REVISION HISTORY

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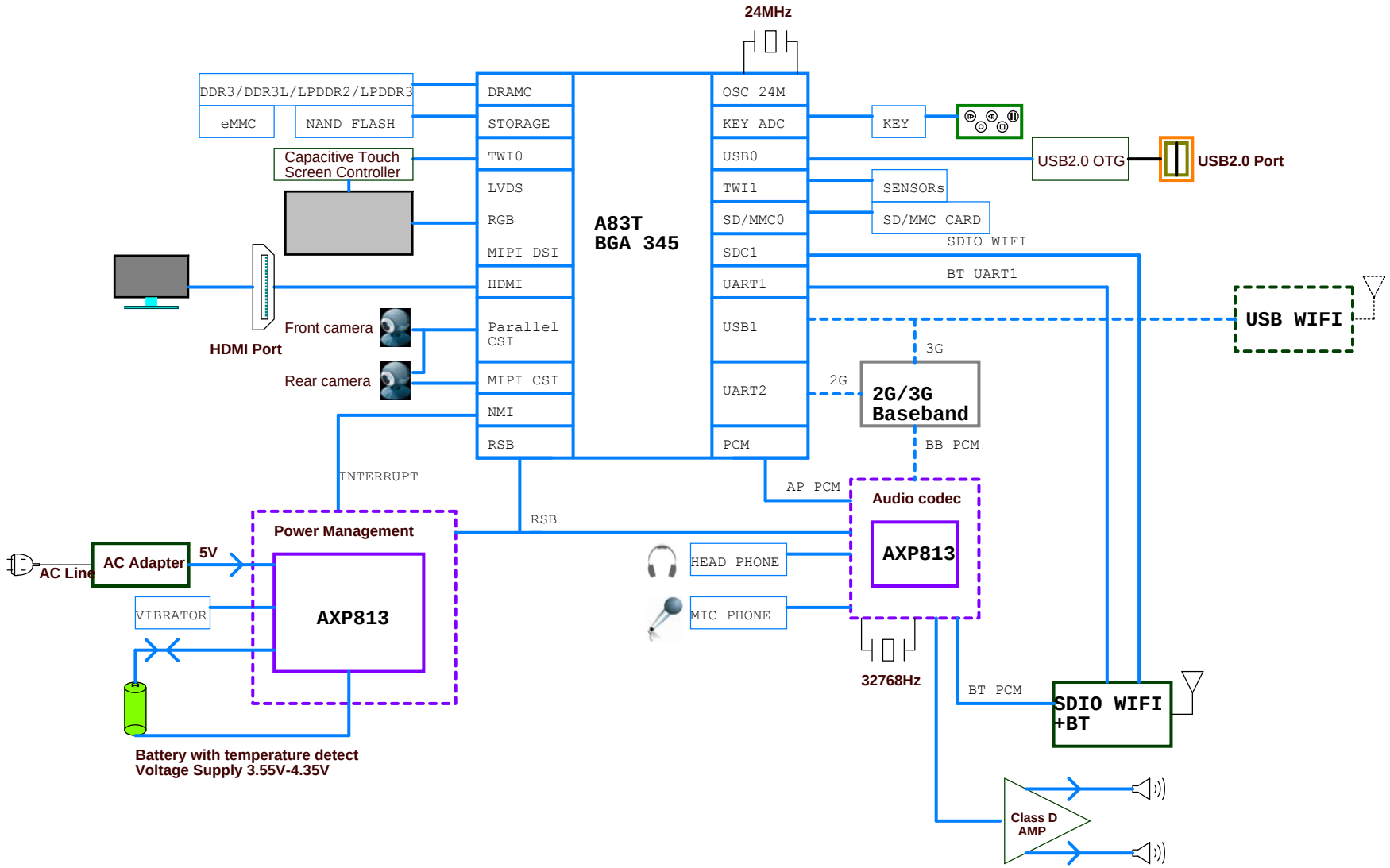
P14: MODEM 2G

OPTION: DDR3 8X4
OPTION: LPDDR2_32X1
OPTION: LPDDR3_32X1
OPTION: MODEM 3G

Revision	Description	Date
V1.0	Releas version	2014-10-13
V1.2	change camera flash led EN and BL EN circuit	2014-11-3

BLOCK



AllWinner Technology Co.,Ltd		
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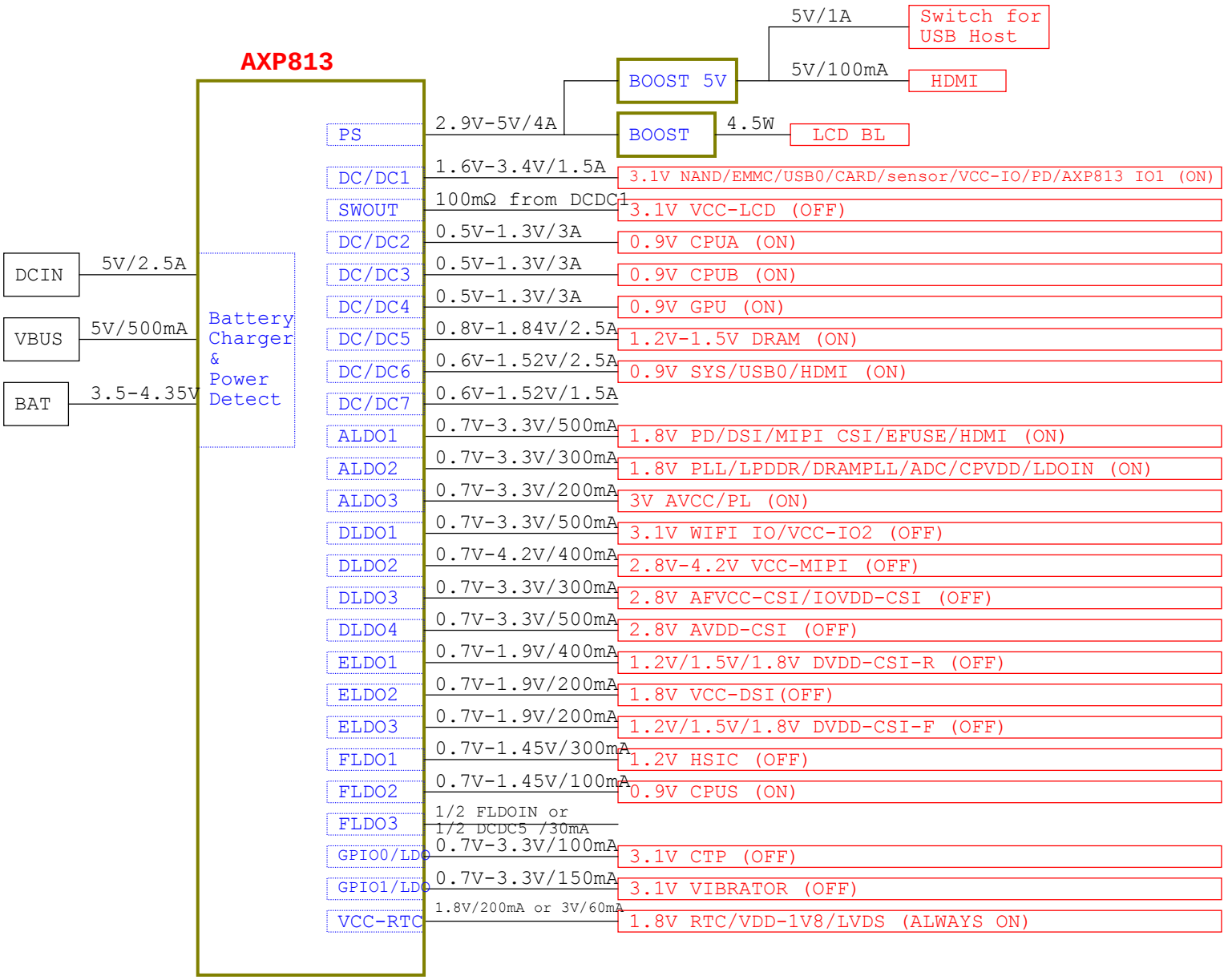
POWER TREE



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Design Name: A83T-TABLET			
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GPIO ASSIGNMENT

PIN	Define	CFG	Function
PB0	UART2-TX	2	MODEM
PB1	UART2-RX	2	
PB2	UART2-RTS	2	
PB3	UART2-CTS	2	
PB4	I2S-LRCK	3	CODEC
PB5	I2S-BCLK	3	
PB6	I2S-DOUT	3	
PB7	I2S-DIN	3	
PB8	I2S-MCLK	3	
PB9	UART0-TX	2	DEBUG
PB10	UART0-RX	2	

PIN	Define	CFG	Function
PC0	NWE	2	NAND /eMMC
PC1	NALE	2	
PC2	NCLK	2	
PC3	NCE1	2	
PC4	NCE0	2	
PC5	NRE/CLK	2/3	
PC6	NRB0/CMD	2/3	
PC7	NRB1	2	
PC8	NDQ0/D0	2/3	
PC9	NDQ1/D1	2/3	
PC10	NDQ2/D2	2/3	
PC11	NDQ3/D3	2/3	
PC12	NDQ4/D4	2/3	
PC13	NDQ5/D5	2/3	
PC14	NDQ6/D6	2/3	
PC15	NDQ7/D7	2/3	
PC16	NDQS/RST	2/3	
PC17	NCE2	2	
PC18	NCE3	2	

PIN	Define	CFG	Function
PD2	D2	2	LCD /LVDS
PD3	D3	2	
PD4	D4	2	
PD5	D5	2	
PD6	D6	2	
PD7	D7	2	
PD10	D10	2	
PD11	D11	2	
PD12	D12	2	
PD13	D13	2	
PD14	D14	2	
PD15	D15	2	
PD18	D18/VP0	2/3	
PD19	D19/VN0	2/3	
PD20	D20/VP1	2/3	
PD21	D21/VN1	2/3	
PD22	D22/VP2	2/3	
PD23	D23/VN2	2/3	
PD24	CLK/VPC	2/3	
PD25	DE/VNC	2/3	
PD26	HSYNC/VP3	2/3	
PD27	VSYNC/VN3	2/3	
PD28	PWM	2	
PD29	LCD-BL-EN	1	

PIN	Define	CFG	Function
PE0	PCLK	2	CSI
PE1	MCLK	2	
PE2	HSYNC	2	
PE3	VSYNC	2	
PE4	D0	2	
PE5	D1	2	
PE6	D2	2	
PE7	D3	2	
PE8	D4	2	
PE9	D5	2	
PE10	D6	2	
PE11	D7	2	
PE12	D8	2	
PE13	D9	2	
PE14	CSI-SCK	2	
PE15	CSI-SDA	2	
PE16	RST-R	1	
PE17	STBY-R	1	
PE18	RST-F	1	
PE19	STBY-F	1	

PIN	Define	CFG	Function
PF0	D1	2	CARD0
PF1	D0	2	
PF2	CLK	2	
PF3	CMD	2	
PF4	D3	2	
PF5	D2	2	
PF6	SDC0-DET	0	

