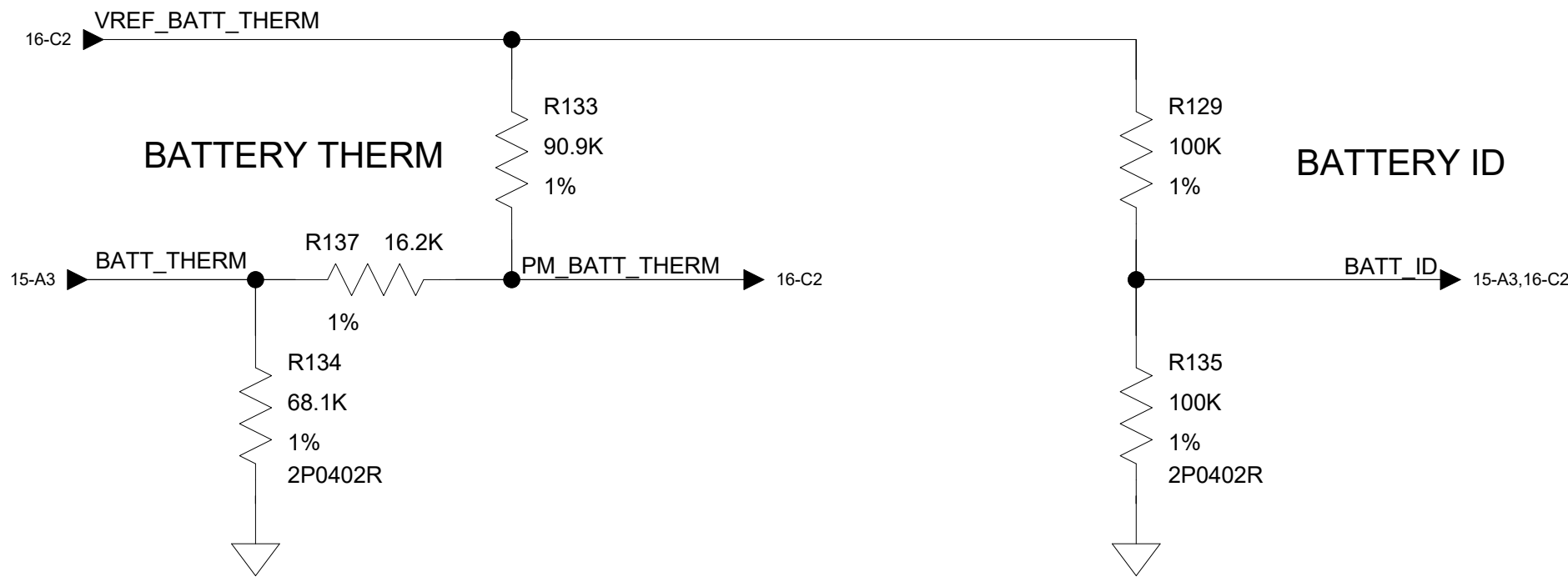


TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE	DRAWING NO		REV
D	LM25-P0436-1		A
SCALE		SHEET	OF
NONE		15	33



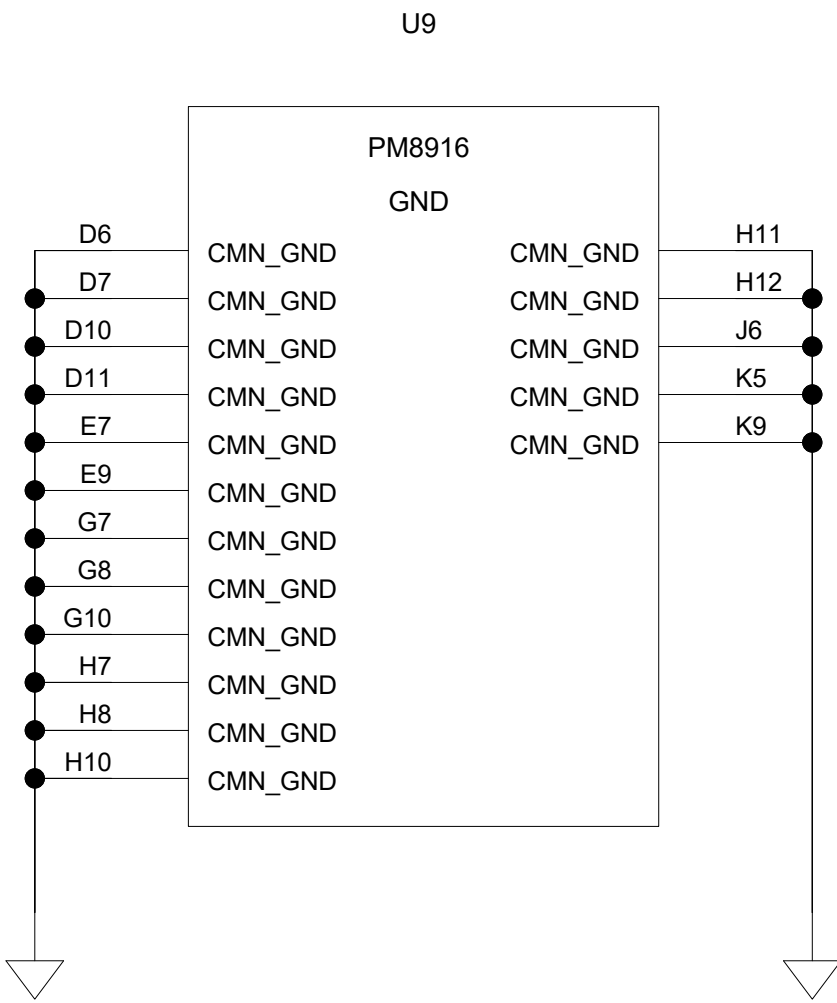
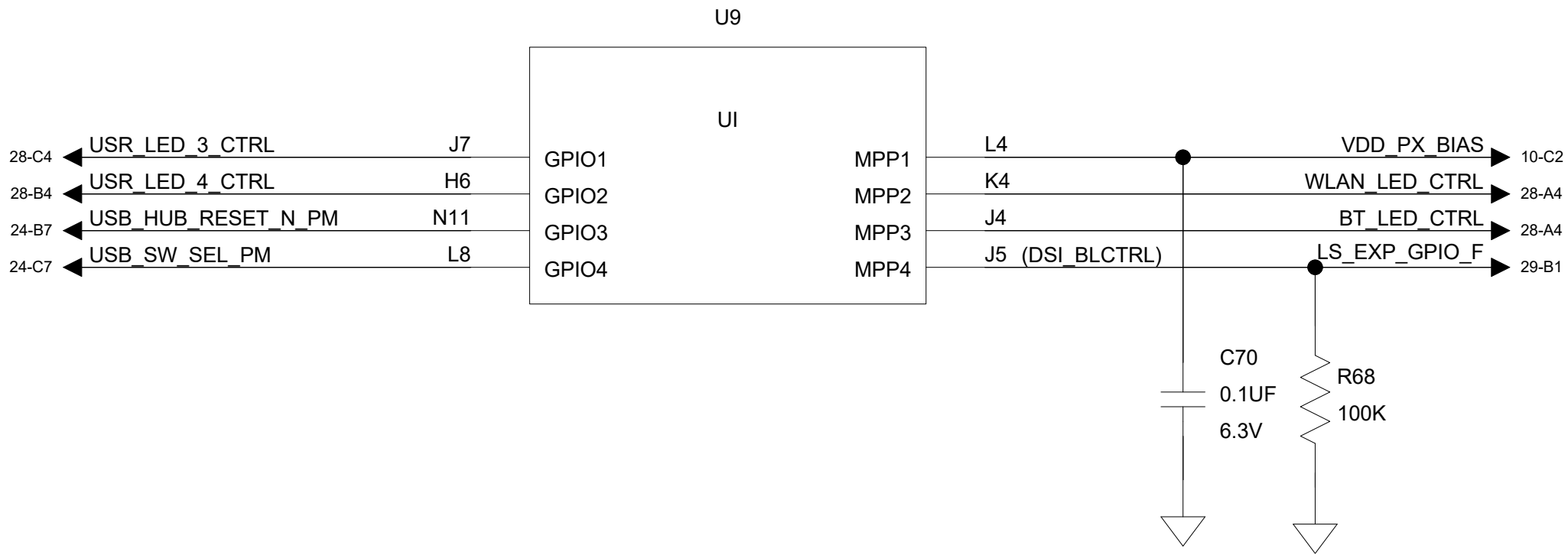
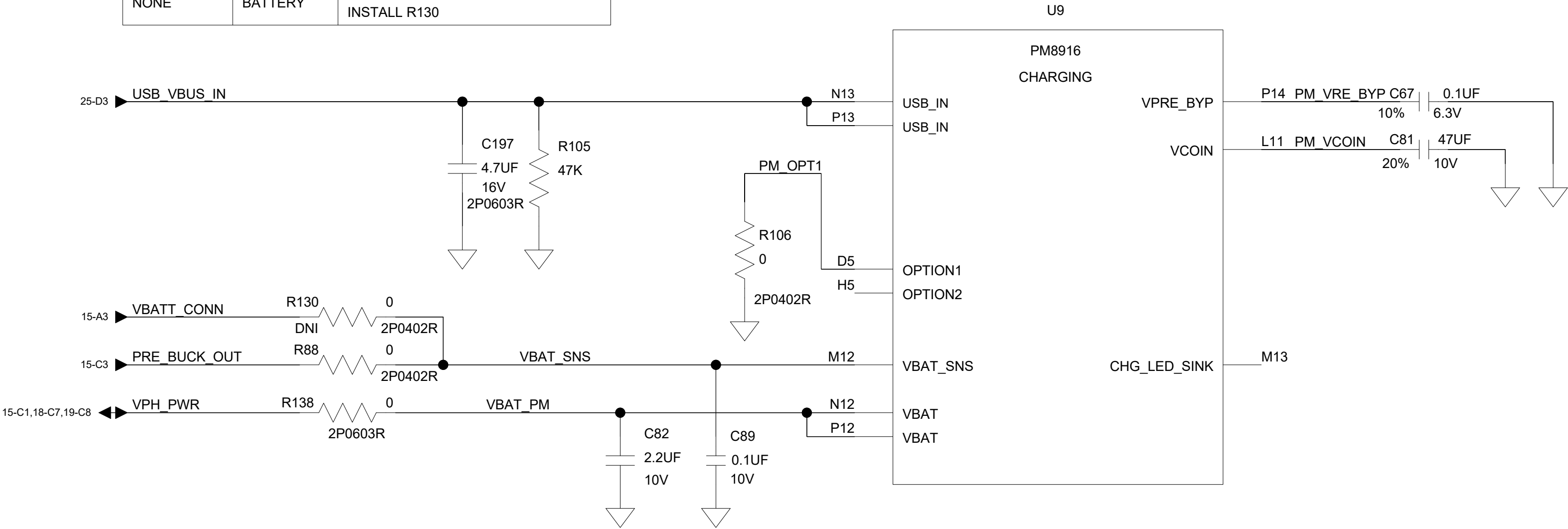
VPH_PWR SOURCE

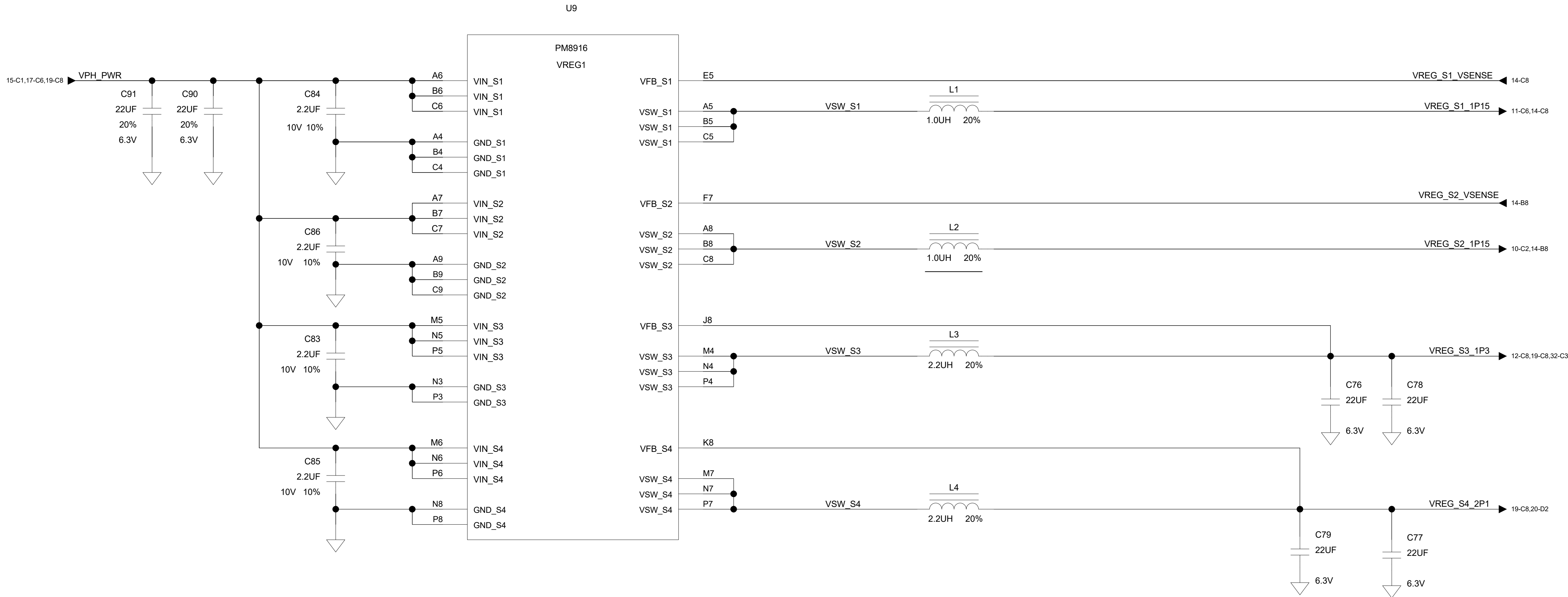
BOM CONFIG	SUPPORTED	ASSY OPTION
Hx0x, HX5X	3.7V BUCK	INSTALL R134,R135
NONE	BATTERY	DNI R134,R135



