

VERSION HISTORY

Revision	Description	Date
V1.0	Release	2013-09-05
V2.0		2013-10-20

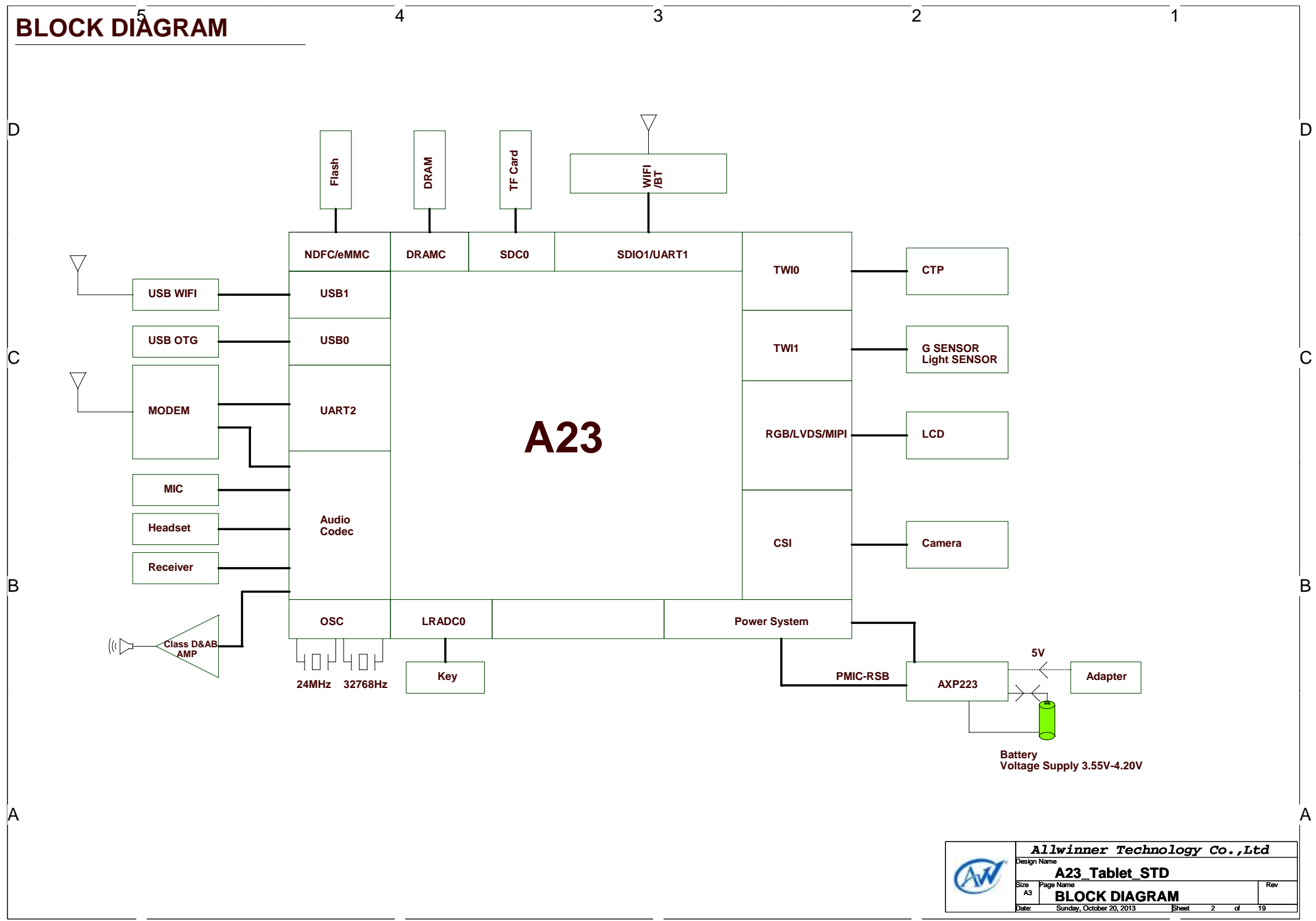
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OPTION:

P16: AUDIO(AC couple)
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P18: RTL8723BS
P19: MODEM 3G

BLOCK DIAGRAM



POWER TREE

AXP223

Battery Charger & Power Detect

USB

5V@2.5A

BAT

3.5~4.2V

PS

DC/DC1

DC/DC1 SW

DC/DC2

DC/DC3

DC/DC4

DC/DC5

DC5LDO

VCC-RTC

ALDO1

ALDO2

ALDO3

DLDO1

DLDO2

DLDO3

DLDO4

ELD01

ELD02

ELD03

GPIO0/LDO

GPIO1/LDO

3.0V@800mA

3.0V@600mA

1.1V@2A

1.1V@2A

1.5V@2A

1.1V@100mA

3.0V@30mA

3.0V@300mA

2.5V@300mA

3.0V@200mA

3.3V@400mA

3.3V@200mA

0.7~3.0V@200mA

3.3V@100mA

0.7~3.0V@200mA

0.7~3.0V@100mA

3.5V~5V@2A

VCC 3.0V for external device(ON)

VCC 3.0V for LCD

VDD 1.1V for GPU and SYS(ON)

VDD 1.1V for CPU (ON)

VCC 1.5V for DRAM (ON)

VDD 1.1V for CPUS (ON)

VCC 3.0V for RTC & Port PL(ON)