PIN	Define	CFG	Function
PG0	WL-SDIO-CLK	2	WIFI+BT
PG1	WL-SDIO-CMD	2	
PG2	WL-SDIO-D0	2	
PG3	WL-SDIO-D1	2	
PG4	WL-SDIO-D2	2	
PG5	WL-SDIO-D3	2	
PG6	BT-UART-RX	2	
PG7	BT-UART-TX	2	
PG8	BT-UART-CTS	2	
PG9	BT-UART-RTS	2	
PG10			
PG11	GS-INT	6	SENSOR
PG12	LS-INT	6	
PG13	PA-SHDN	1	CODEC

PIN	Define	CFG	Function
PH0	TWI0-SCK	2	CTP
PH1	TWI0-SDA	2	
PH2	TWI1-SCK	2	SENSOR
PH3	TWI1-SDA	2	
PH4	LCD-RST	1	LCD
PH5	AP-WAKE-BT	1	BT
PH6	HSCL	2	HDMI
PH7	HSDA	2	
PH8	HCEC	2	
PH9	AP-WAKE-BB	1	MODEM
PH10			
PH11	USB-ID	1	USB

PIN	Define	CFG	Function
PL0	RSB-SCK	2	PMIC
PL1	RSB-SDA	2	
PL2	WL-PMU-EN	1	WIFI+BT
PL3	WL-WAKE-AP	0	
PL4	BT-RST-N	1	
PL5	BT-WAKE-AP	0	
PL6	CTP-RST	1	CTP
PL7	CTP-INT	6	
PL8	BB-PWREN	1	MODEM
PL9	BB-PWR-BAT	1	
PL10	BB-RST	1	
PL11	BB-WAKE-AP	0	
PL12	IRQ-AUDIO	6	CODEC

AXP813

PIN	Define	Function
GPIO0		
GPIO1		

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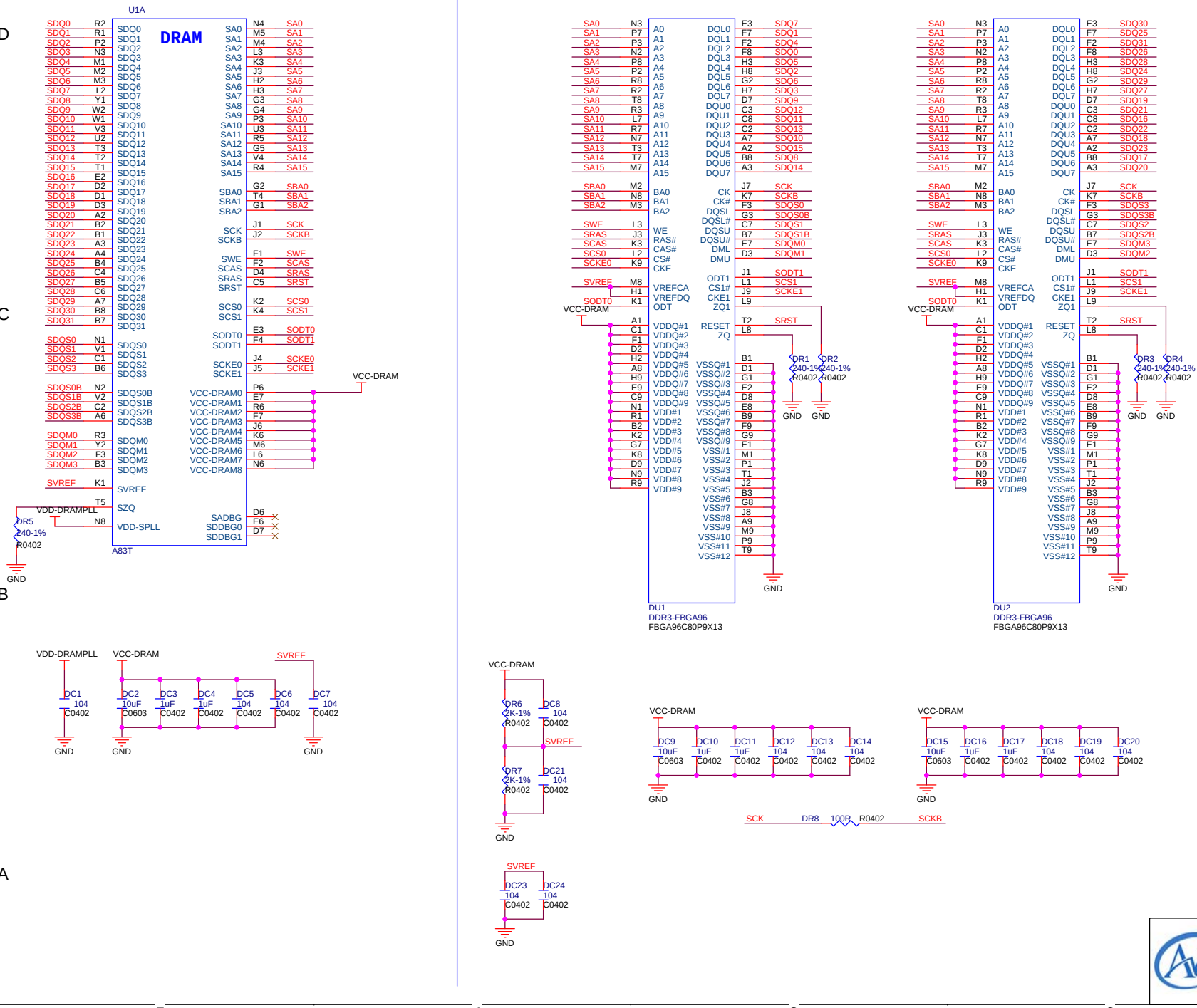
DDR3_16X2



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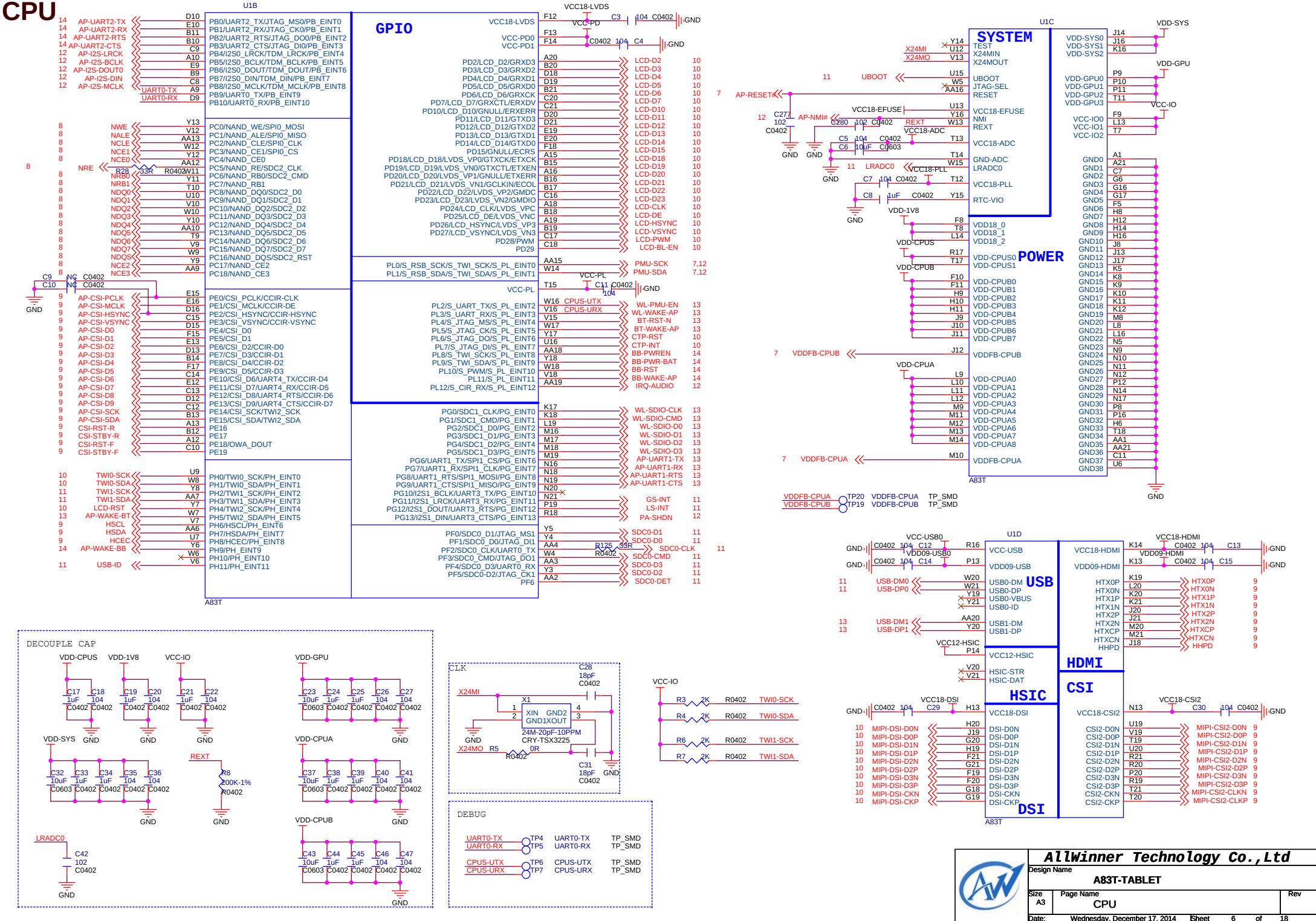
CPU



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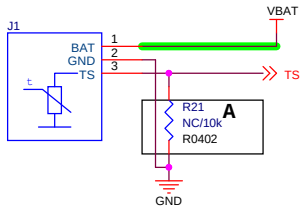
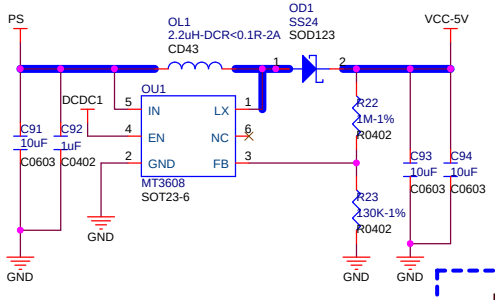
BAT