VPH_PWR SOURCE

BOM CONFIG	SUPPORTED	ASSY OPTION
Hx0x, HX5X	3.7V BUCK	INSTALL R106,R88 DNI R130
NONE	BATTERY	DNI R106,R88 INSTALL R130



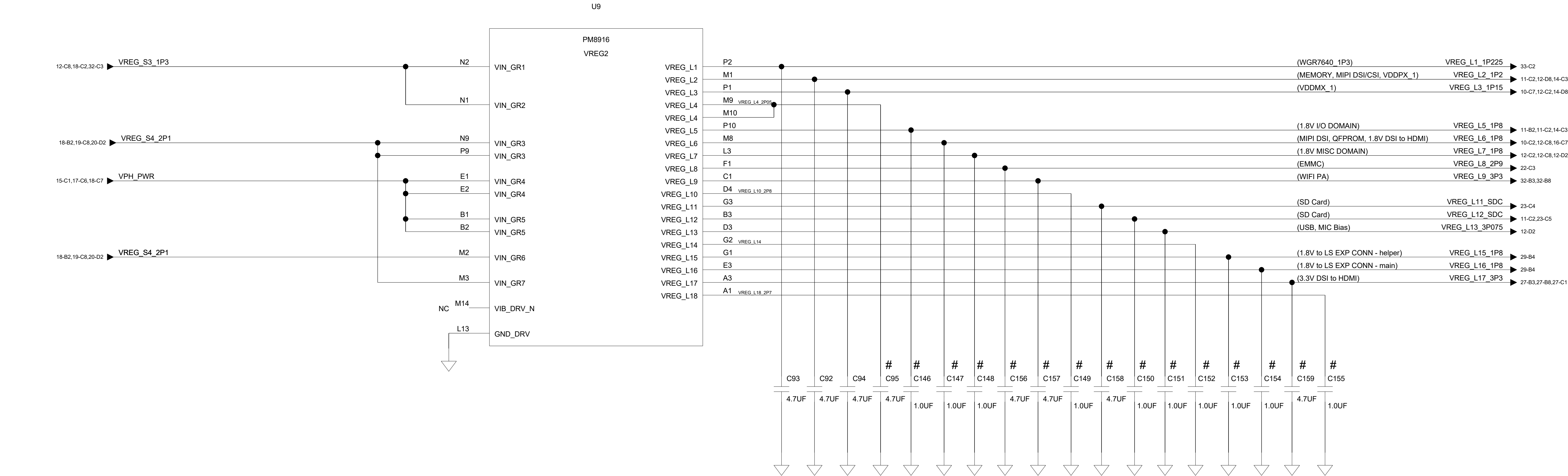


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NOTES:

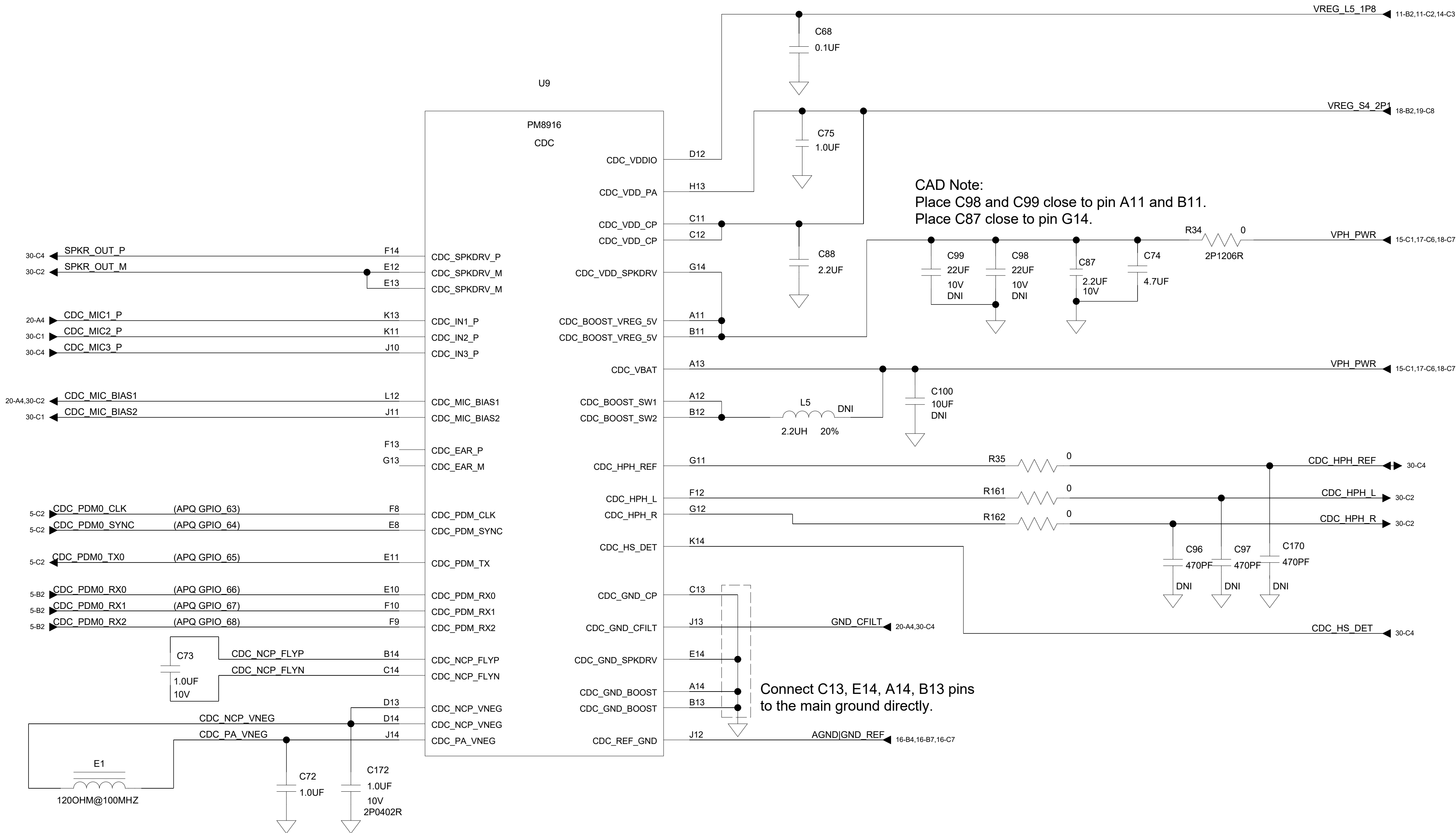
Effective output capacitance

LDOs L1, L2, L3, L4, L8, L9, L11, L17 --> Cout_eff = 4.7uF

LDOs L5, L6, L7, L10, L12, L13, L14, L15, L16, L18 --> Cout_eff = 1.0uF

PSEUDO CAPLESS LDOs (indicated by # near the capacitor)

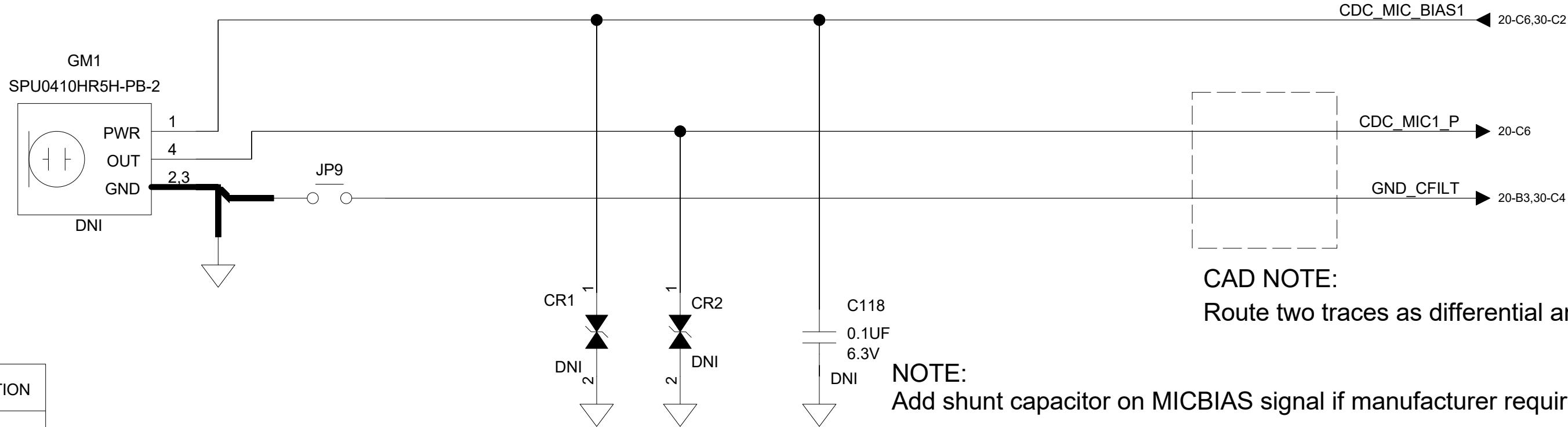
L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18



CAD Note:
Place C98 and C99 close to pin A11 and B11.
Place C87 close to pin G14.

Connect C13, E14, A14, B13 pins
to the main ground directly.

ANALOG MIC



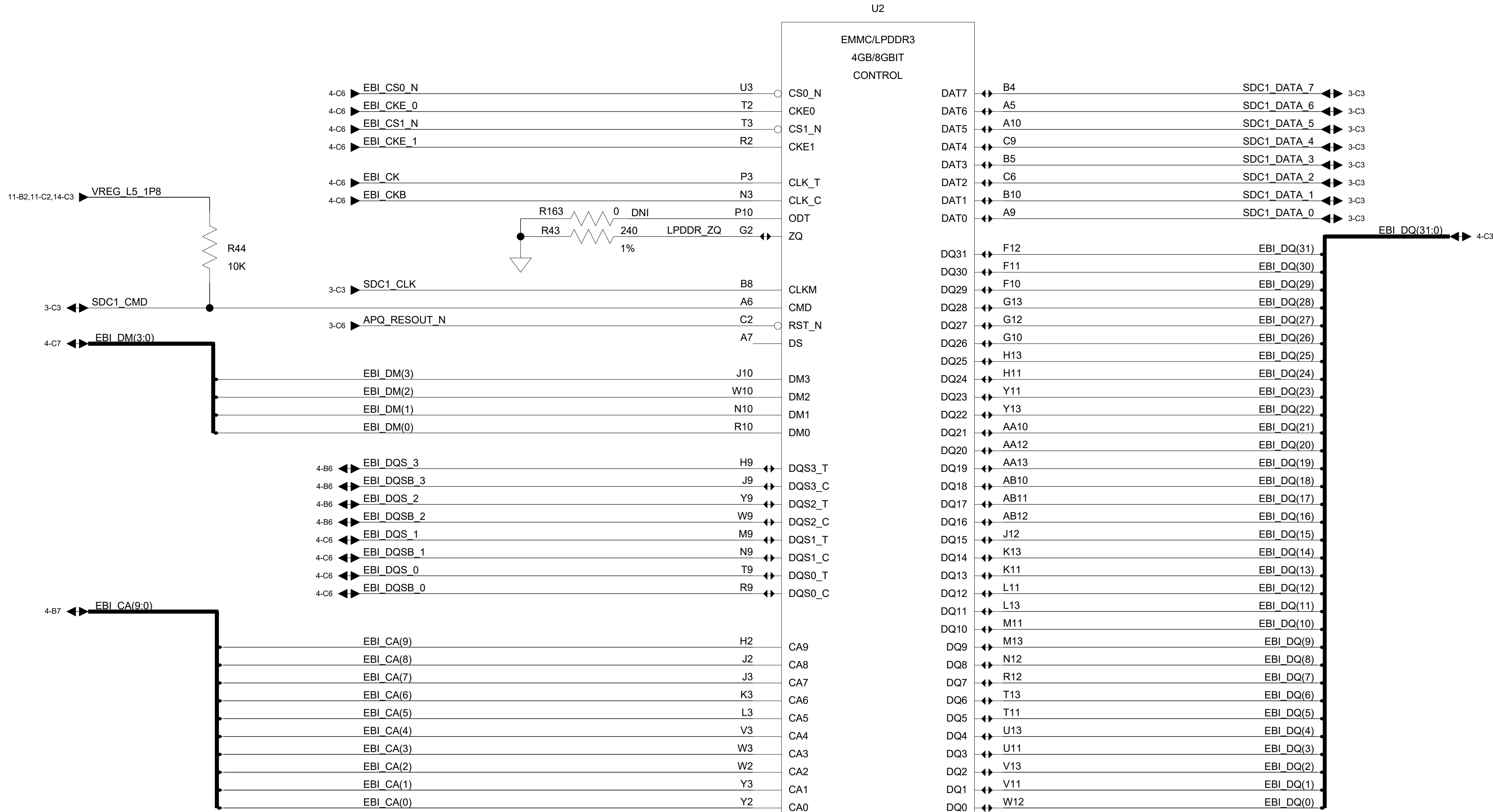
CAD NOTE:
Route two traces as differential and