VCC 3.0V FOR VCC-IO&PD(ON)

VDD 2.5V For DRAM DLL (ON)

VCC 3.0V for AVCC&PLL(ON)

VCC 3.3V for WIFI&BT

VCC 3.3V for WIFI&BT

VCC 2.8V for CSI DOVDD

VCC 3.3V for Motor

VDD 1.8V for CSI DVDD

VCC 2.8V for CSI AVDD

DC/DC
5V

5V@1A

USB Host

DC/DC

4.5W

LCD BL

GPIO ASSIGNMENT

PIN	Name	Function
PB0	AP-UART2-TX	MODEM
PB1	AP-UART2-RX	
PB2	AP-UART2-RTS	
PB3	AP-UART2-CTS	T CARD
PB4	T-CARD-DET	
PB5	TP-INT	TP
PB6	GS-INT	G SENSOR
PB7	LS-INT	ALS

PIN	Name	Function
PG0	WL-SDIO-CLK	WLAN
PG1	WL-SDIO-CMD	
PG2	WL-SDIO-D0	
PG3	WL-SDIO-D1	
PG4	WL-SDIO-D2	
PG5	WL-SDIO-D3	BT
PG6	AP-UART1-TX	
PG7	AP-UART1-RX	
PG8	AP-UART1-RTS	
PG9	AP-UART1-CTS	
PG10		
PG11		
PG12		
PG13		

PIN	Name	Function
PH0	LCD-PWM	LCM
PH1	TP-RST	TP
PH2	TP-SCK	
PH3	TP-SDA	
PH4	SENSOR-SCK	SENSOR
PH5	SENSOR-SDA	
PH6	LCD-BL-EN	LCM
PH7	LCD-RST	
PH8	USB-ID	USB
PH9	PA-SHDN	AUDIO PA

PIN	Name	Function
PL0	PMIC-SCK	PMIC
PL1	PMIC-SDA	
PL2	BB-WAKE-AP	MODEM
PL3	BB-PWREN	
PL4	AP-WAKE-BB	
PL5	BB-RST	WLAN/BT
PL6	WL-PMU-EN	
PL7	WL-WAKE-AP	
PL8	BT-RST-N	
PL9	BT-WAKE-AP	
PL10	AP-WAKE-BT	
PL11	WL-BT-ENABLE	

DRAM DDR3

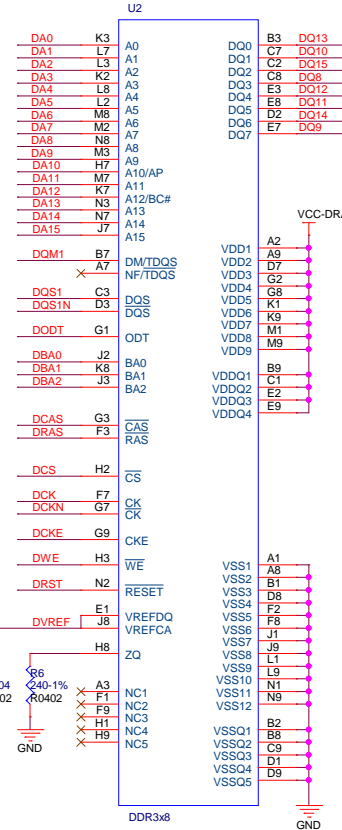
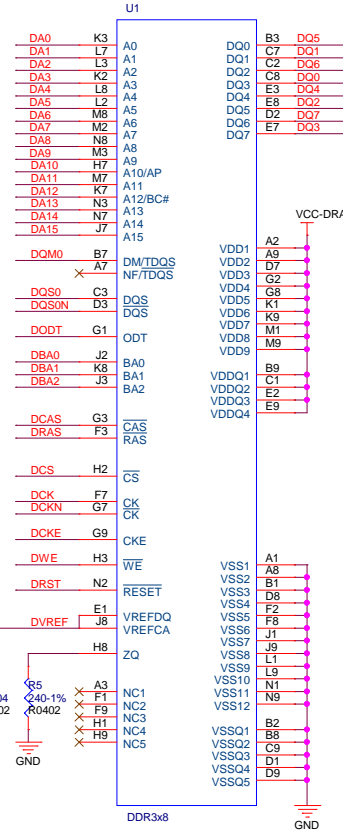
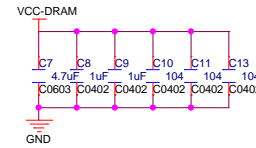
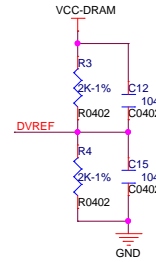
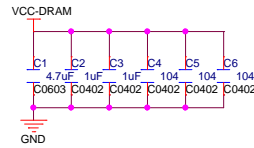
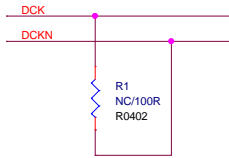
4

3

2

1

- 6.17 DQ[15:0] << [Signal]
- 6.17 DA[15:0] << [Signal]
- 6.17 DBA[2:0] << [Signal]
- 6.17 DCS << DCS
- 6.17 DCK << DCK
- 6.17 DCKN << DCKN
- 6.17 DCKE << DCKE
- 6.17 DQS0 << DQS0
- 6.17 DQS0N << DQS0N
- 6.17 DQS1 << DQS1
- 6.17 DQS1N << DQS1N
- 6.17 DQM0 << DQM0
- 6.17 DQM1 << DQM1
- 6.17 DWE << DWE
- 6.17 DRAS << DRAS
- 6.17 DCAS << DCAS
- 6.17 DRST << DRST
- 6.17 DODT << DODT
- 6.17 DODT << DODT
- 6.17 DVREF << DVREF