IF use the battery temperature sensor: A=NC
otherwise: A=10k

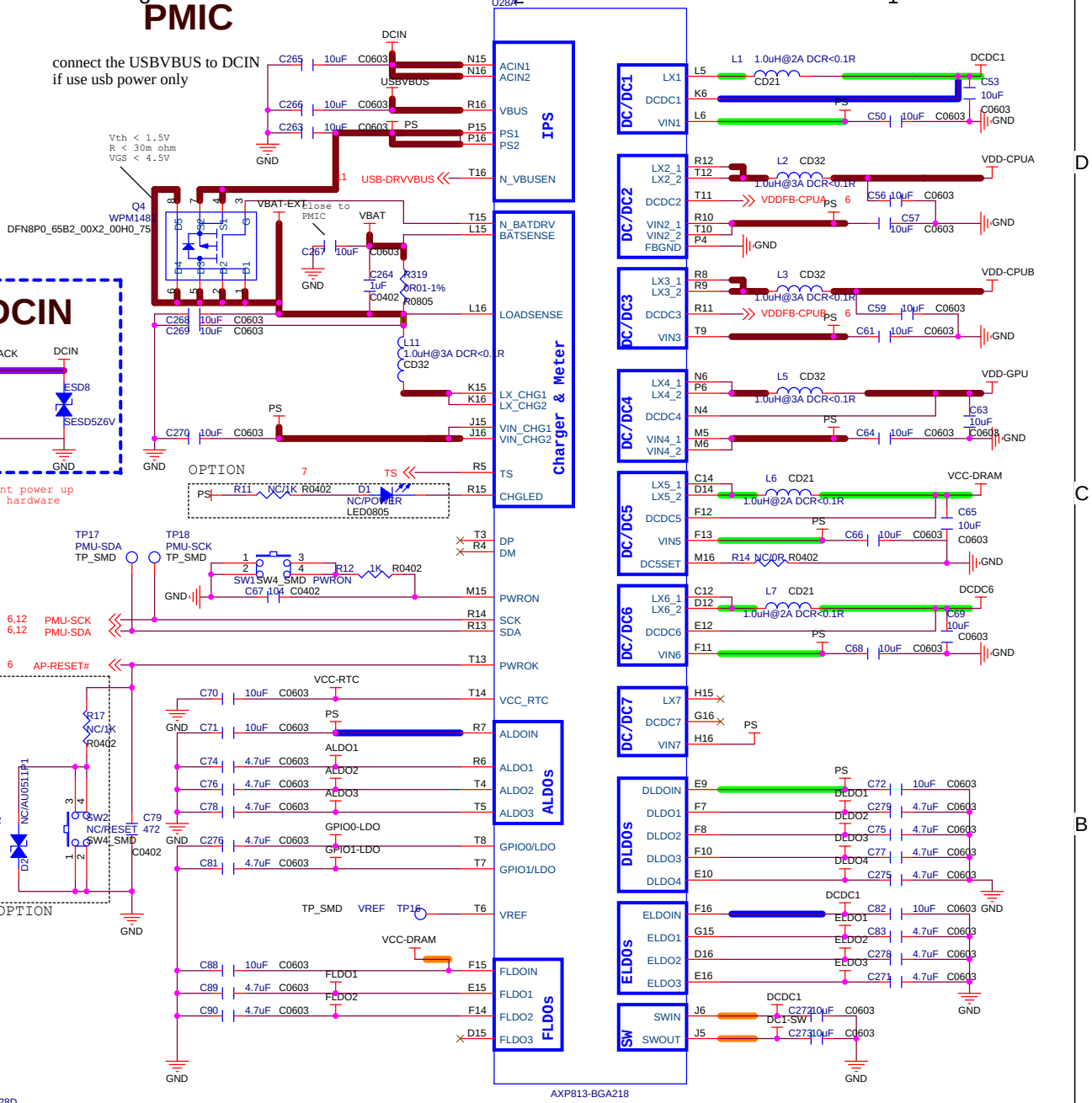


PS-5V

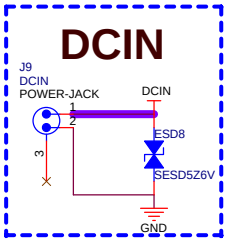


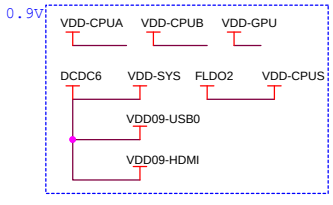
PMIC

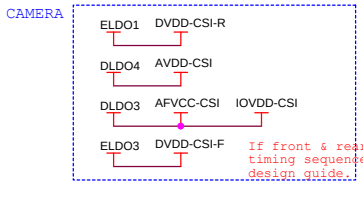
connect the USBVBUS to DCIN
if use usb power only

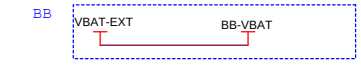


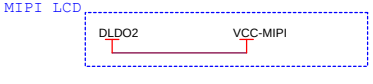
DCIN

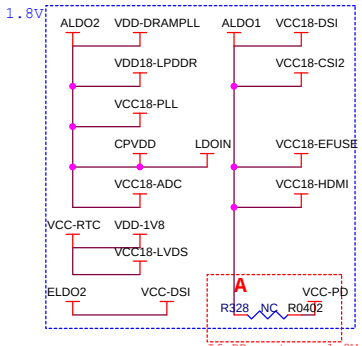


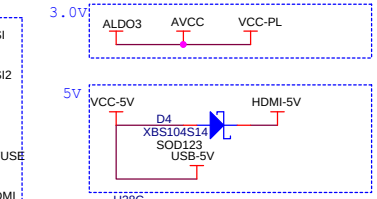


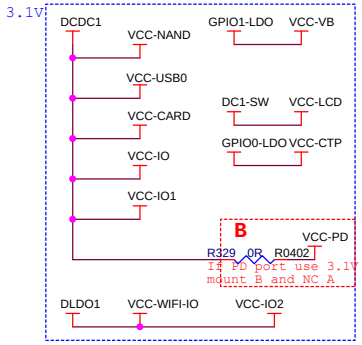


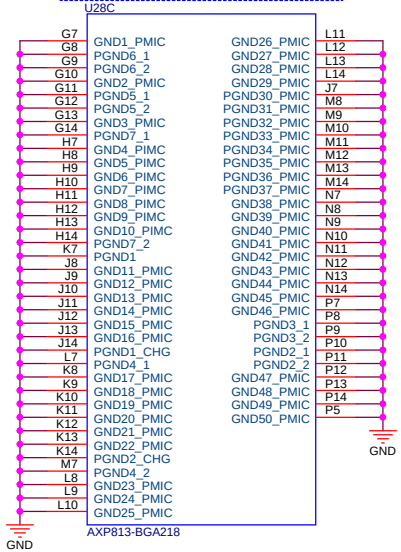


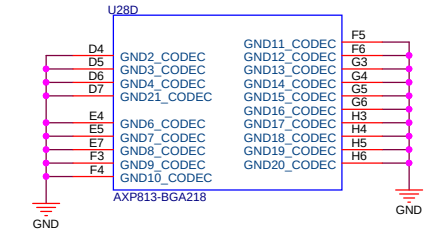


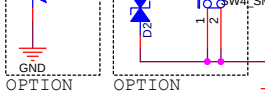


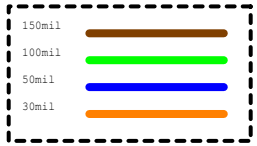












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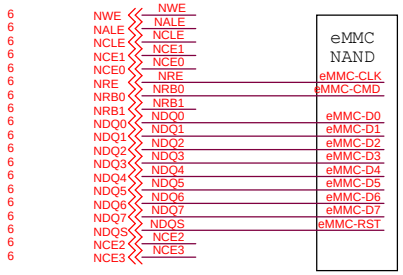
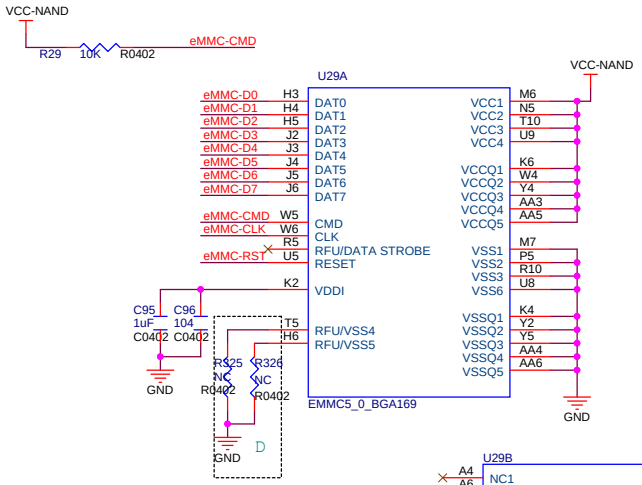
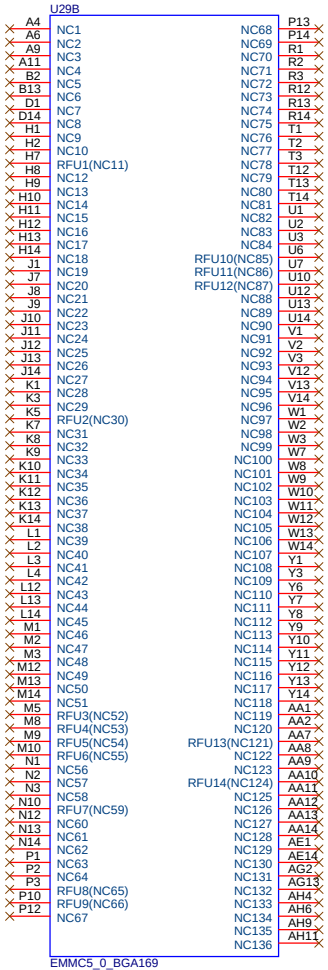
NAND-eMMC

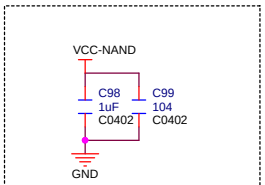
eMMC NAND和TSOP NAND COLAY



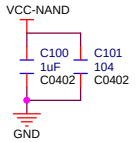


If use eMMC 5.0, mount D.
else, NC D.