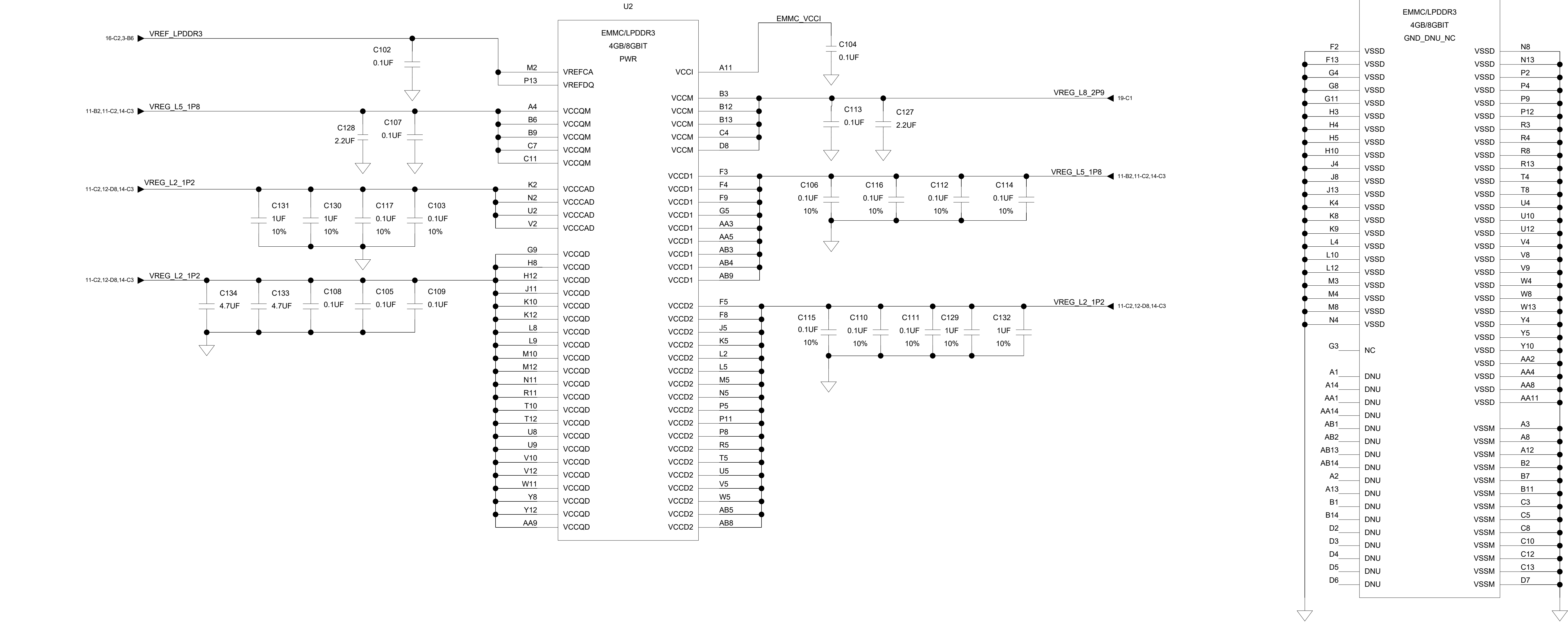
NOTE:
Add shunt capacitor on MICBIAS signal if manufacturer requires it.

ANALOG MIC

SUPPORTED	ASSY OPTION
YES	INSTALL GM1
NO	DNI GM1

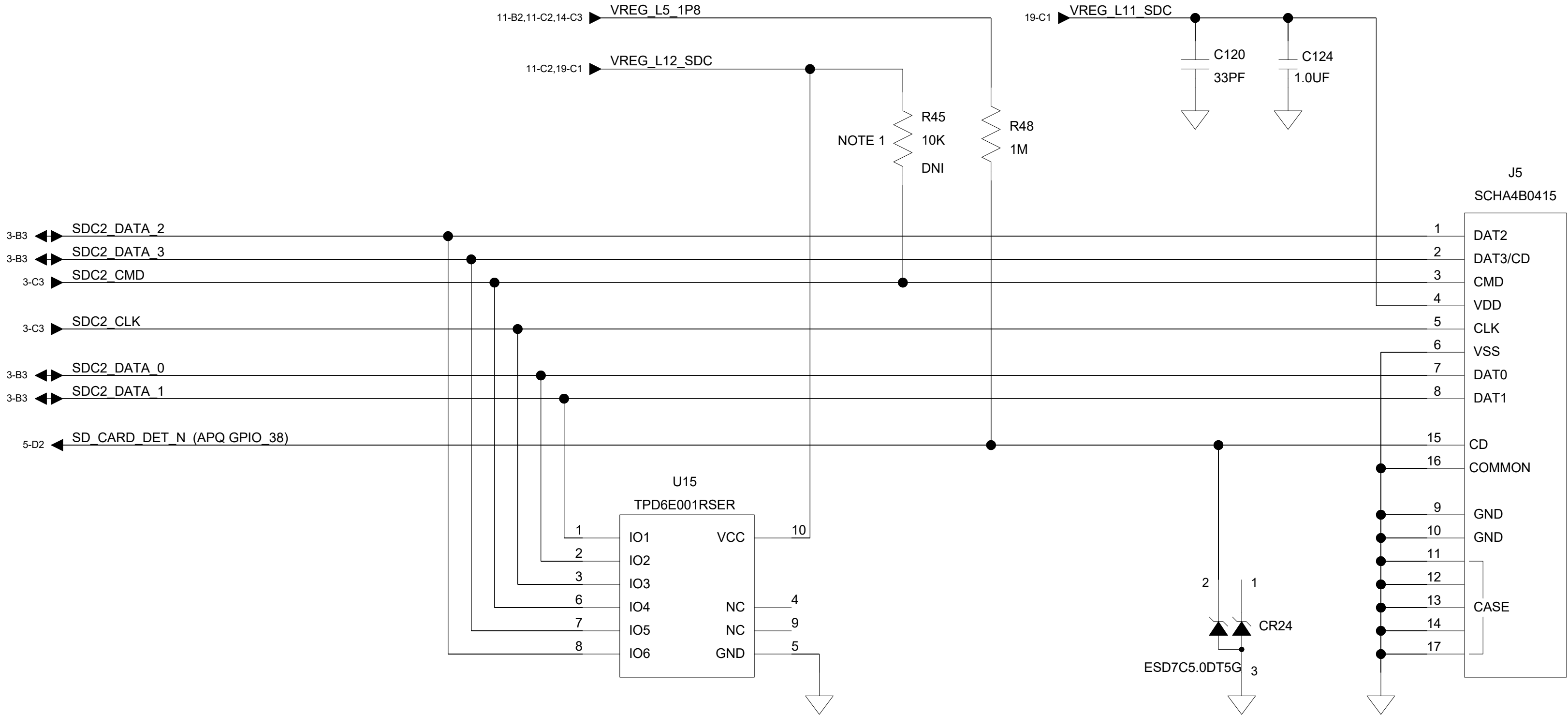
TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE	DRAWING NO		REV
D	LM25-P0436-1		A
SCALE		SHEET	OF
NONE		20	33



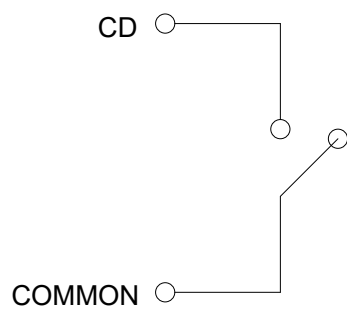


MEMORY - LPDDR3 + EMMC - POWER

TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE	DRAWING NO		REV
D	LM25-P0436-1		A
SCALE		SHEET	OF
NONE		22	33