CPU

5

4

3

2

1

D

D

C

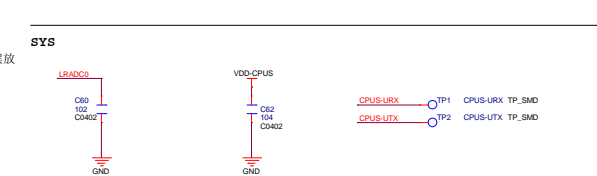
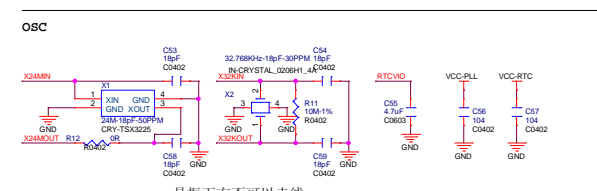
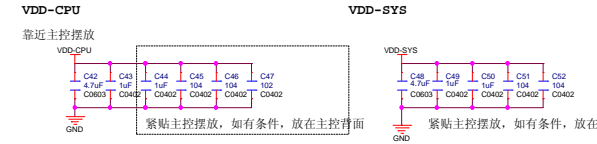
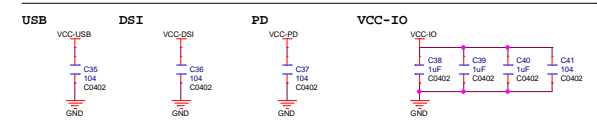
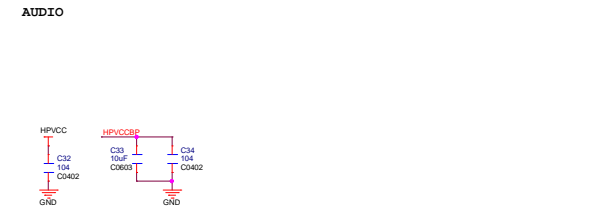
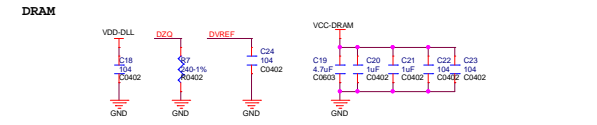
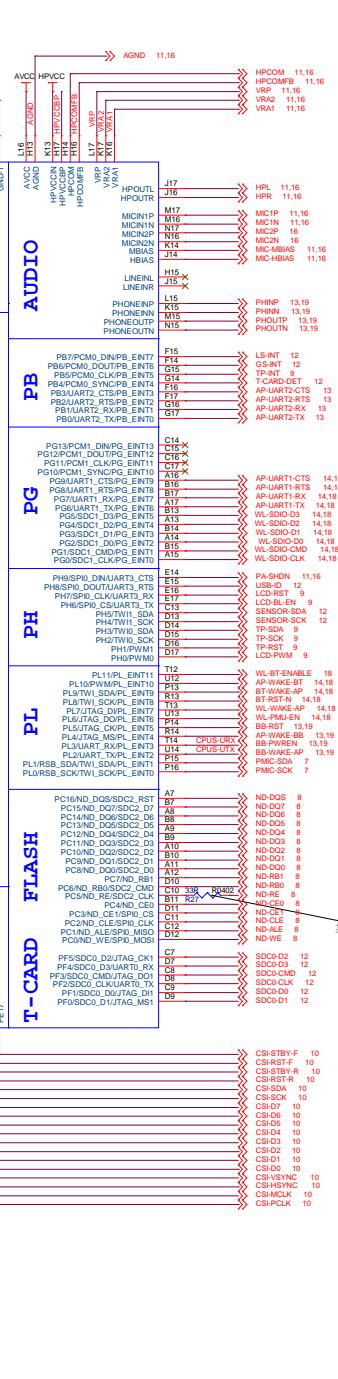
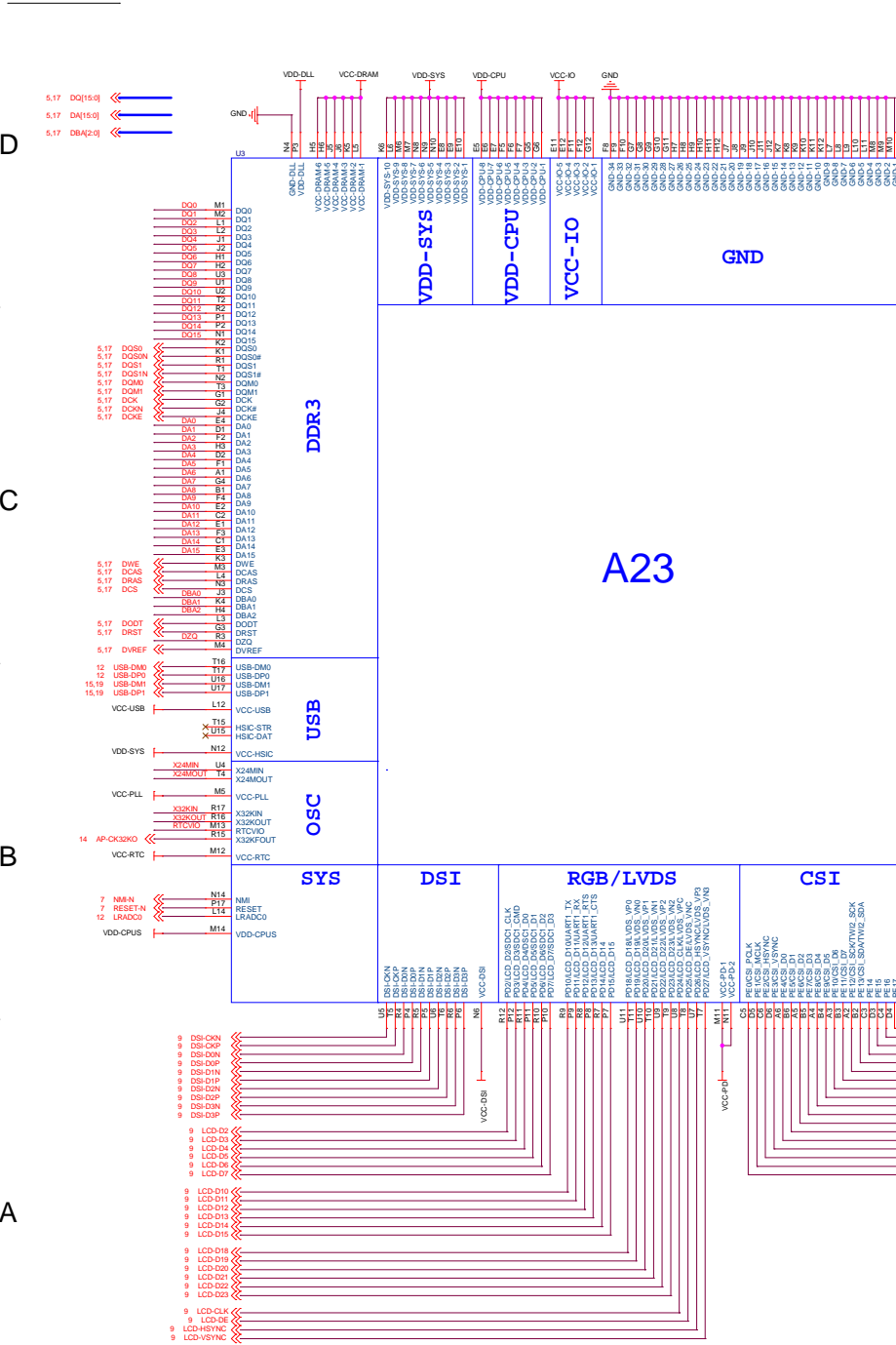
C