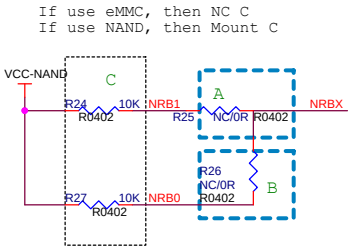


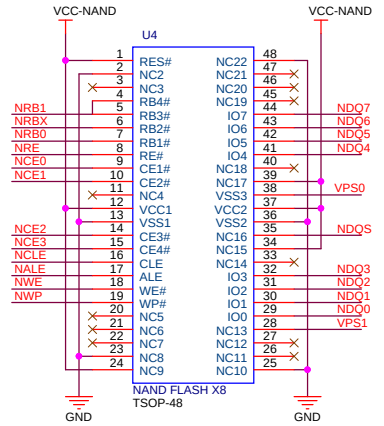
close to the power of
eMMC VCC1-VCC4
& NAND



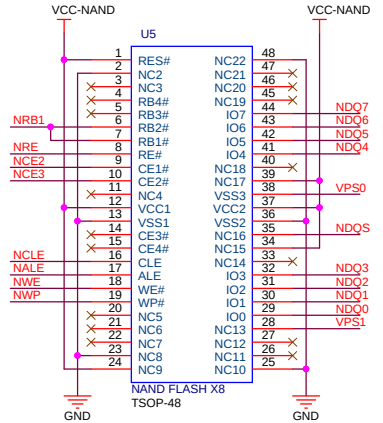
close to the power of
eMMC VCCQ1-VCCQ5
& NAND

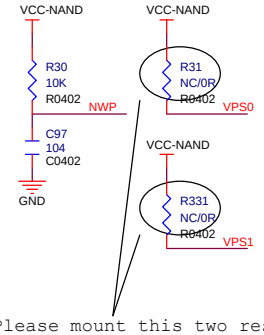
The first NAND FLASH





The second NAND FLASH





Please mount this two resistors if use
Sandisk or Toshiba nand flash

(1) 1 NAND [1 CE or 2 CE] : A=0R, B=NC
(2) 1 NAND [4 CE]: A=NC, B=0R
(3) 2 NAND [1 CE] or 2 NAND [2 CE]: A=NC, B=0R

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CAMERA

AP-CSI-PCLK → CSI-PCLK
AP-CSI-MCLK → CSI-MCLK
AP-CSI-HSYNC → CSI-HSYNC
AP-CSI-VSYNC → CSI-VSYNC
AP-CSI-D0 → CSI-D0
AP-CSI-D1 → CSI-D1
AP-CSI-D2 → CSI-D2
AP-CSI-D3 → CSI-D3
AP-CSI-D4 → CSI-D4
AP-CSI-D5 → CSI-D5
AP-CSI-D6 → CSI-D6
AP-CSI-D7 → CSI-D7
AP-CSI-D8 → CSI-D8
AP-CSI-D9 → CSI-D9
AP-CSI-SCK → CSI-SCK
AP-CSI-SDA → CSI-SDA

CSI-RST-R
CSI-STBY-R
CSI-RST-F
CSI-STBY-F

if camera module have 8 data lines, must connect D2-D9, can't connect D0-D7

IOVDD-CSI
R44 2K R0402 CSI-SCK
R45 2K R0402 CSI-SDA

MIPI-CSI2-D0N → CSI2-D0N
MIPI-CSI2-D0P → CSI2-D0P
MIPI-CSI2-D1N → CSI2-D1N
MIPI-CSI2-D1P → CSI2-D1P
MIPI-CSI2-D2N → CSI2-D2N
MIPI-CSI2-D2P → CSI2-D2P
MIPI-CSI2-D3N → CSI2-D3N
MIPI-CSI2-D3P → CSI2-D3P
MIPI-CSI2-CLKN → CSI2-CKN
MIPI-CSI2-CLKP → CSI2-CKP

MIPI-CSI2-D0[P/N]
MIPI-CSI2-D1[P/N]
MIPI-CSI2-D2[P/N]
MIPI-CSI2-D3[P/N]
MIPI-CSI2-CLK[P/N]
Differential pairs
Z0= 100 ohm

Rear Camera 2M

U26 GC2235
AFVCC-CSI, AVDD-CSI, CSI-SDA, CSI-SCK, CSI-RST-R, CSI-VSYNC, CSI-STBY-R, CSI-HSYNC, DVDD-CSI-R, IOVDD-CSI
AF-VCC AGND SIO-D AVDD SIO-C RESET VSYNC PWDN HREF DVDD DOVDD D9
D0 D1 D2 D3 D4 D5 D6 D7 DGND D8 XCLK
Close to camera
R32133R R0402 CSI-PCLK
R-MCLK R42 33R R0402 CSI-MCLK
Close to IC
GND

CSI-D0 CSI-D1 CSI-D2 CSI-D3 — 1RN6 33R*4 — D0 D1 D2 D3
CSI-D4 CSI-D5 CSI-D6 CSI-D7 — 1RN7 33R*4 — D4 D5 D6 D7
CSI-D8 R32233R R0402 D8
CSI-D9 R32233R R0402 D9

DVDD-CSI-R =1.8V
IOVDD-CSI =2.8V
AVDD-CSI =2.8V
AFVCC-CSI =2.8V

R-MCLK
DVDD-CSI-R AVDD-CSI IOVDD-CSI IOVDD-CSI IOVDD-CSI
C102 NC C0402
C103 1uF C0402
C104 4.7uF C0603
C105 104 C0402
R46 100K
R47 100K
CSI-RST-R
CSI-STBY-R
GND
Close to camera.

OPTION 1: CAMERA-MIPI

Rear Camera 8M

U27 OV8858
AFVCC-CSI, AVDD-CSI, DVDD-CSI-R, IOVDD-CSI
AGND MCP MCN DGND DOVDD1V8/2V8 MDP2 MDN2 DGND1 MDP0 MDN0 DGND2 MDP3 MDN3 DGND3 MDP1 MDN1
AFVCC2V8 AVDD2V8 DVDD1V2 NC MCLK NC1 NC2 SCL SDA RESET PWDN NC3 NC4 NC5
CSI2-CKP CSI2-CKN CSI2-D2P CSI2-D2N CSI2-D0P CSI2-D0N CSI2-D3P CSI2-D3N CSI2-D1P CSI2-D1N
R324 33R R0402 CSI-MCLK
C274 NC/104 C0402
CSI-SCK CSI-SDA CSI-RST-R CSI-STBY-R
Close to IC
Close to camera
connector型号: axe530124
PCB加方形通孔
GND

IOVDD-CSI =2.8V
AVDD-CSI =2.8V
AFVCC-CSI =2.8V
DVDD-CSI-R =1.2V

IOVDD-CSI DVDD-CSI-R AVDD-CSI AFVCC-CSI
C262 104 C0402
C113 1uF C0402
C114 4.7uF C0603
C115 1uF C0402
IOVDD-CSI IOVDD-CSI
R60 100K
R61 100K
CSI-RST-R
CSI-STBY-R

HDMI

HTX0P HTX0N HTX1P HTX1N HTX2P HTX2N HTXCP HTXCN HSCL HSDA HHPD HCEC

OPTION
VCC-IO
D5 NC/XBS104S14 SOD123
Q5 NC/BSN20 SOT-23
HCEC
R330 NC/27K R0402
R39 NC/27K R0402
HDMI-CEC

Q2 BSN20 SOT-23
HSCL
R35 10K R0402
R37 1K8 R0402
HDMI-SCL
HDMI-5V
Q3 BSN20 SOT-23
HSDA
R40 10K R0402
R41 1K8 R0402
HDMI-SDA

Differential pairs
Z0= 100 ohm

U6 rRclamp0524P
HTX2P HTX2N HTX1P HTX1N
HTX2P-S HTX2N-S HTX1P-S HTX1N-S
IN1 IN2 GND1 IN3 IN4 OUT1 OUT2 GND2 OUT3 OUT4
RCLAMP0524P

U7 rRclamp0524P
HTX0P HTX0N HTXCP HTXCN
HTX0P-S HTX0N-S HTXCP-S HTXCN-S
RCLAMP0524P

HDMI-CEC
HDMI-SCL
HDMI-SDA
HHPD
R48 10K R0402
C106 1uF C0402
AU0511P1 ESD1 ESD2 ESD3 ESD4 ESD5
GND

CON2 HDMI_19plug type C hdmi_19_0_4mm
HDMI-5V
D2 Shield D2+ D2- D1 Shield D1+ D1- D0 Shield D0+ D0- CK Shield CK+ CK- GND CEC DDC SCL DDC SDA NC +5V HPD SHIELD1 SHIELD2 SHIELD3 SHIELD4

Front Camera 0.3M

CON3 gc0308
IOVDD-CSI DVDD-CSI-F AVDD-CSI
CSI-SDA CSI-SCK CSI-RST-F CSI-VSYNC CSI-STBY-F CSI-HSYNC
CSI-D9 CSI-D8 CSI-D7 CSI-D6 — RN5 33R*4 — CSI-MCLK R51 33R R0402 F-MCLK
CSI-PCLK R52 33R R0402 F-PCLK
CSI-D2 CSI-D5 CSI-D3 CSI-D4 — RN6 33R*4

DVDD-CSI-F =1.8V
IOVDD-CSI =2.8V
AVDD-CSI =2.8V

F-MCLK
DVDD-CSI-F IOVDD-CSI AVDD-CSI IOVDD-CSI IOVDD-CSI
C110 NC C0402
C111 1uF C0402
C261 104 C0402
C112 4.7uF C0603
R56 100K R0402
R57 100K R0402
CSI-STBY-F
CSI-RST-F
GND
Close to camera.

AllWinner Technology Co.,Ltd		
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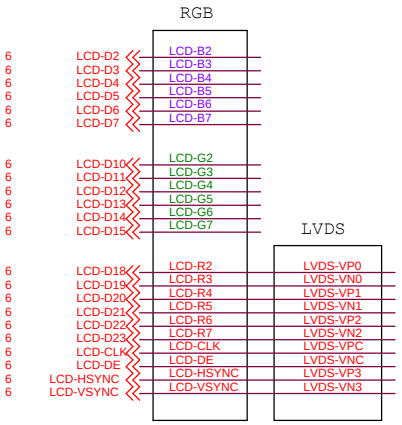
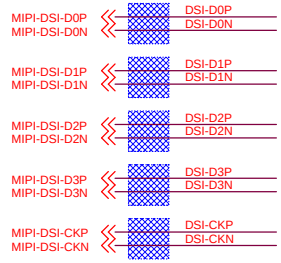
LVDS