CARD DETECT	CASE
CARD NOT INSTALLED	CD-COMMON SW=OFF
CARD INSTALLED	CD-COMMON SW=ON

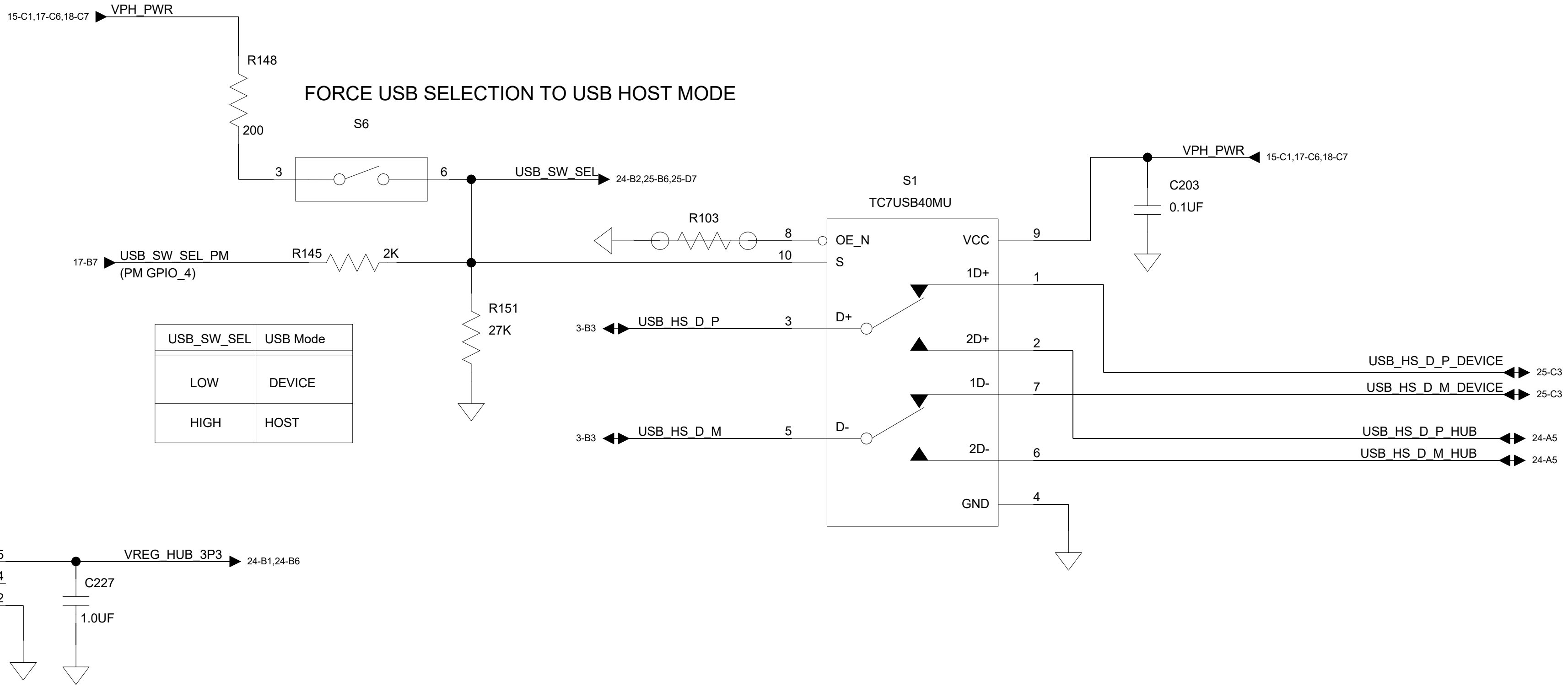


D

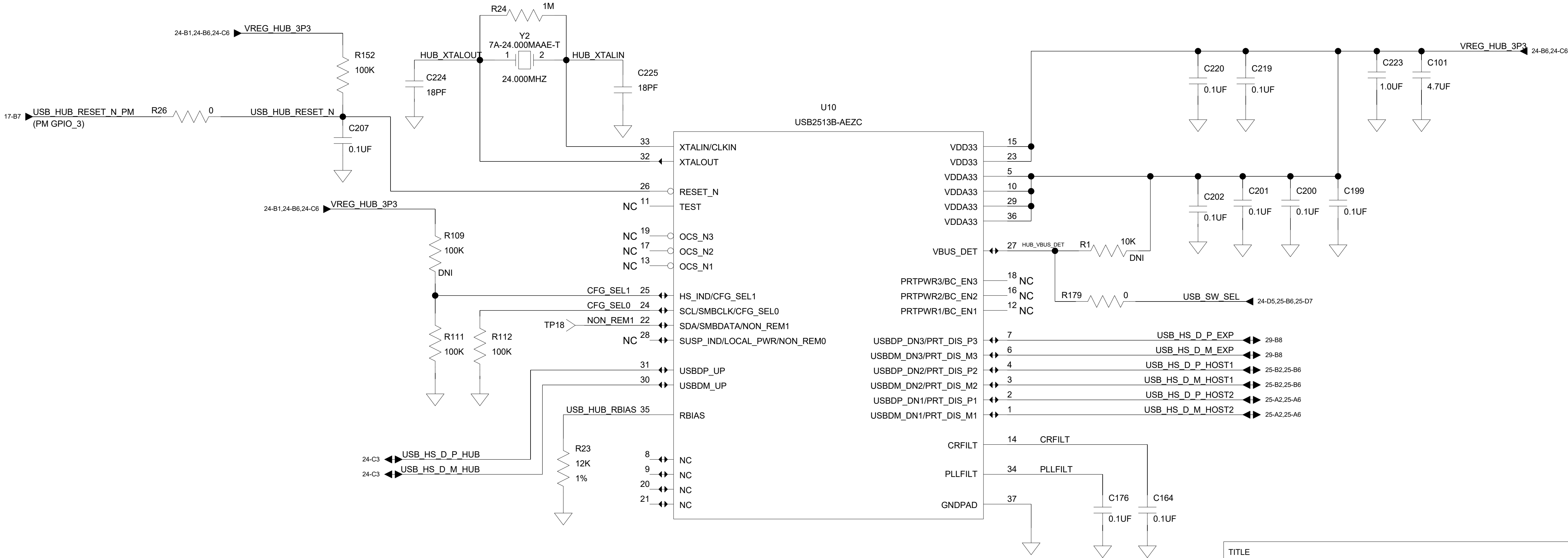
C

B

A



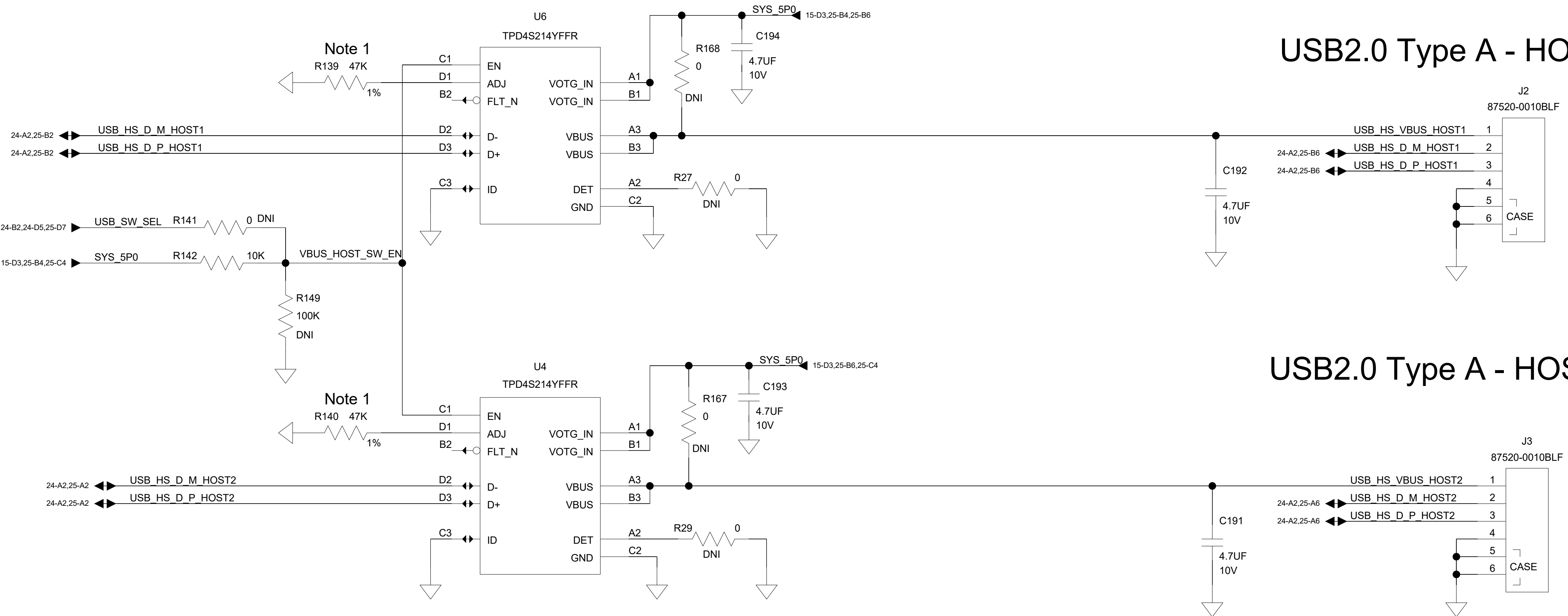
USB_SW_SEL	USB Mode
LOW	DEVICE
HIGH	HOST



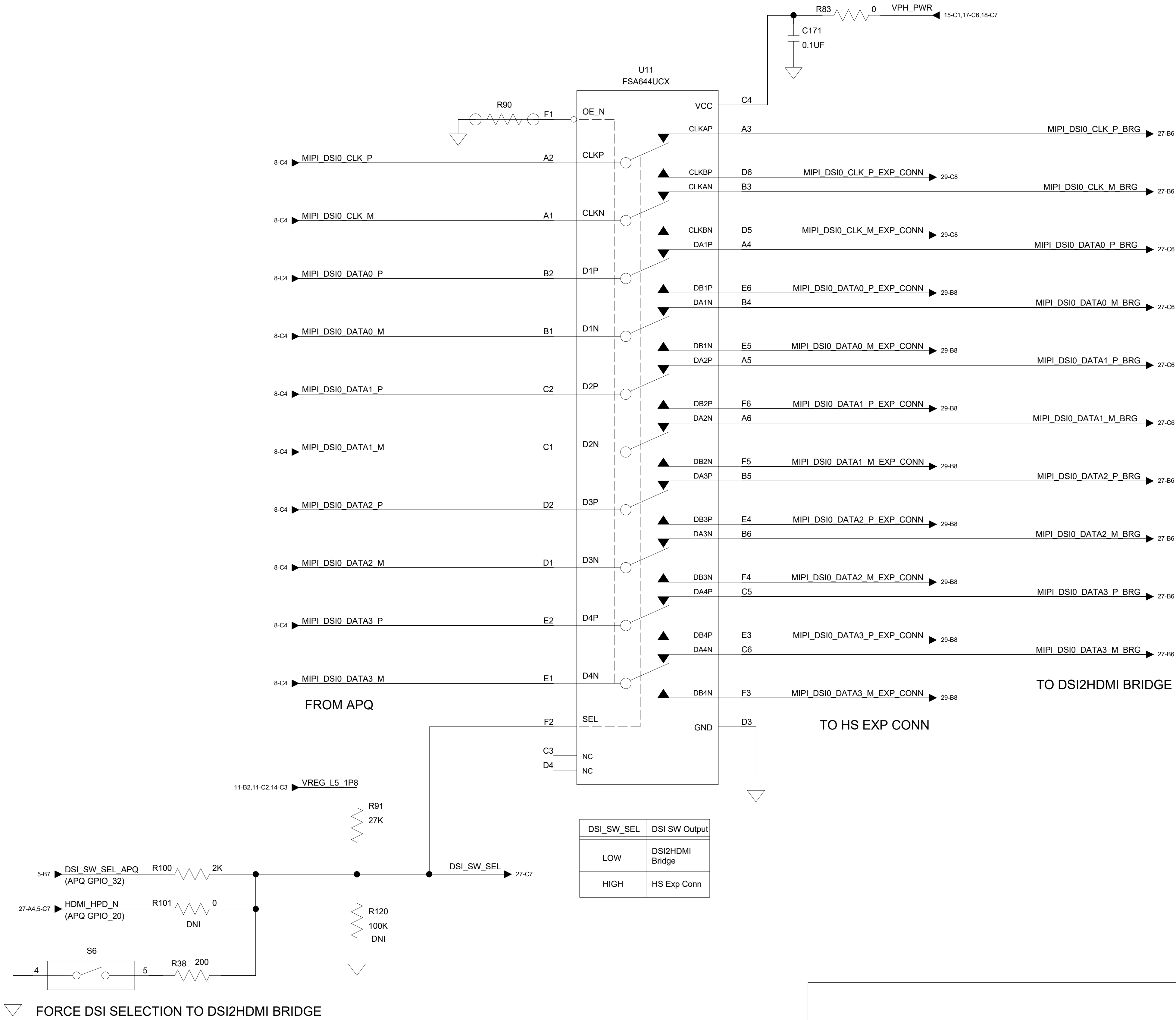
Note 1:
REF_SEL[1:0] = '10' --> REFCLK=19.2MHz
Note 2:
Add PDs at Pin 22 and Pin28 in future design

USB - SWITCH / HUB

TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE	DRAWING NO	REV	
D	LM25-P0436-1	A	
SCALE NONE		SHEET 24	OF 33

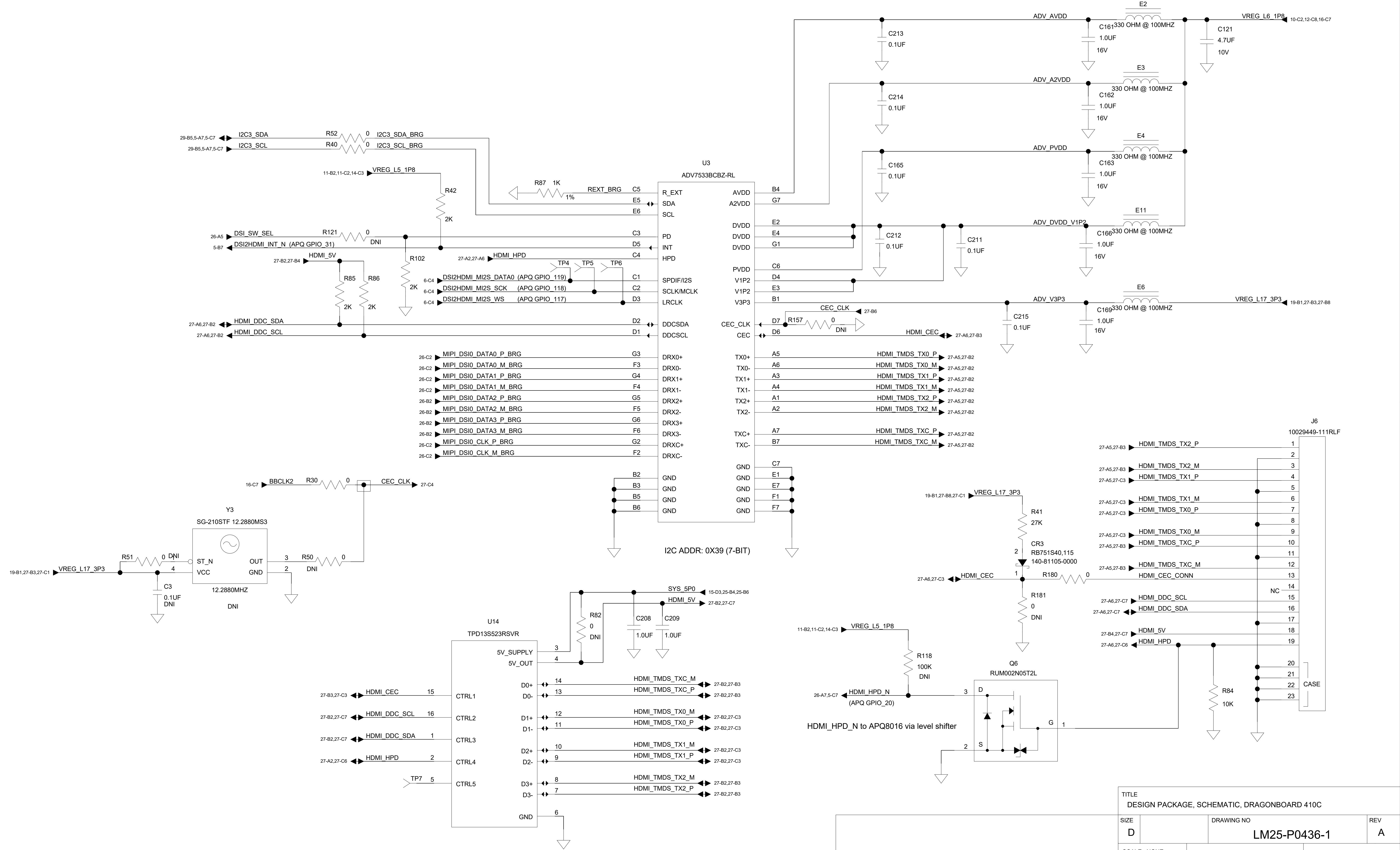


TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE		DRAWING NO	REV
D		LM25-P0436-1	A
SCALE	NONE		SHEET 25 OF 33