B

B

A

A



POWER

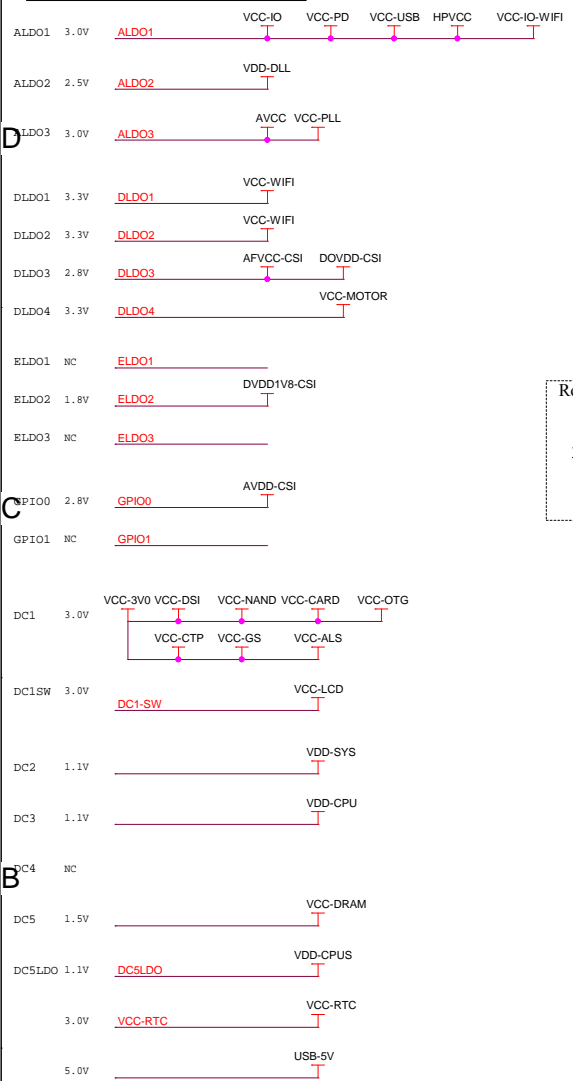
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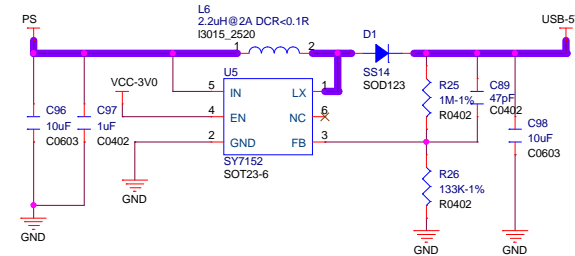
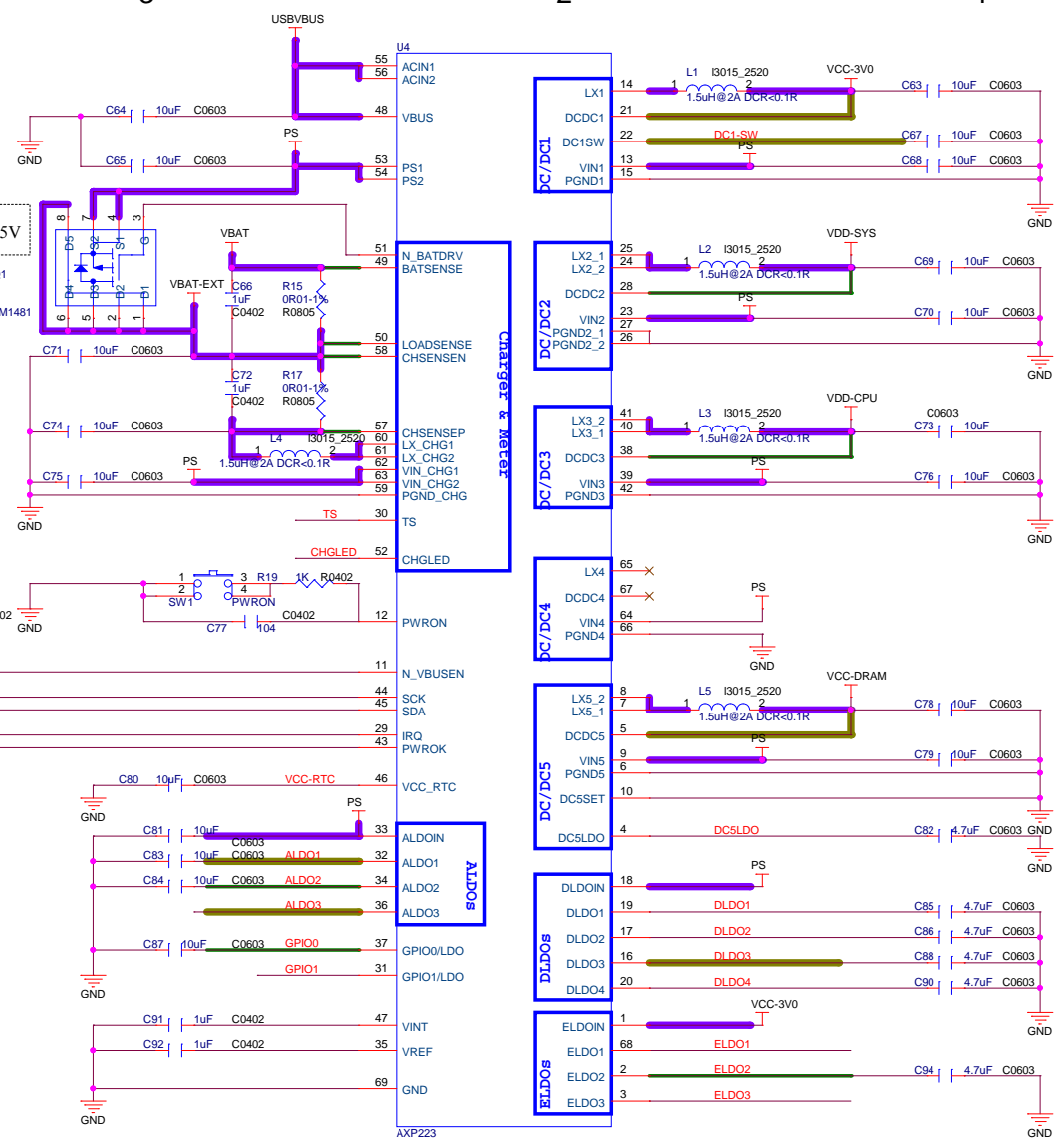
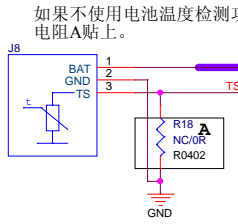
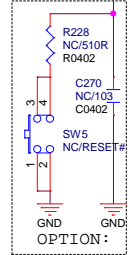


13,19 BB-PWR-BAT <<< GPIO1

NOTE:
Q1 vth < 1.5V & R < 30mohm @ vgs = 4.5V

P-MOSFET Option:
1. WPM1481
2. ACE5801

Routing rules:
100mil
30mil
10mil



Option: 使用充电指示时贴R16、D11。

NAND

5

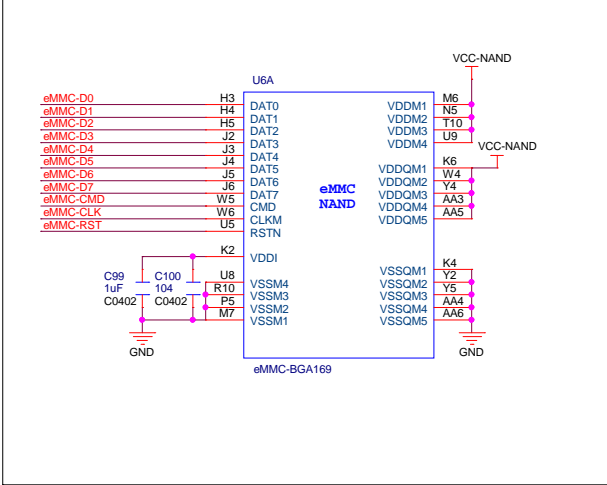
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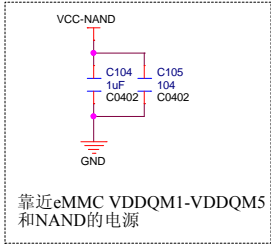
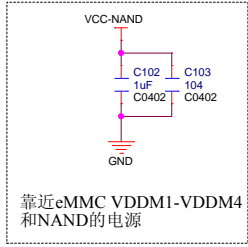
1