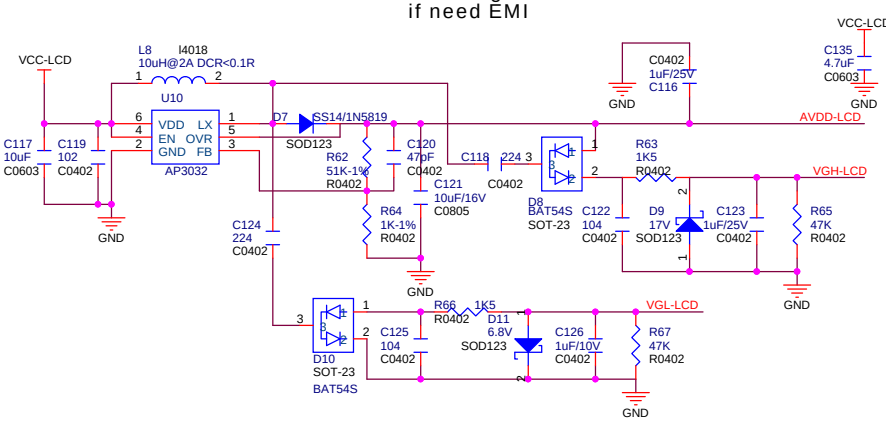
Differential pairs
Z0= 100 ohm

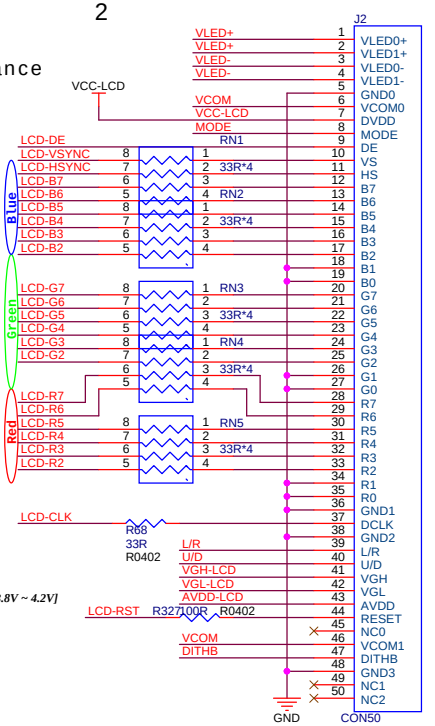
MIPI DSI



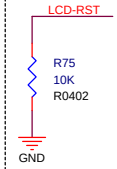
RGB

Add magnetic bead or common mode inductance if need EMI

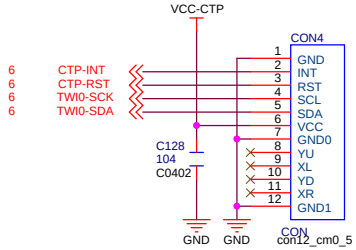


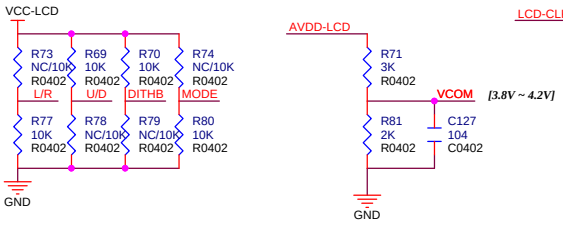


MIPI/RGB LCM only

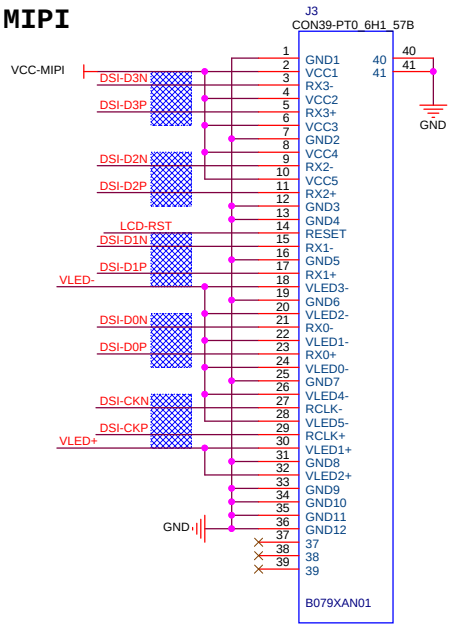


CTP

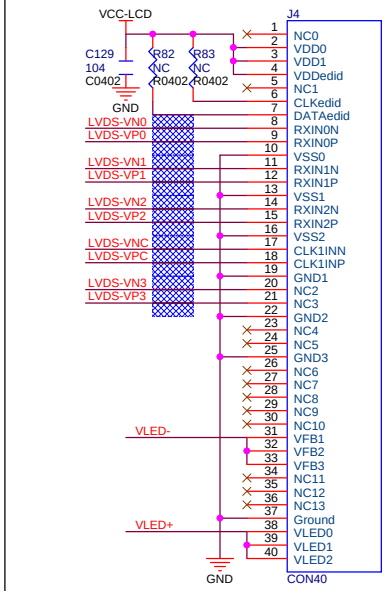




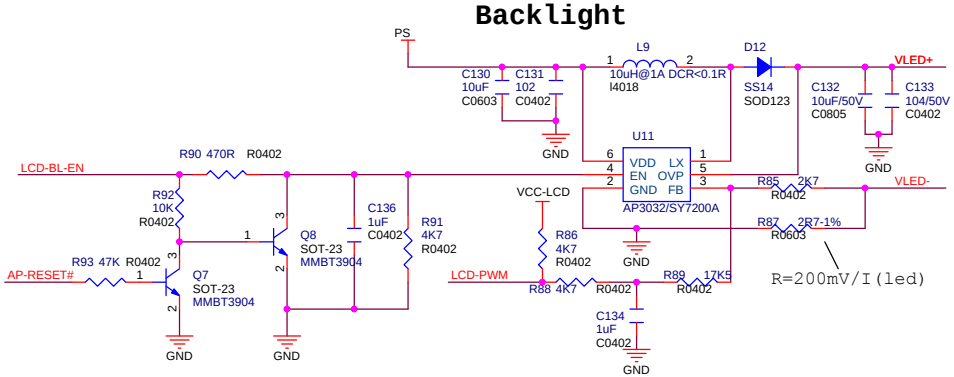
MIPI



LVDS



Backlight



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Design Name: A83T-TABLET			
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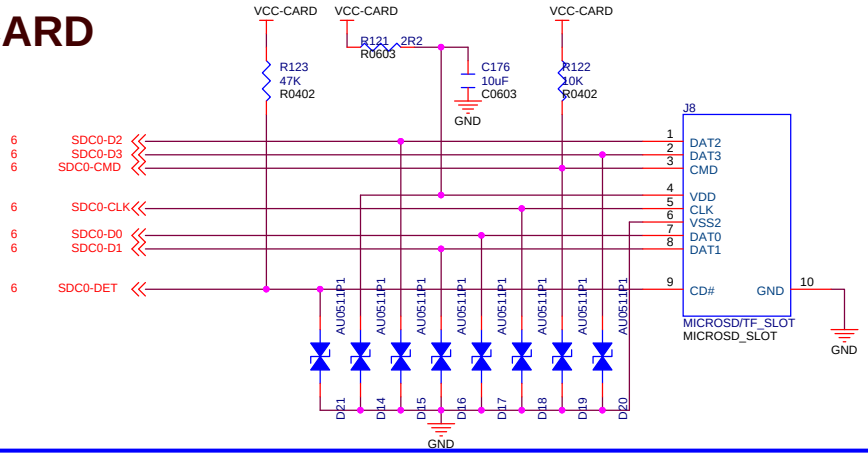
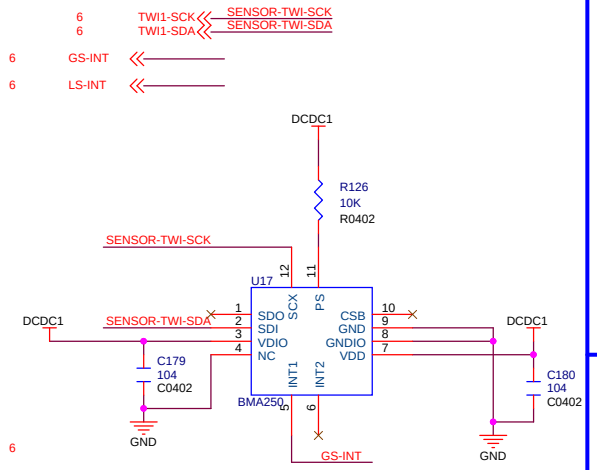
CARD



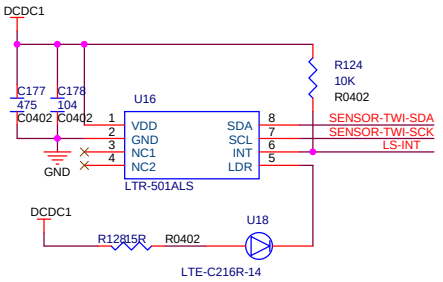
G-SENSOR



7Bits I2C Address: 0x18

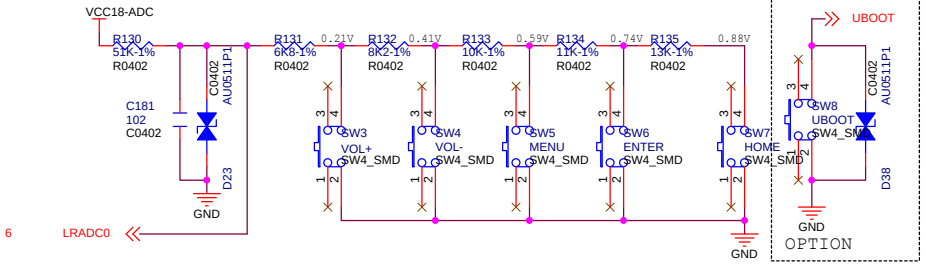
place PIN1 in the top right, parallel to the screen, and put on the top left of the screen

LIGNT SENSOR

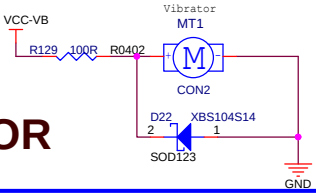


7Bits I2C Address: 0x23

KEY



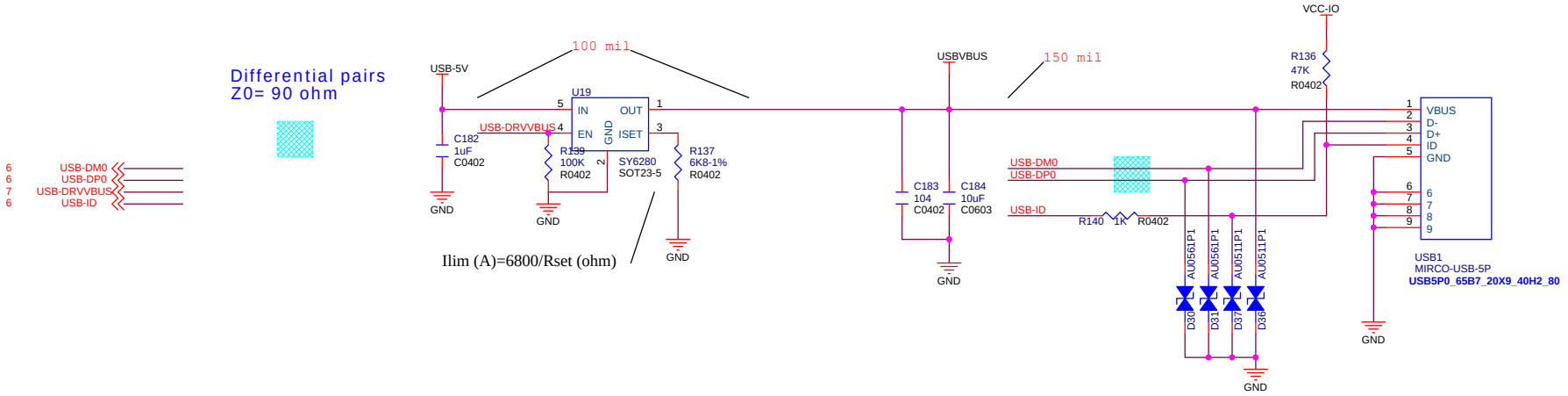
VIBRATOR



USB OTG

note: Make sure the routing between the ESD and the USB connectors should be on the same PCB side