DISPLAY - DSI SWITCH

TITLE DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE D	DRAWING NO LM25-P0436-1		REV A
SCALE NONE	SHEET 26 OF 33		



DISPLAY - DSI TO HDMI BRIDGE

TITLE			
DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE	DRAWING NO		REV
D	LM25-P0436-1		A
SCALE		SHEET 27 OF 33	
NONE			

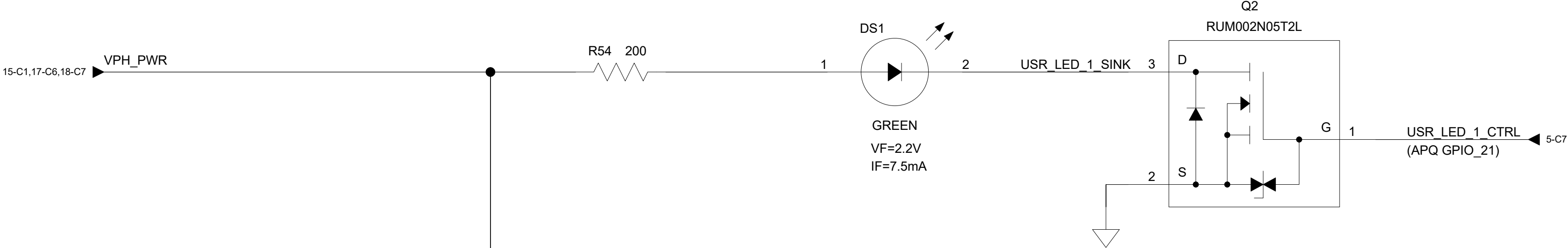
D

C

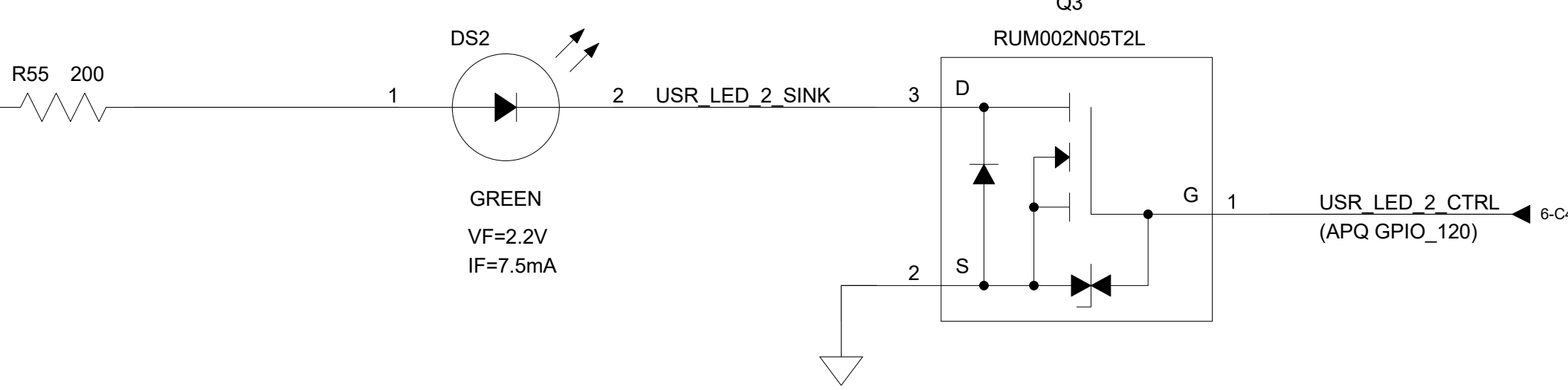
B

A

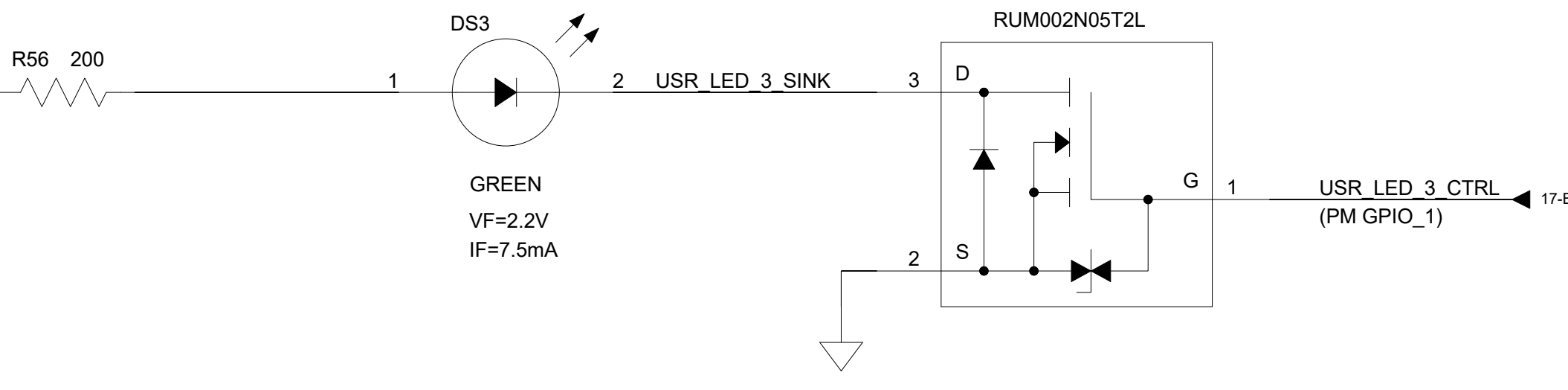
USER LED 1