eMMC和NAND双layout

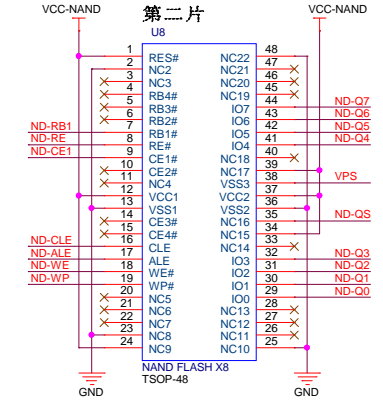
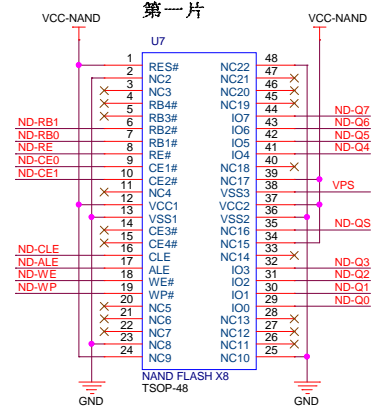
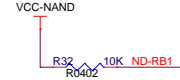
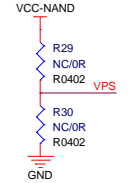
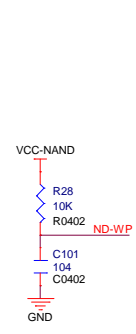


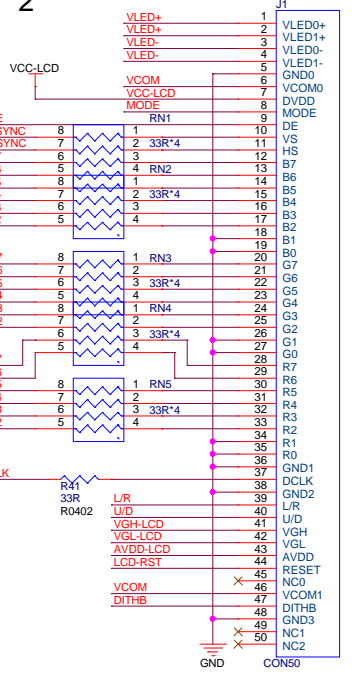
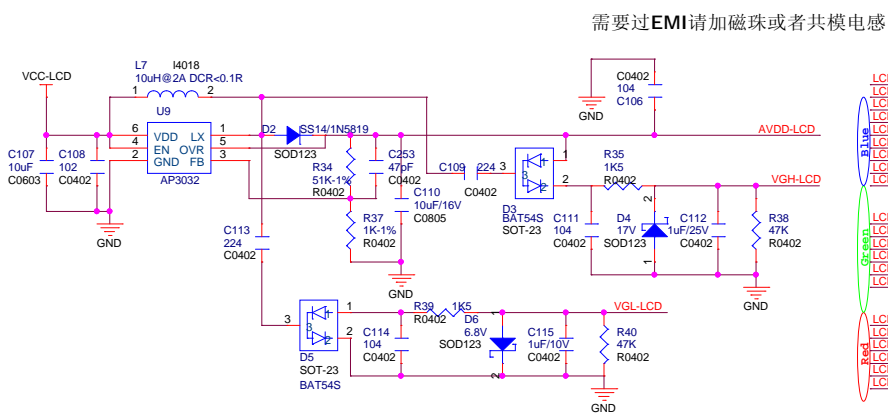
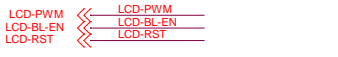
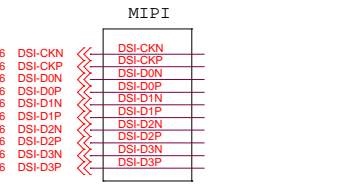
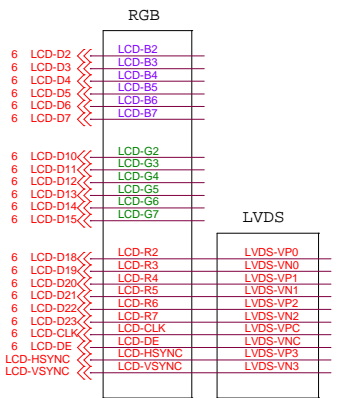
- 6 ND-DQ5 <<< ND-Q5 eMMC-RST
- 6 ND-DQ7 <<< ND-Q7 eMMC-D7
- 6 ND-DQ6 <<< ND-Q6 eMMC-D6
- 6 ND-DQ5 <<< ND-Q5 eMMC-D5
- 6 ND-DQ4 <<< ND-Q4 eMMC-D4
- 6 ND-DQ3 <<< ND-Q3 eMMC-D3
- 6 ND-DQ2 <<< ND-Q2 eMMC-D2
- 6 ND-DQ1 <<< ND-Q1 eMMC-D1
- 6 ND-DQ0 <<< ND-Q0 eMMC-D0