Differential pairs
Z0= 90 ohm



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Design Name	A83T-TABLET
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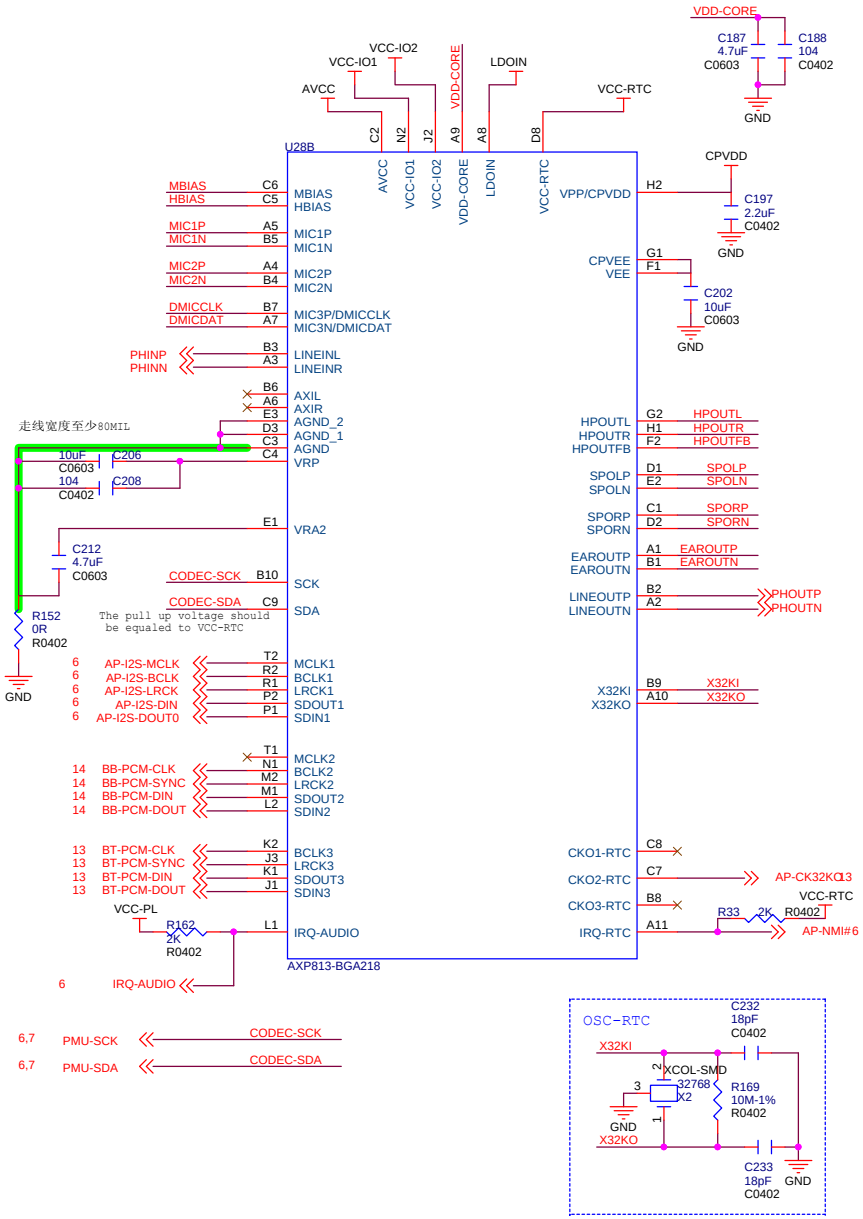
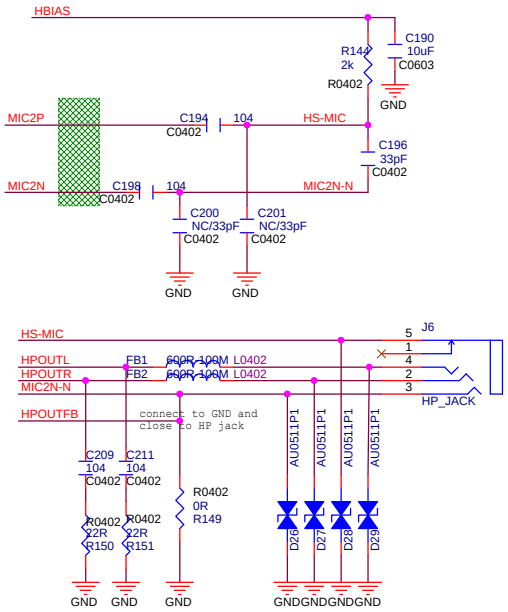
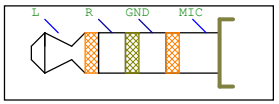
CODEC



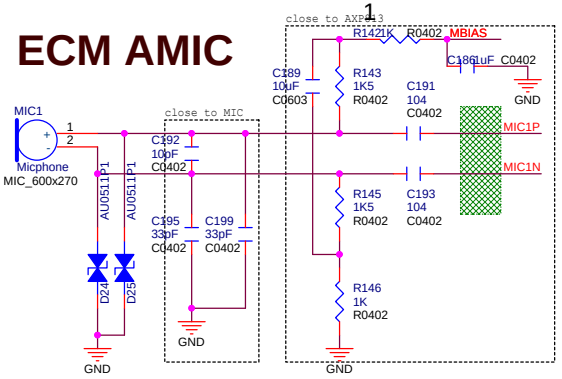
HP_JACK



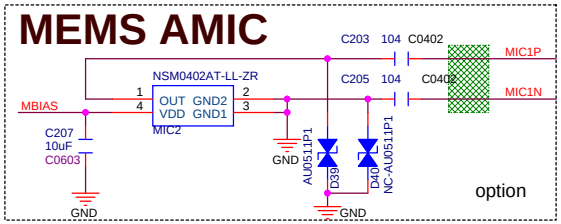
Differential Pair



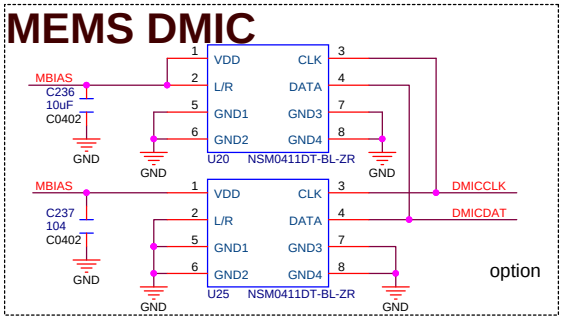
ECM AMIC



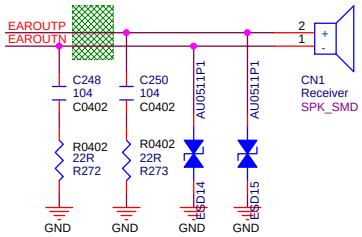
MEMS AMIC



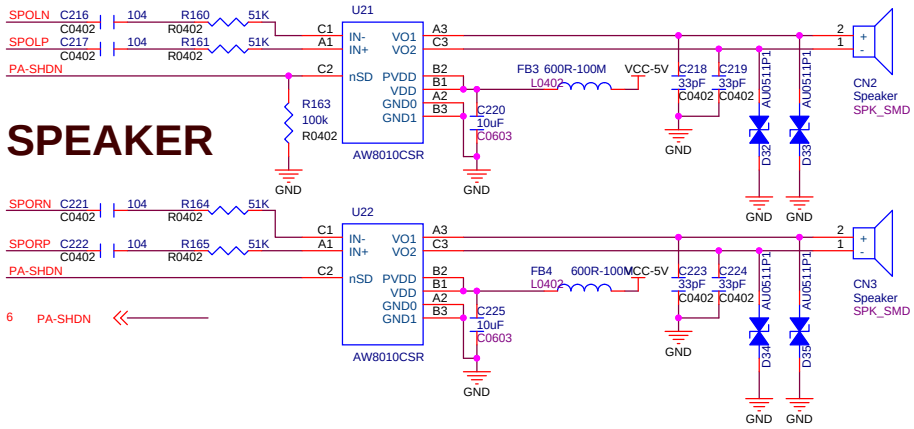
MEMS DMIC



RECEIVER



SPEAKER



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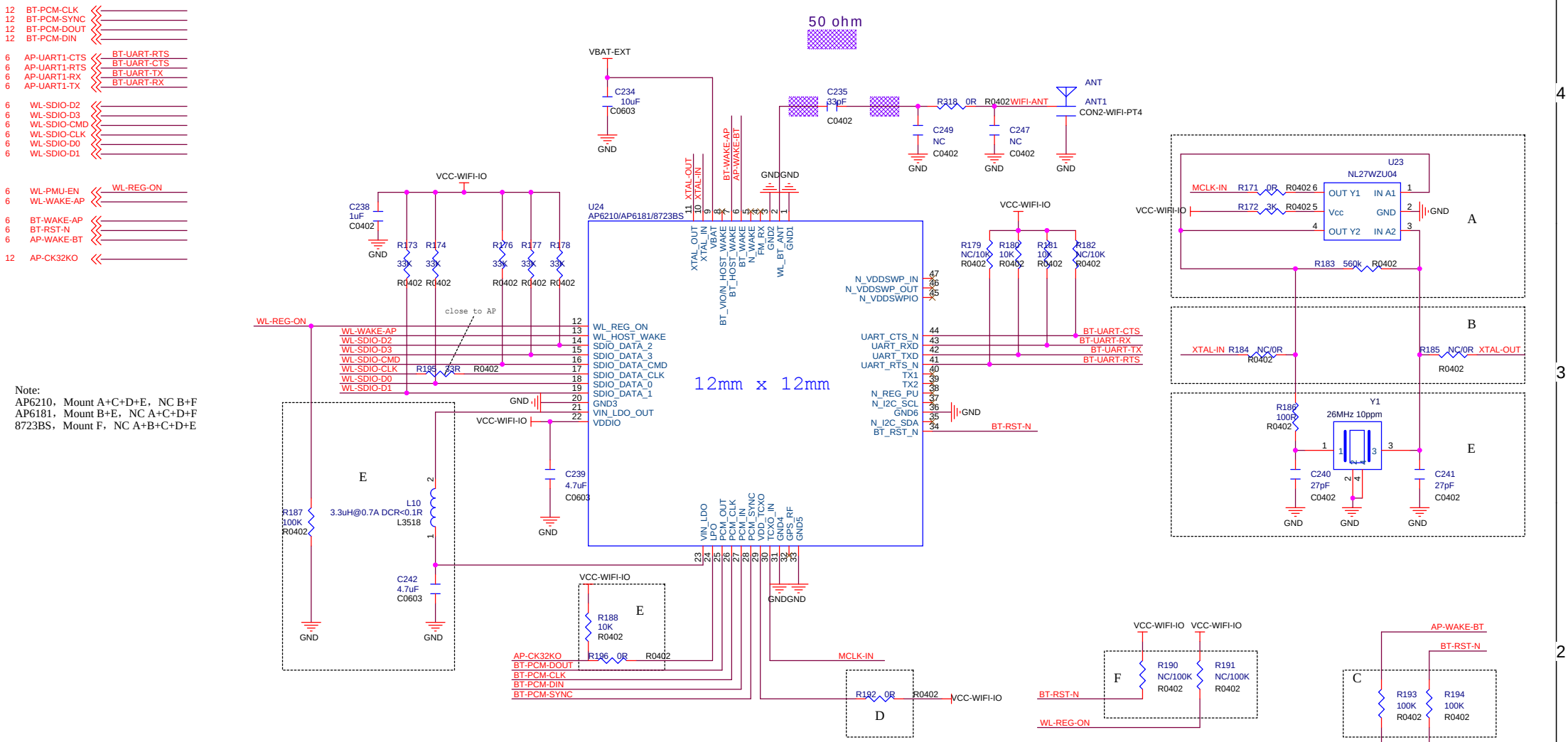
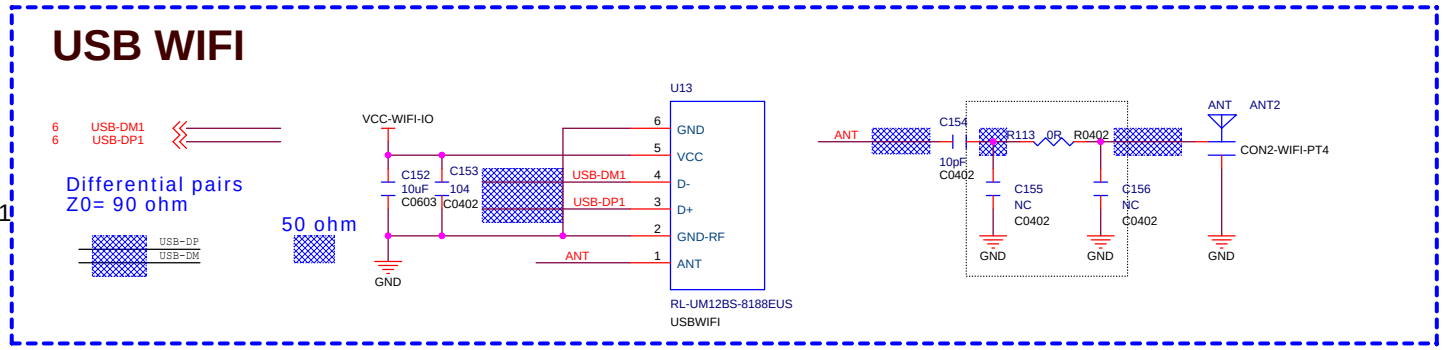
SDIO WIFI+BT