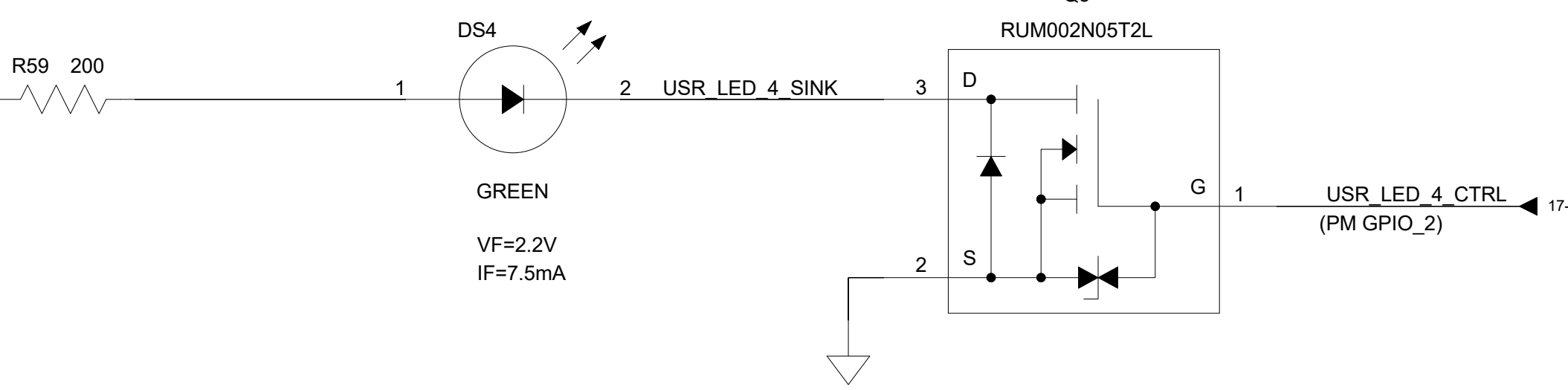
USER LED 2



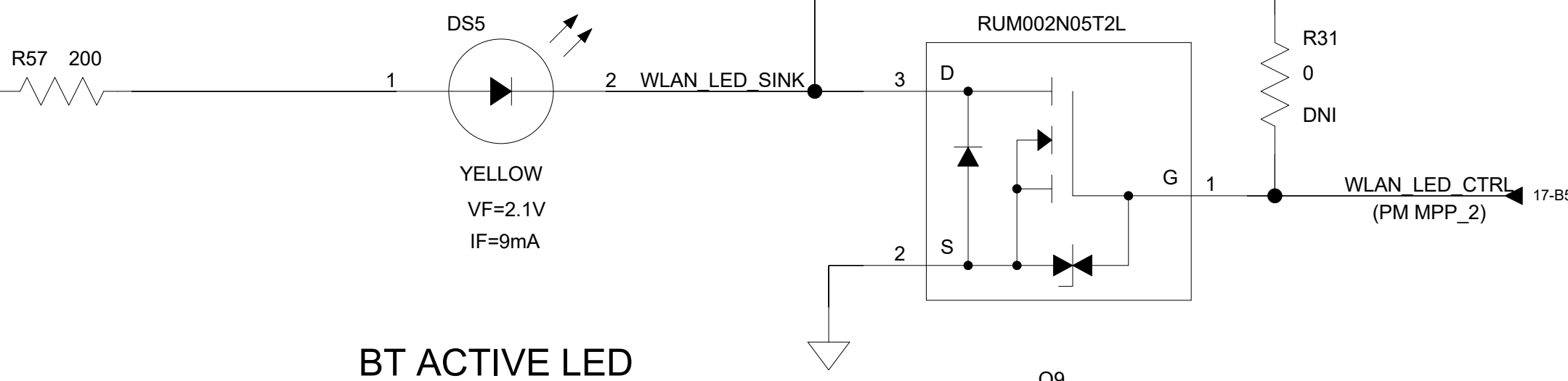
USER LED 3



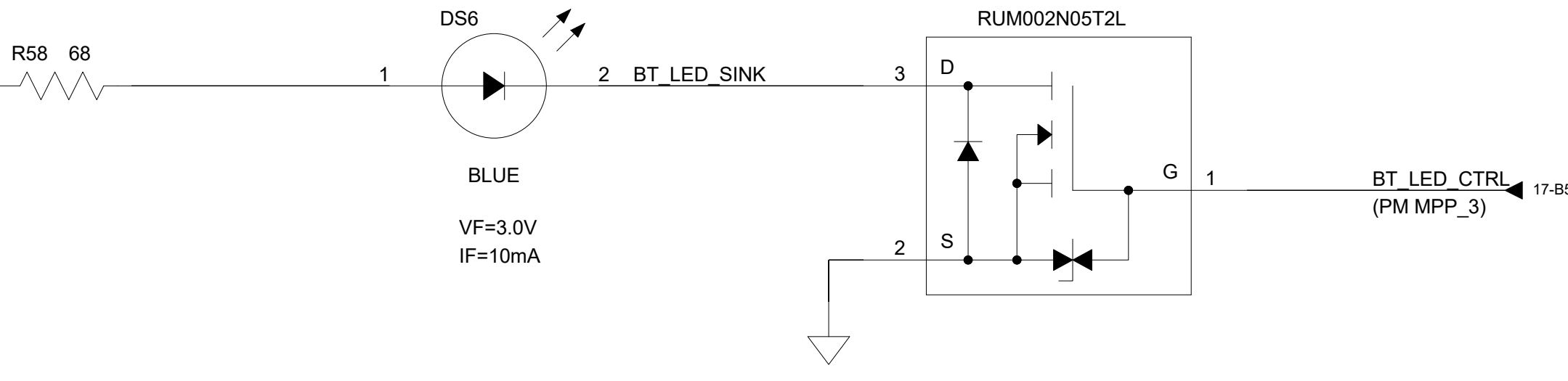
USER LED 4



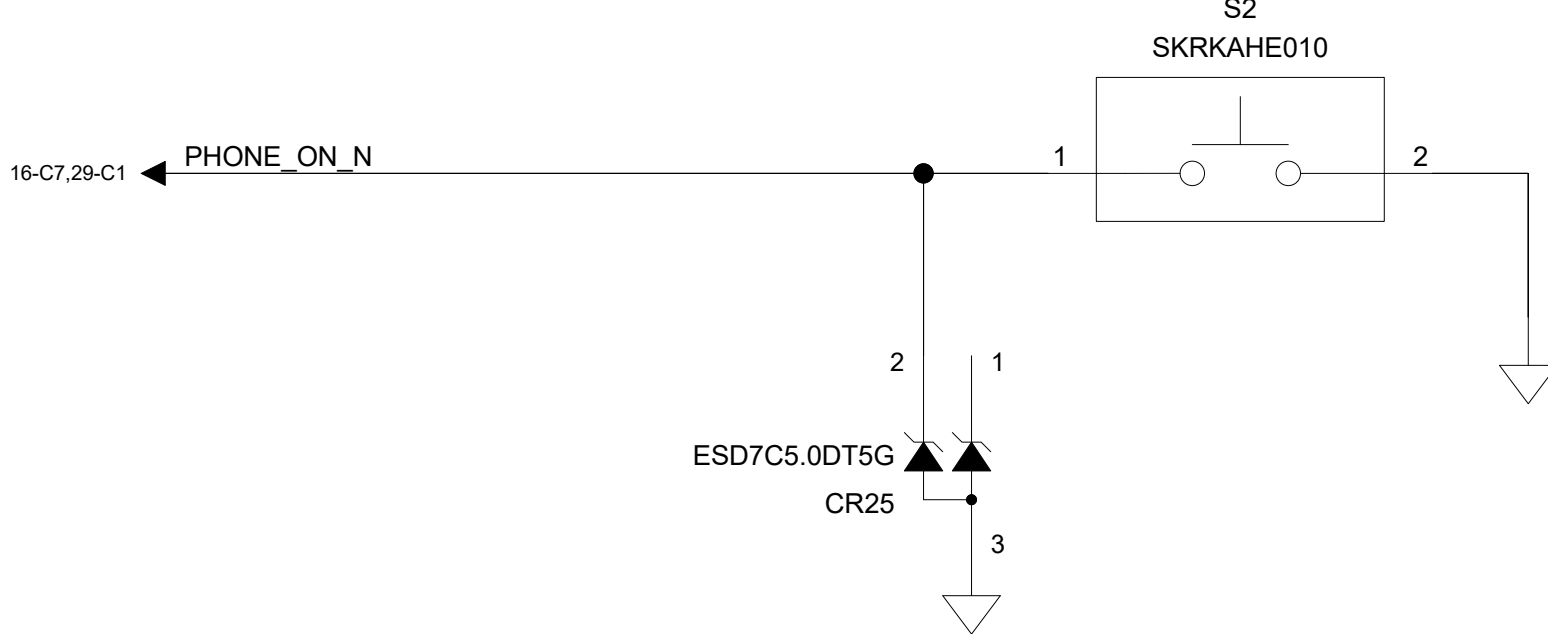
WLAN ACTIVE LED



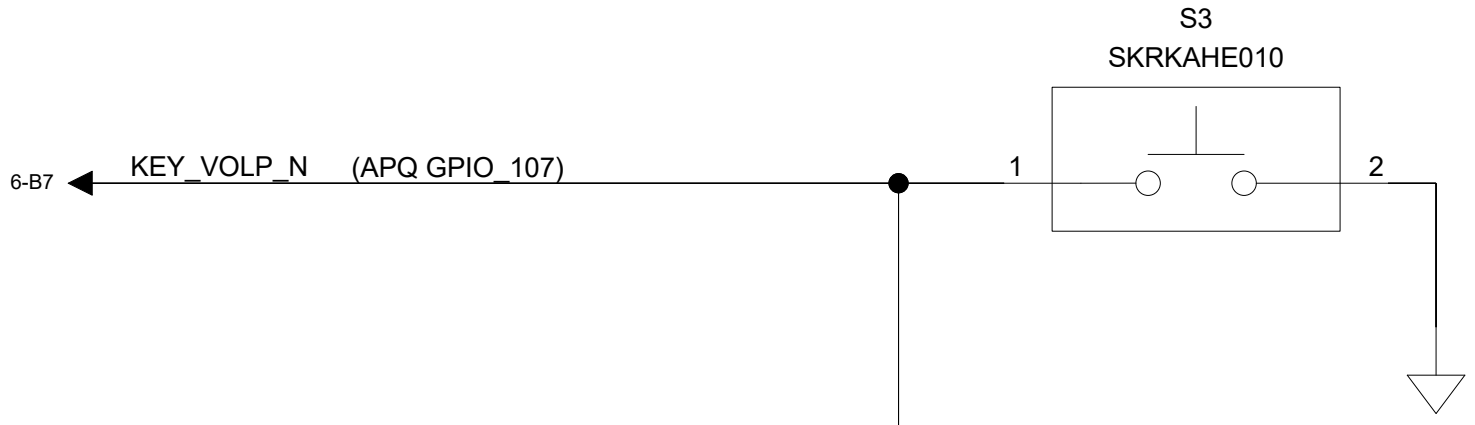
BT ACTIVE LED



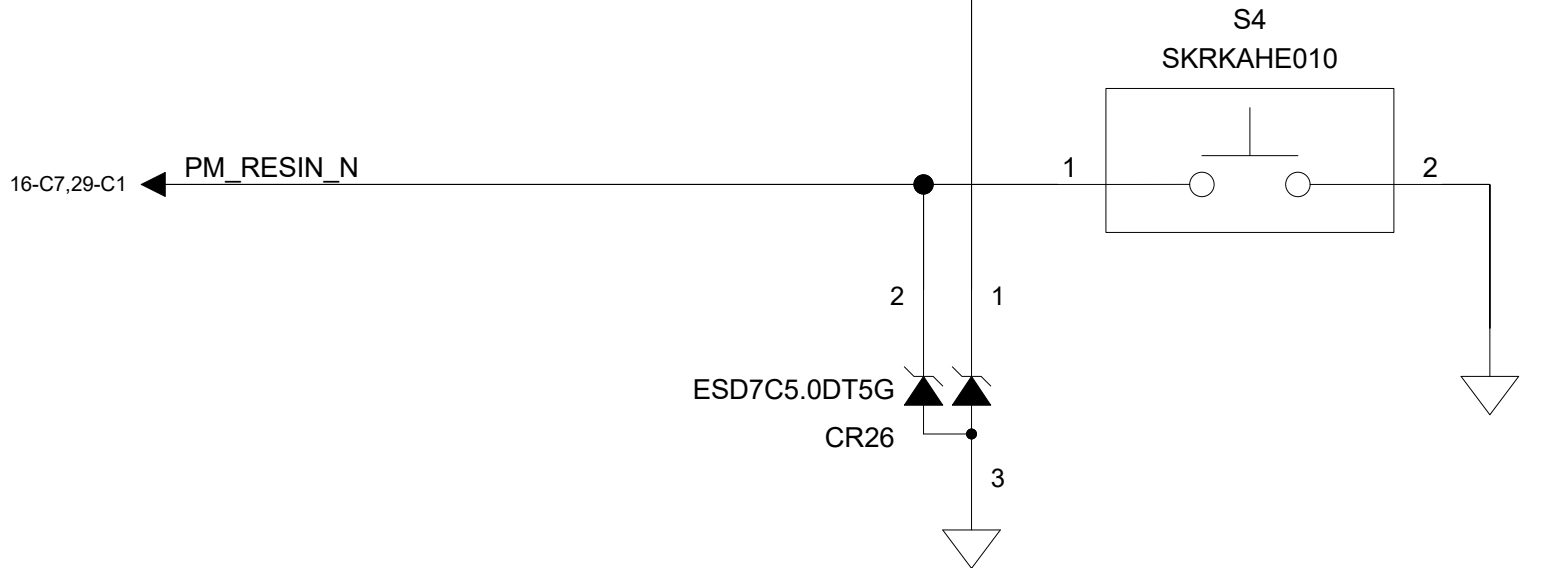
PWR SWITCH



VOL/ZOOM+



VOL/ZOOM-



D

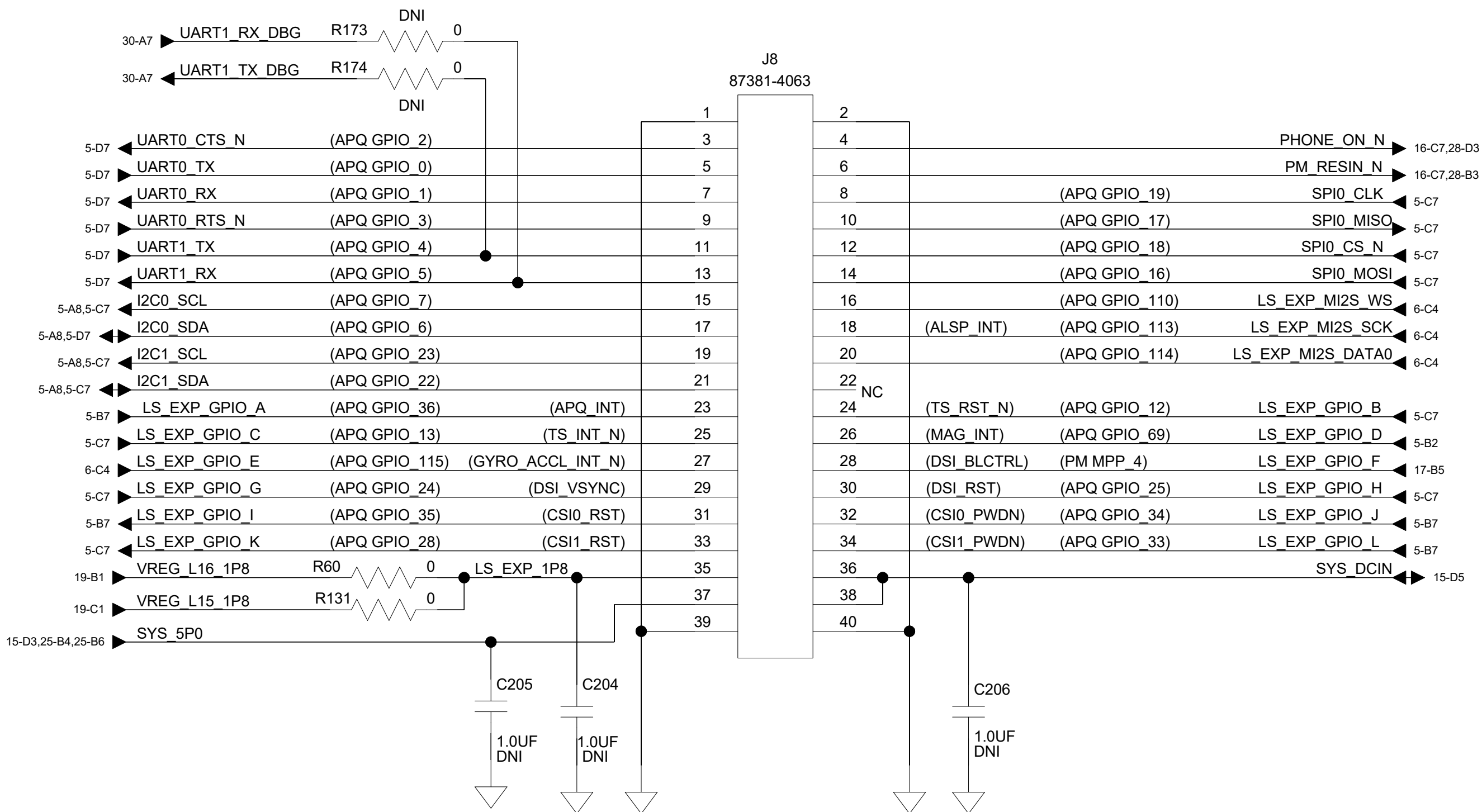
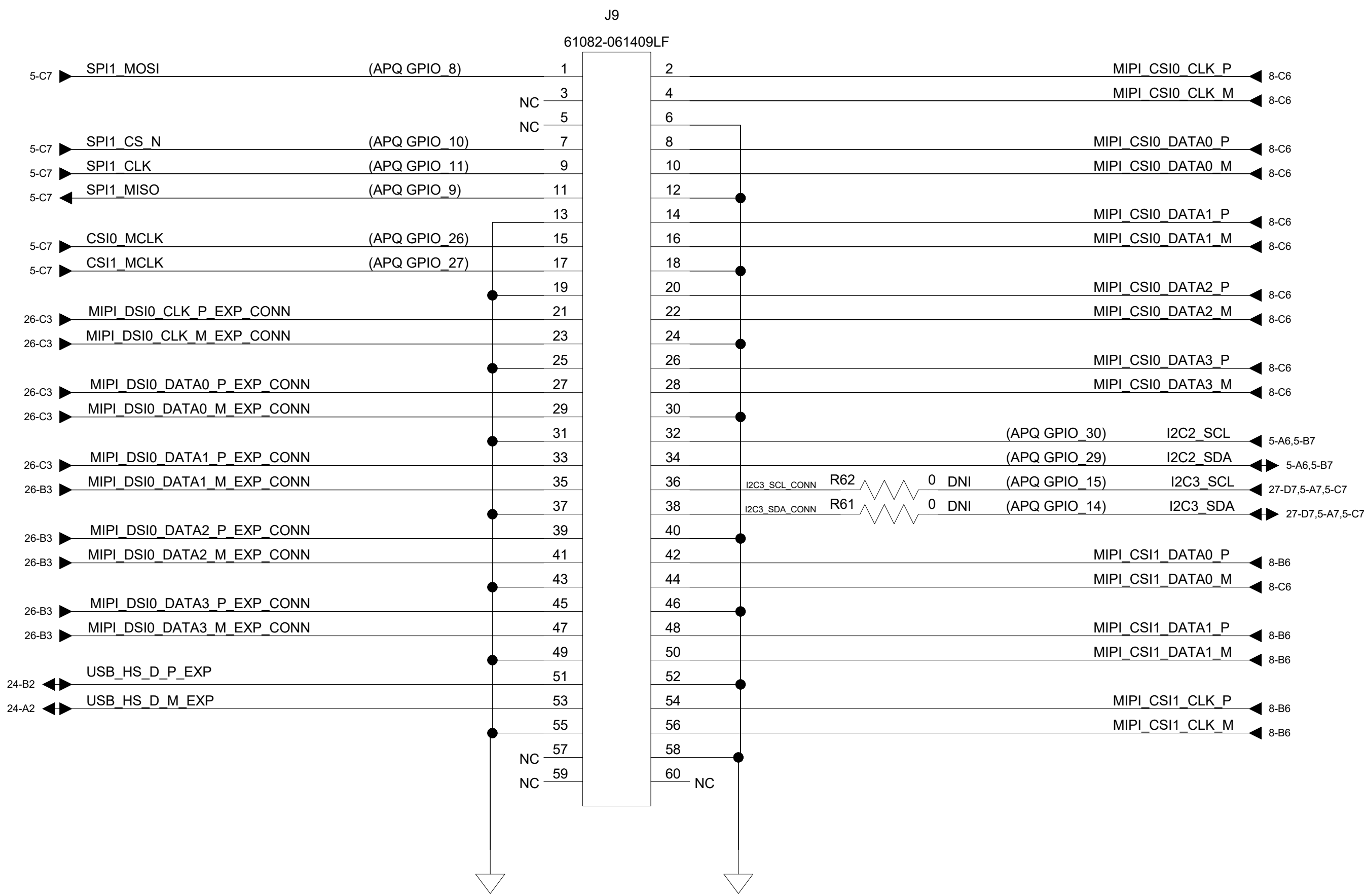
C