- 6 ND-RB0 <<< ND-RB0 eMMC-CMD
- 6 ND-RB1 <<< ND-RB1 eMMC-CLK
- 6 ND-RE <<< ND-RE eMMC-CLK
- 6 ND-CE0 <<< ND-CE0
- 6 ND-CE1 <<< ND-CE1
- 6 ND-CLE <<< ND-CLE
- 6 ND-ALE <<< ND-ALE
- 6 ND-WE <<< ND-WE

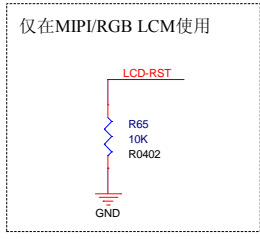
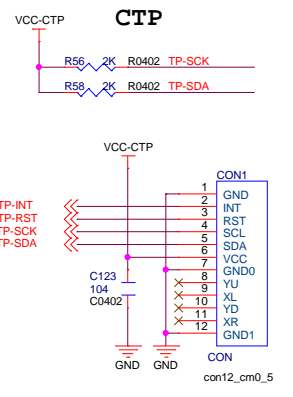
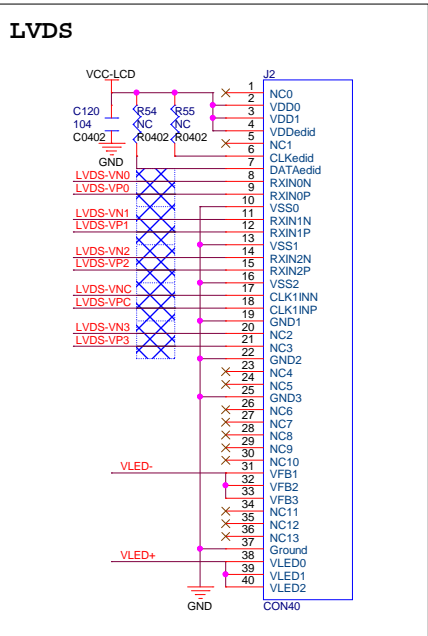
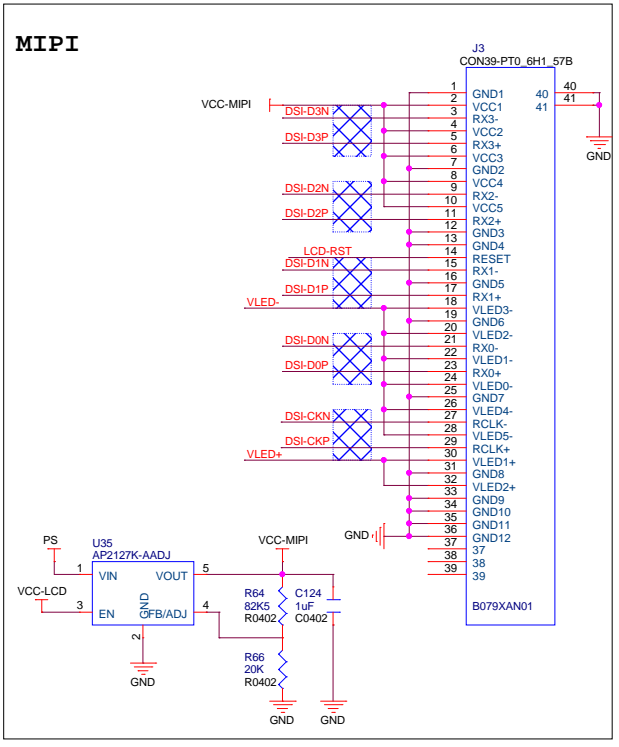