USB WIFI



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Design Name: A83T-TABLET			
Size: A3	Page Name: WIFI+BT		Rev
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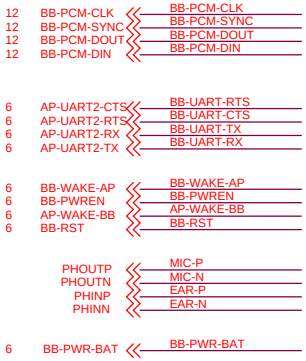
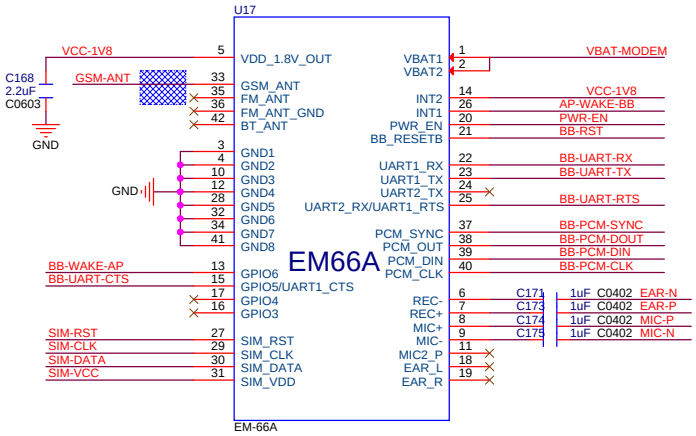
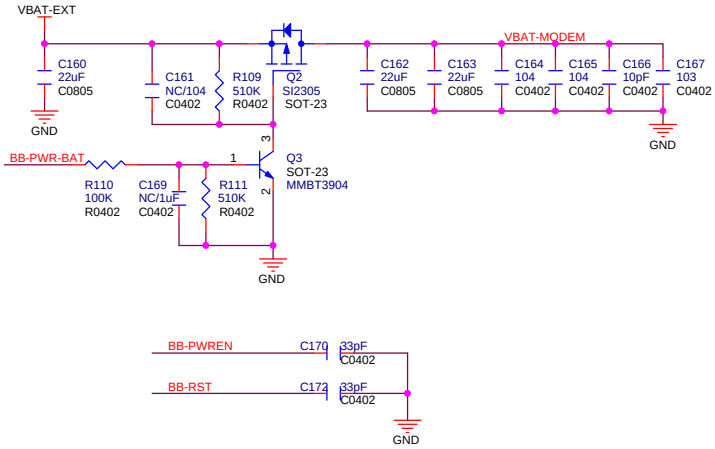
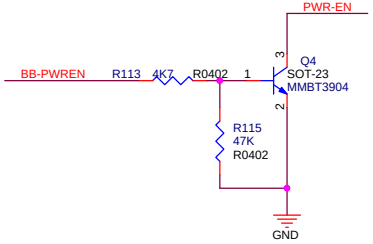
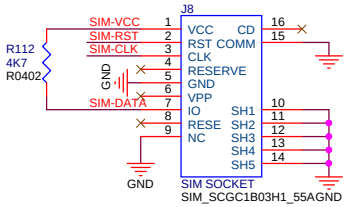
MODEM

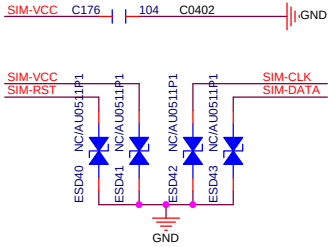


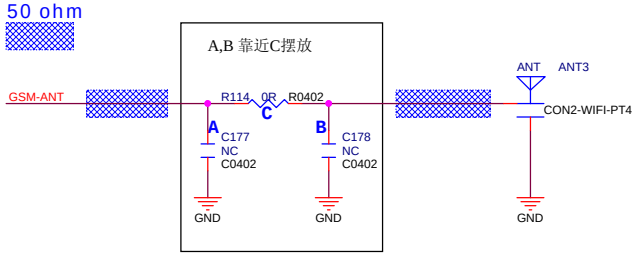












这部分电路根据天线的实际情况进行调整。

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DDR3_8BitsX4

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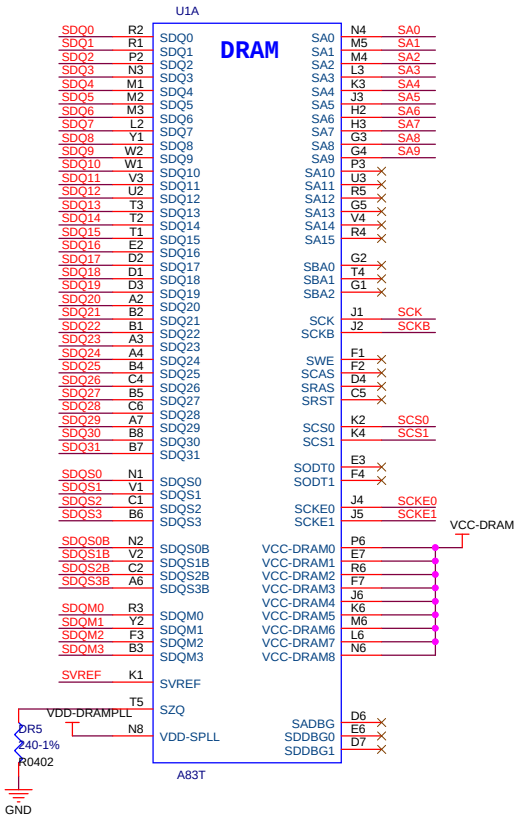
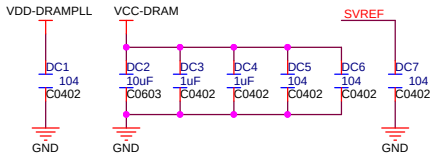
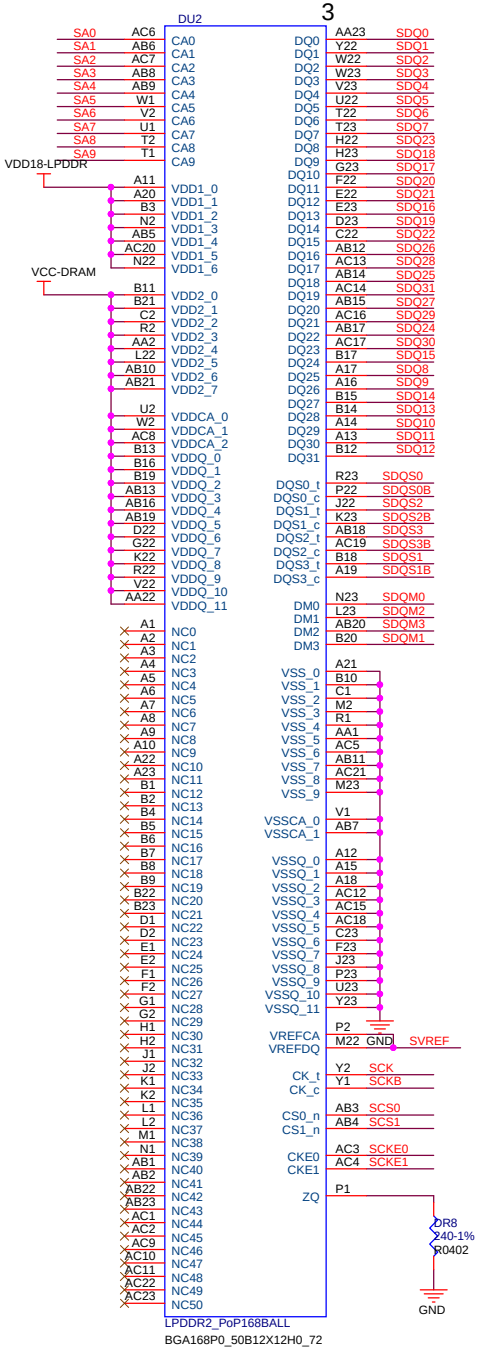
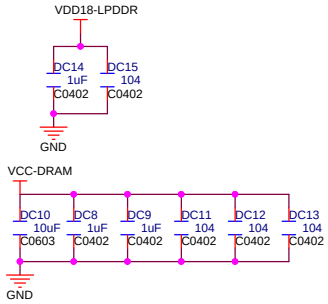
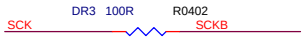
LPDDR2_32X1