B

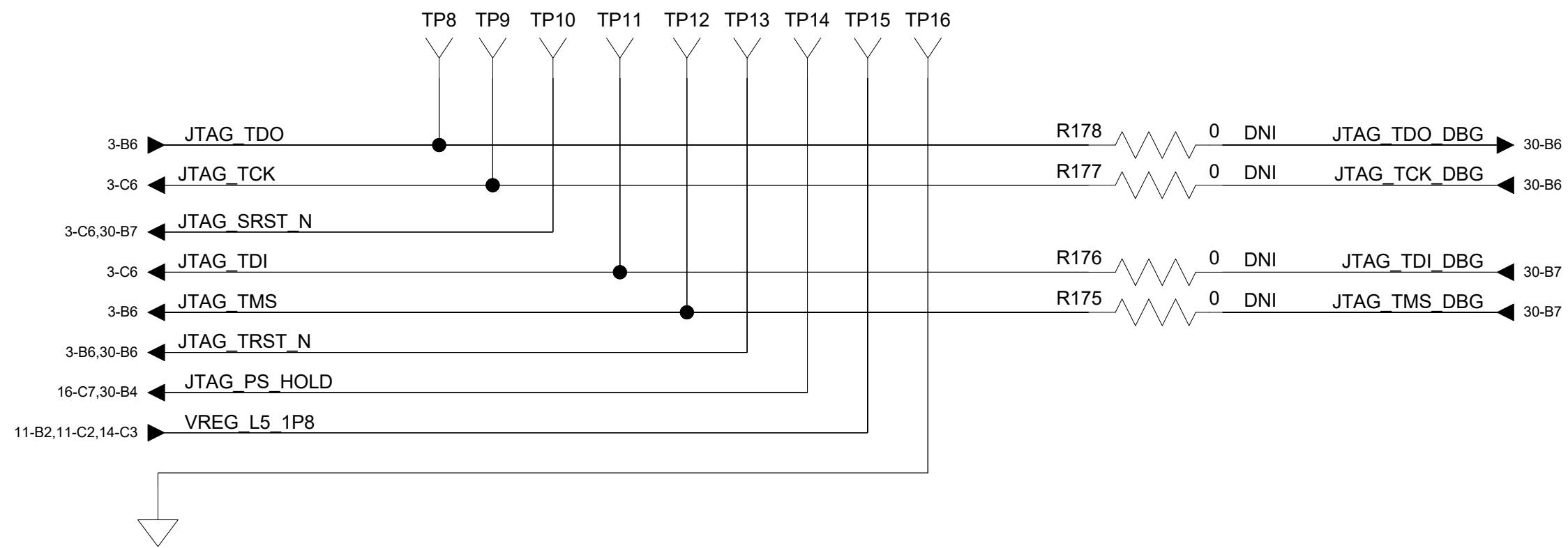
A

HS EXPANSION CONNECTOR

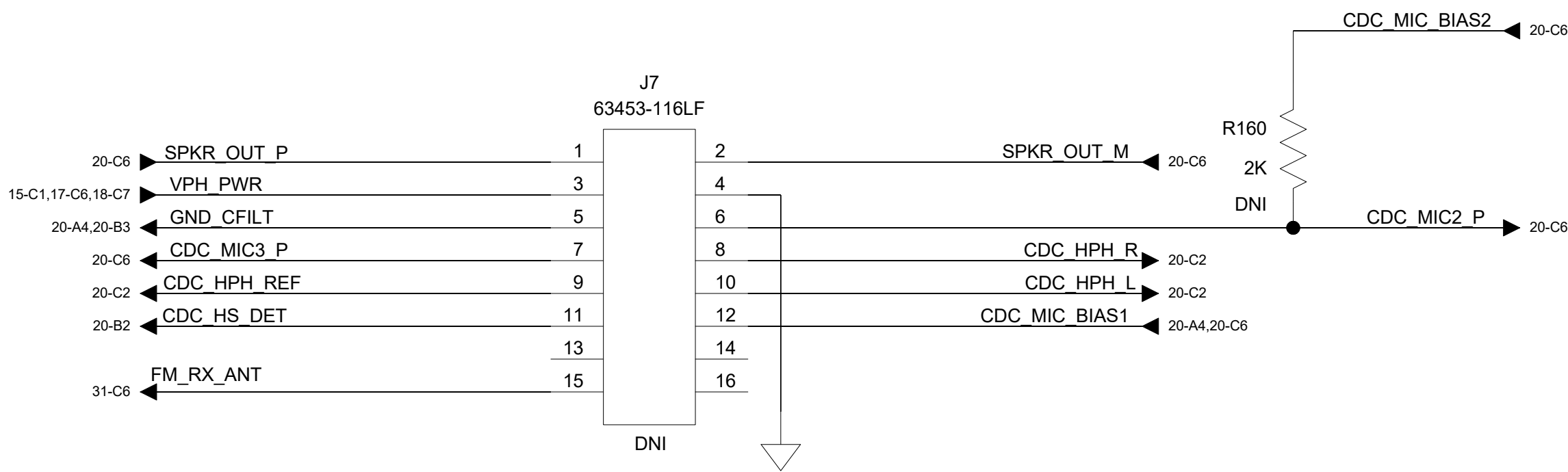
LS EXPANSION CONNECTOR



JTAG INTERFACE (TOP)

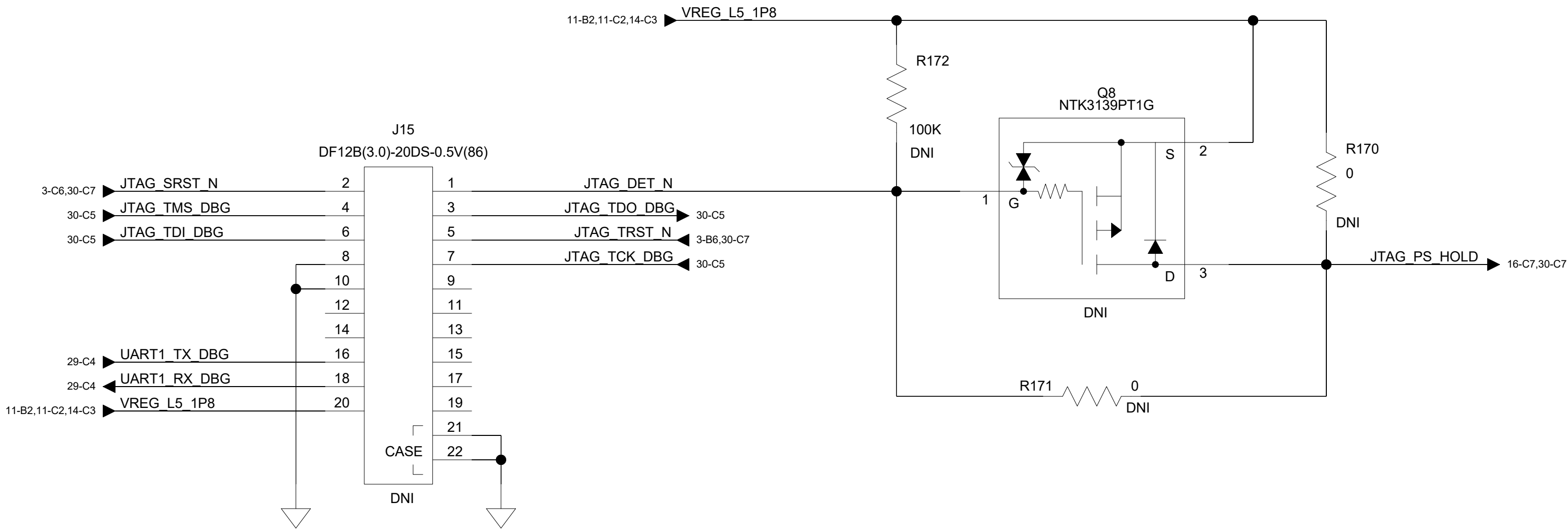


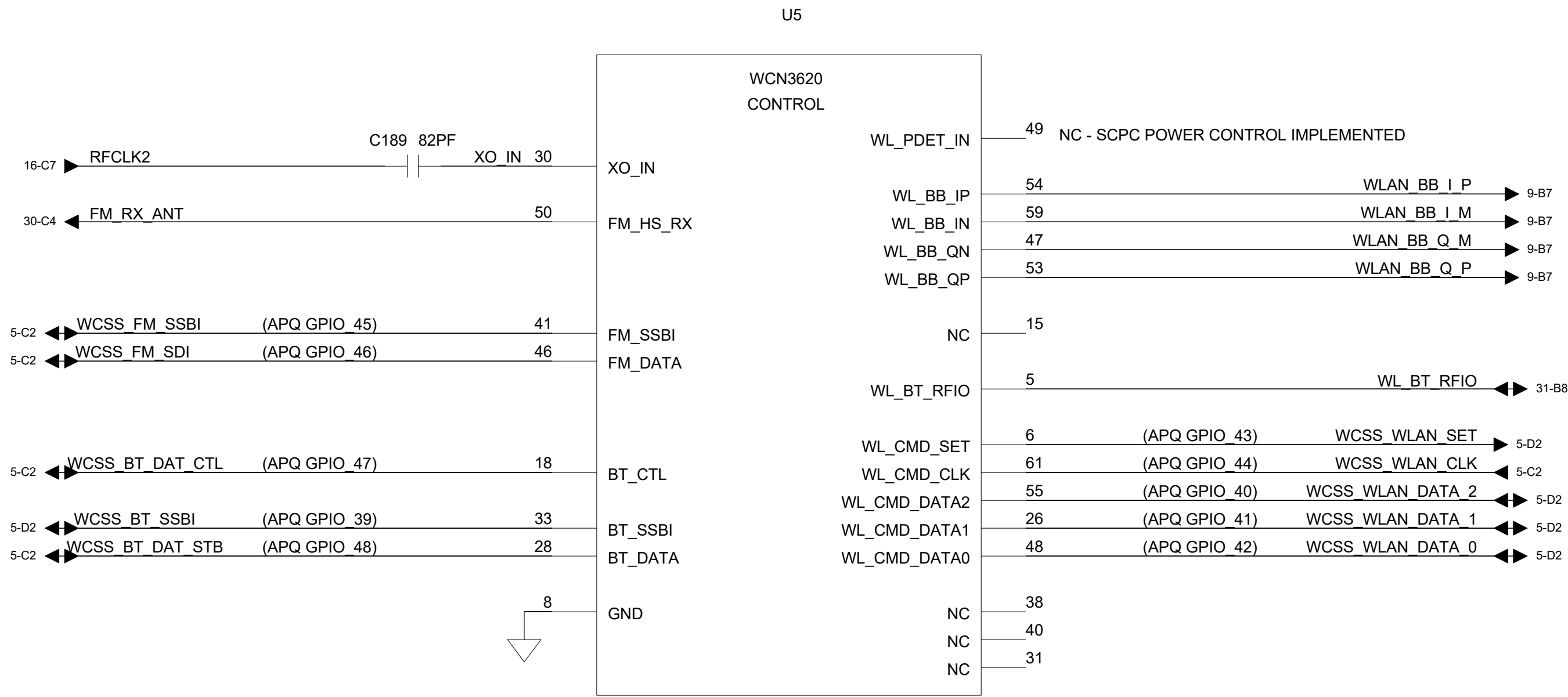
ANALOG EXPANSION CONNECTOR



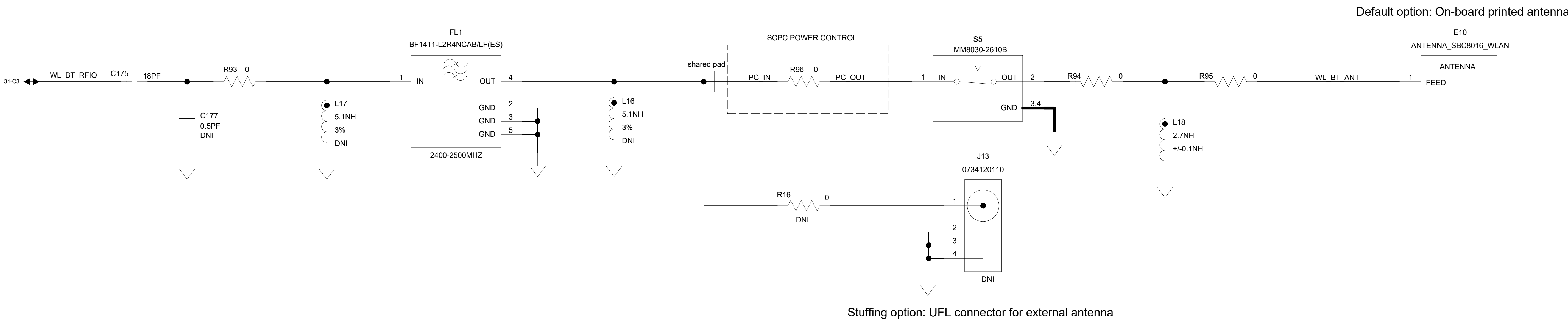
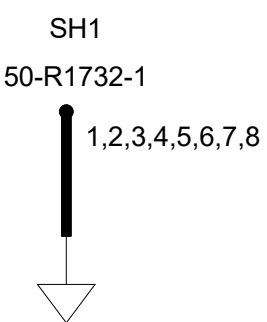
ANALOG INTERFACES

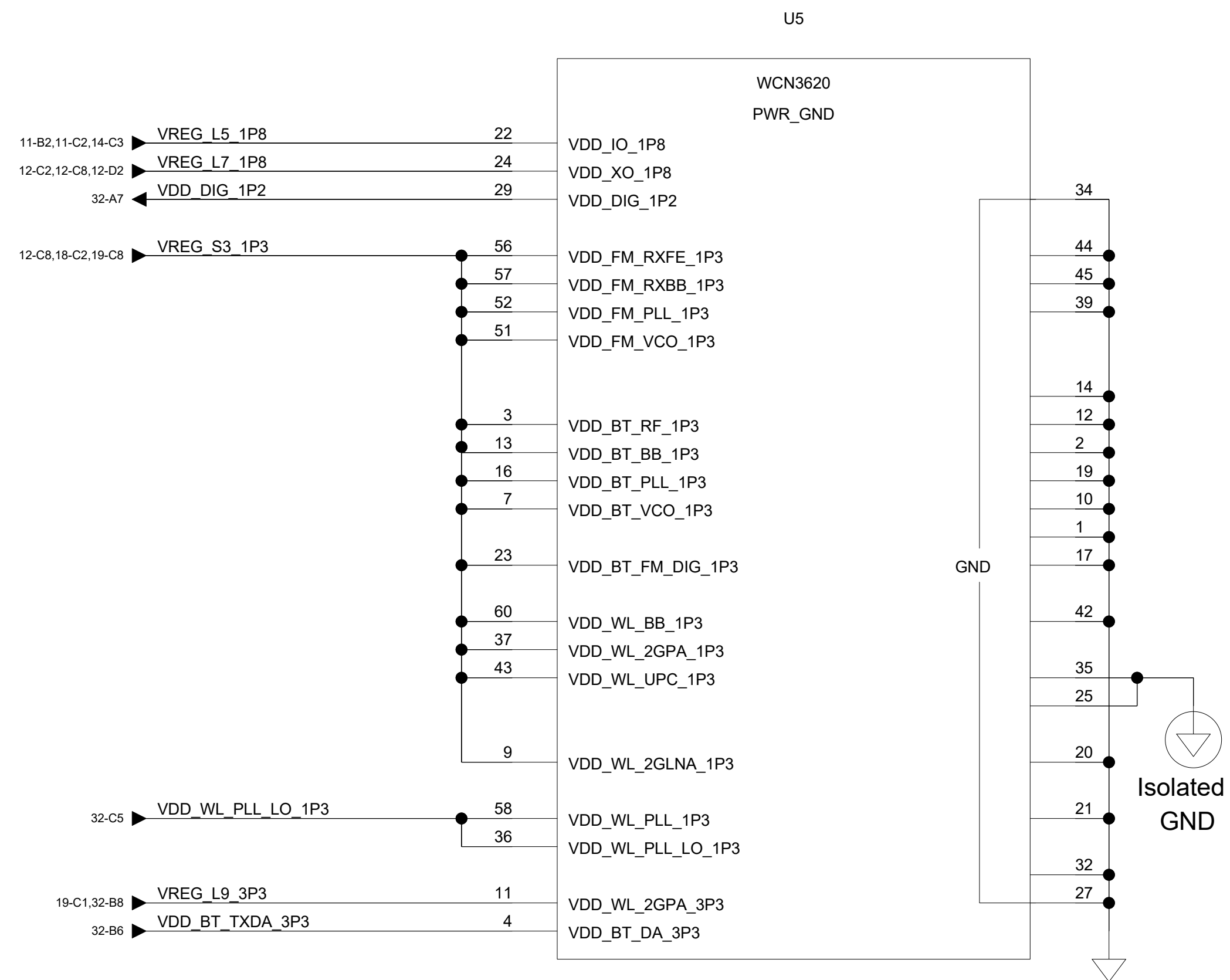
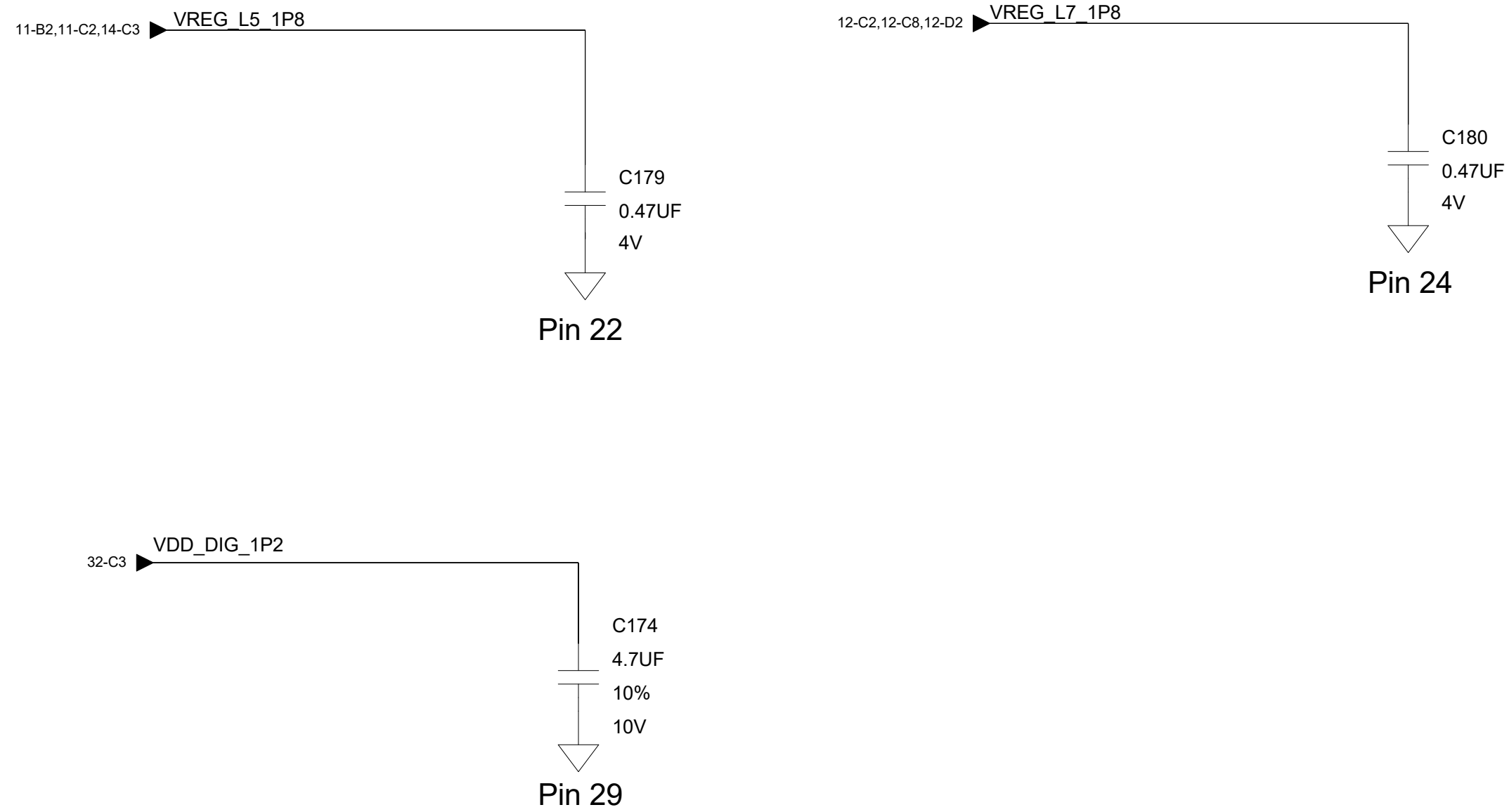
SUPPORTED	ASSY OPTION
YES	INSTALL J7
NO	DNI J7



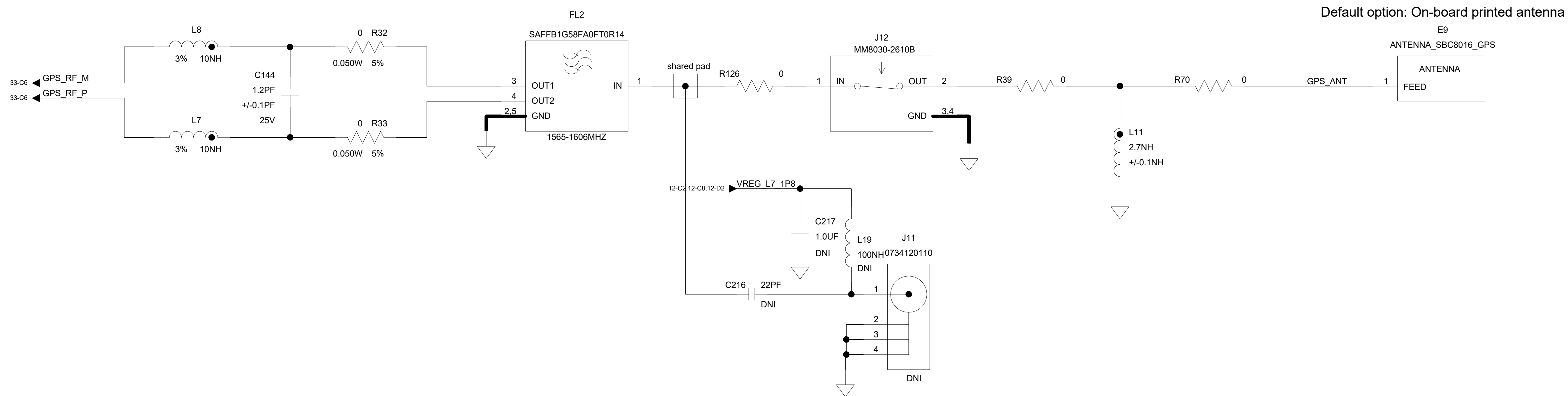


WCN & WGR Circuitry Shield





TITLE DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE D		DRAWING NO LM25-P0436-1	REV A
SCALE NONE			SHEET 32 OF 33



TITLE DESIGN PACKAGE, SCHEMATIC, DRAGONBOARD 410C			
SIZE D		DRAWING NO LM25-P0436-1	REV A
SCALE NONE			SHEET 33 OF 33

D

C

B

A

EXHIBIT1

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2. COMPLIANCE WITH LAWS; APPLICABLE LAW.

Any litigation or other dispute resolution between You and Us arising out of or relating to this Agreement, or Your relationship with Us will take place in the Southern District of California, and You and QTI hereby consent to the personal jurisdiction of and exclusive venue in the state and federal courts within that District with respect any such litigation or dispute resolution. This Agreement will be governed by and construed in accordance with the laws of the United States and the State of California, except that body of California law concerning conflicts of law. This Agreement shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded.

3. **CONTRACTING PARTIES.** If the Materials are downloaded on any computer owned by a corporation or other legal entity, then this Agreement is formed by and between QTI and such entity. The individual accepting the terms of this Agreement represents and warrants to QTI that they have the authority to bind such entity to the terms and conditions of this Agreement.

4. **MISCELLANEOUS PROVISIONS.** This Agreement, together with all exhibits attached hereto, which are incorporated herein by this reference, constitutes the entire agreement between QTI and You and supersedes all prior negotiations, representations and agreements between the parties with respect to the subject matter hereof. No addition or modification of this Agreement shall be effective unless made in writing and signed by the respective representatives of QTI and You. The restrictions, limitations, exclusions and conditions set forth in this Agreement shall apply even if QTI or any of its affiliates becomes aware of or fails to act in a manner to address any violation or failure to comply therewith. You hereby acknowledge and agree that the restrictions, limitations, conditions and exclusions imposed in this Agreement on the rights granted in this Agreement are not a derogation of the benefits of such rights. You further acknowledges that, in the absence of such restrictions, limitations, conditions and exclusions, QTI would not have entered into this Agreement with You. Each party shall be responsible for and shall bear its own expenses in connection with this Agreement. If any of the provisions of this Agreement are determined to be invalid, illegal, or otherwise unenforceable, the remaining provisions shall remain in full force and effect. This Agreement is entered into solely in the English language, and if for any reason any other language version is prepared by any party, it shall be solely for convenience and the English version shall govern and control all aspects. If You are located in the province of Quebec, Canada, the following applies: The Parties hereby confirm they have requested this Agreement and all related documents be prepared in English.

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