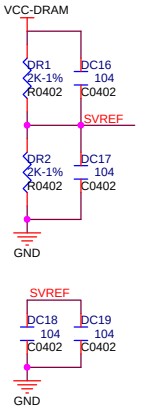












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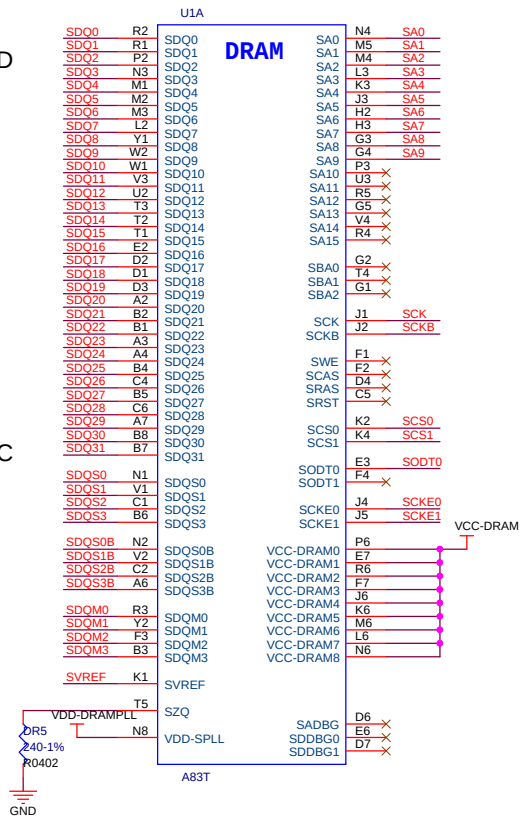
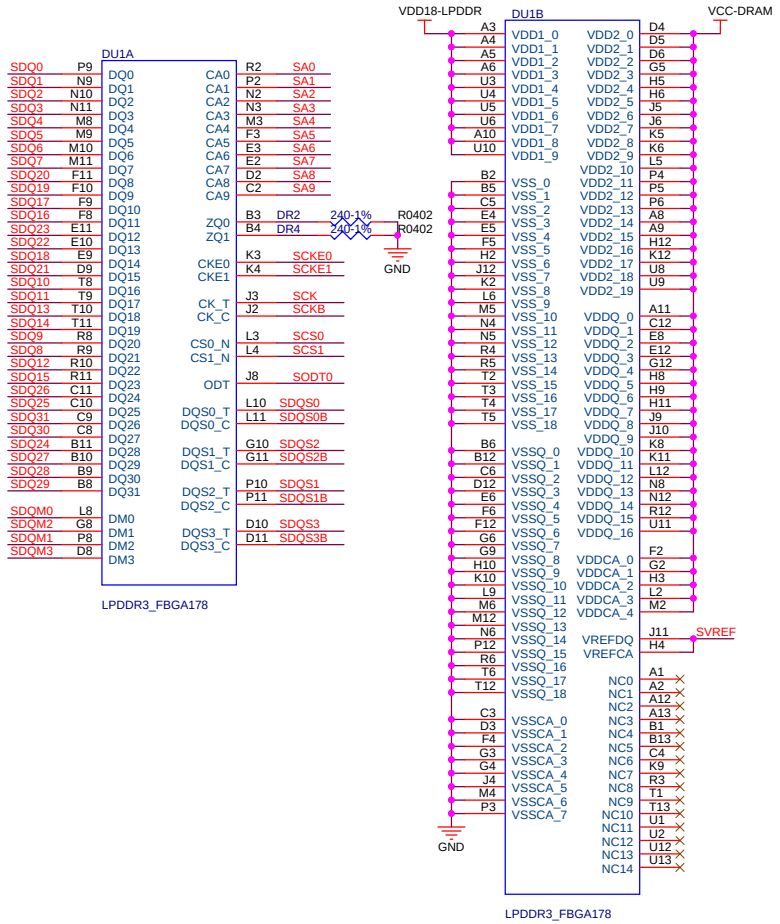
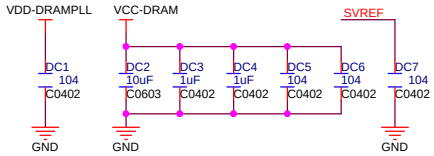
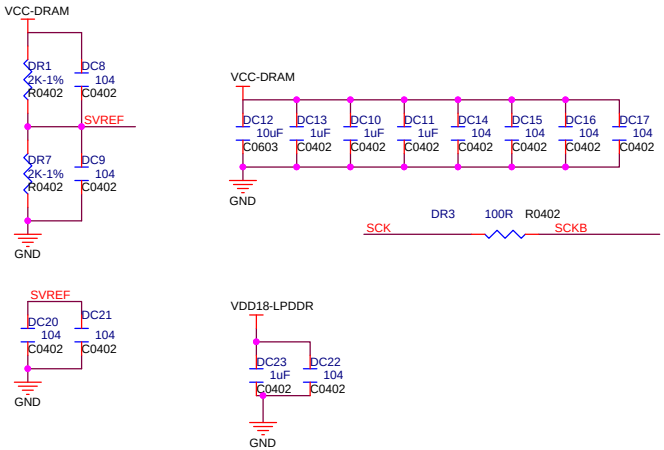
LPDDR3_32X1









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MODEM 3G

13,14 BB-PCM-CLK — BB-PCM-CLK
13,14 BB-PCM-SYNC — BB-PCM-SYNC
13,14 BB-PCM-DOUT — BB-PCM-DOUT
13,14 BB-PCM-DIN — BB-PCM-DIN

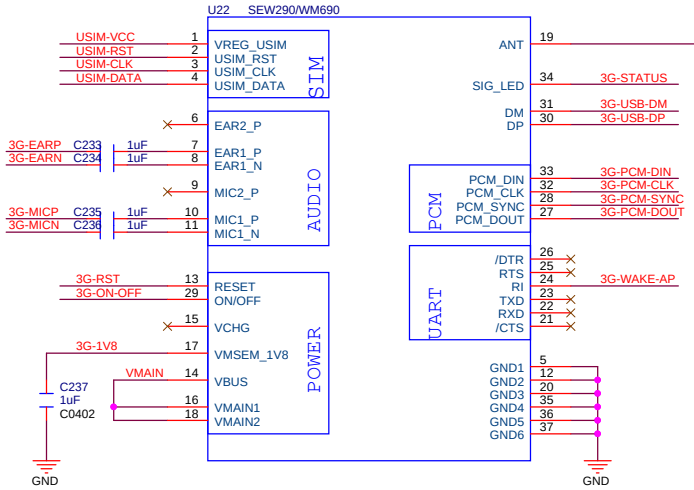
6,13 BB-WAKE-AP — BB-WAKE-AP
6,13 BB-PWREN — BB-PWREN
6,13 BB-RST — BB-RST

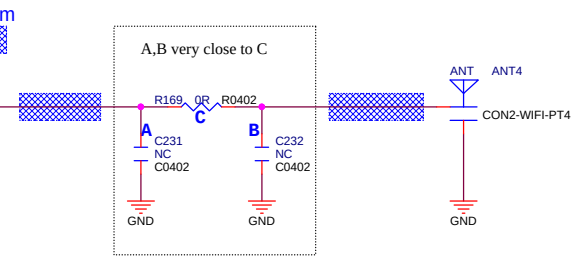
6,13 PHOUTP — 3G-MICP
6,13 PHOUTN — 3G-MICN
6,13 PHINP — 3G-EARP
6,13 PHINN — 3G-EARN

6,15 USB-DM1 — 3G-USB-DM
6,15 USB-DP1 — 3G-USB-DP

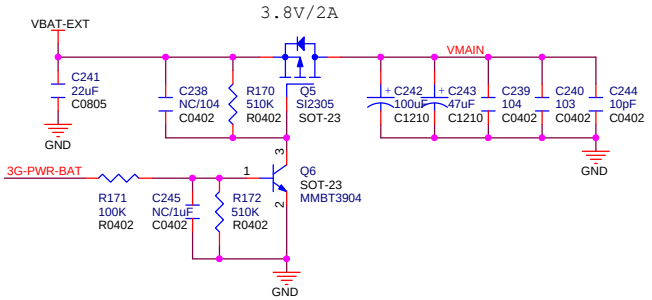
6,13 AP-WAKE-BB — 3G-BTPCM-EN

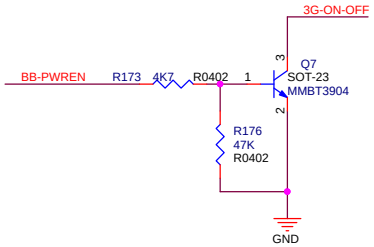
6,13 BB-PWR-BAT — 3G-PWR-BAT

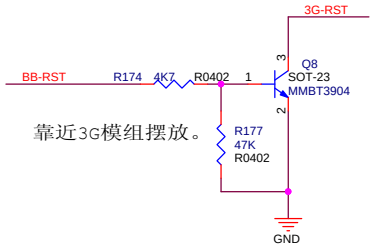




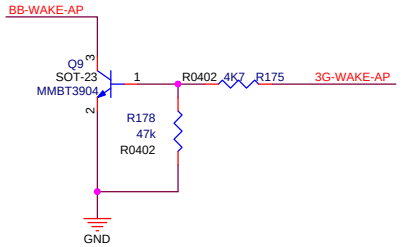
请根据天线实际情况调整匹配电路



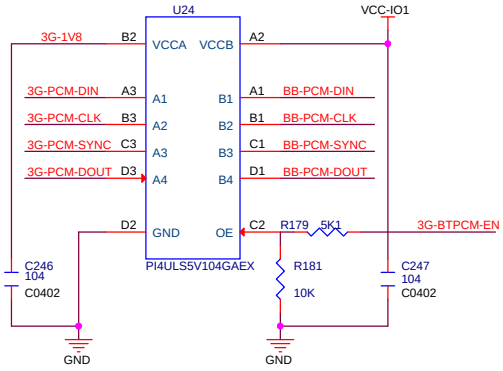




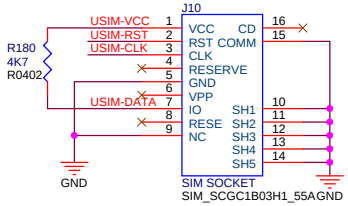
靠近3G模组摆放。

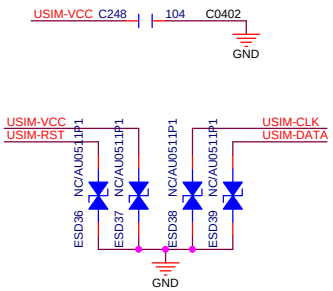


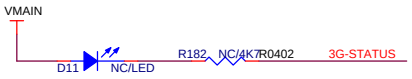
注意：
需要电压VCCB>=VCCA。



VCCB电压与VCC-IO1的供电保持一致；







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