只贴一片NAND, 可以是1 CE或2 CE;
贴两片NAND, 两片都为1 CE

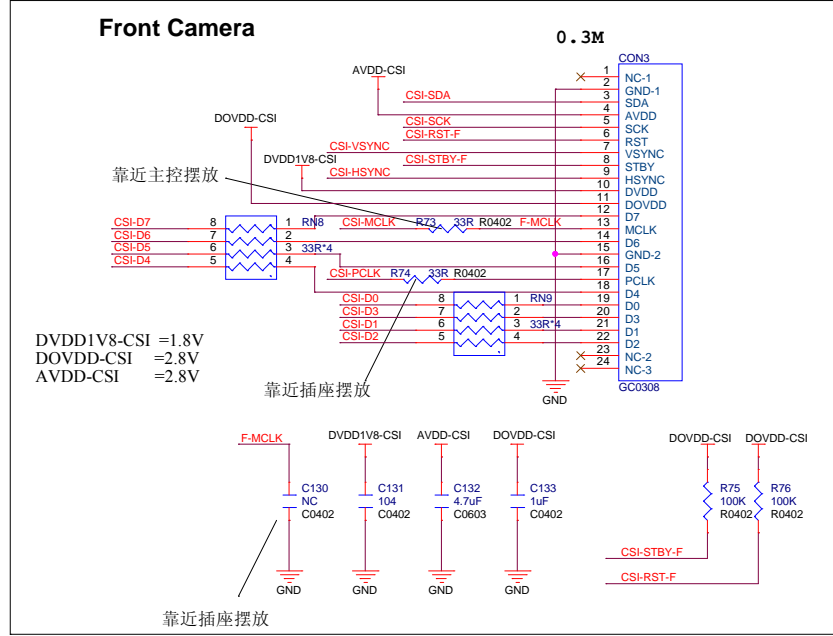
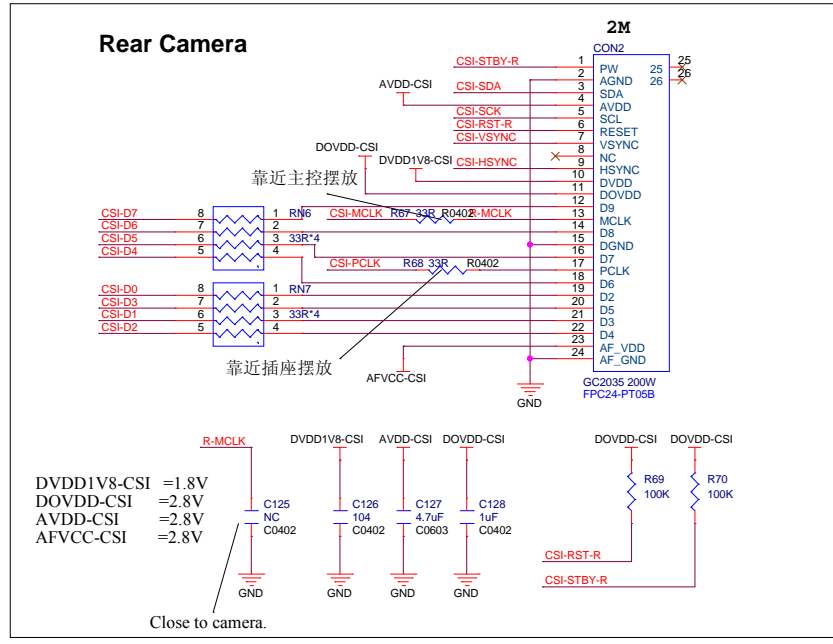
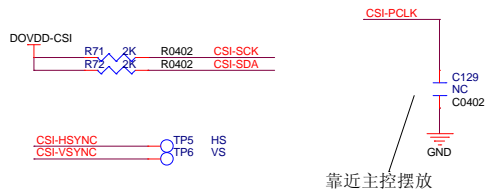
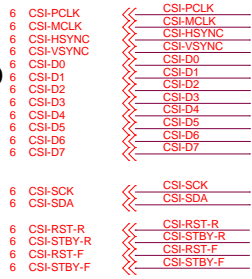




Differential pairs
Z0= 100 ohm

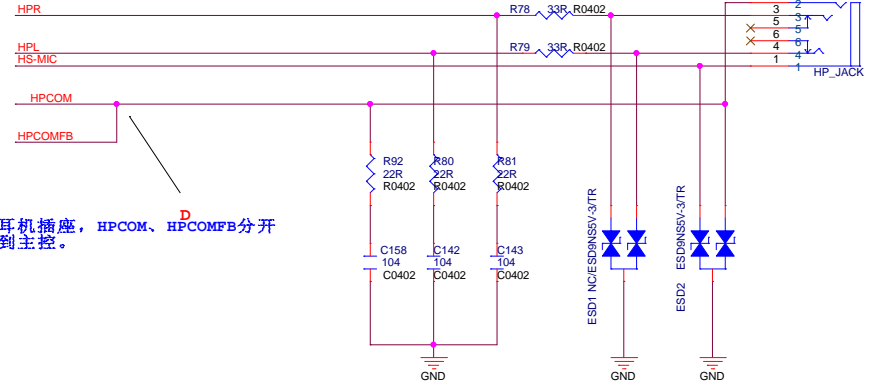
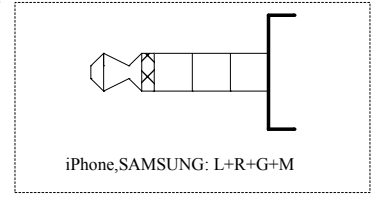
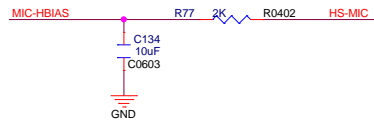
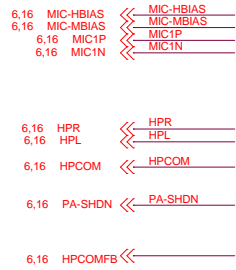


CAMERA



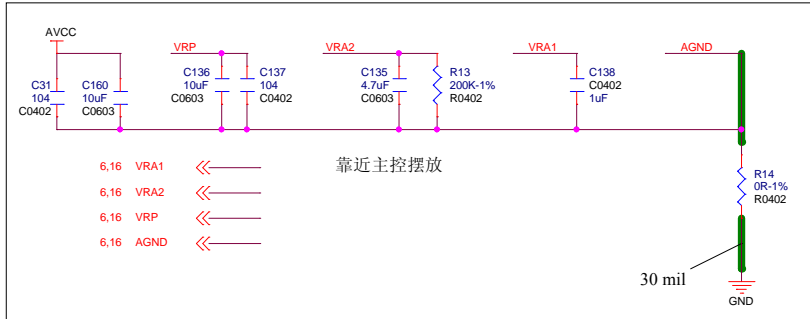
AUDIO(DC direct)

Head Phone

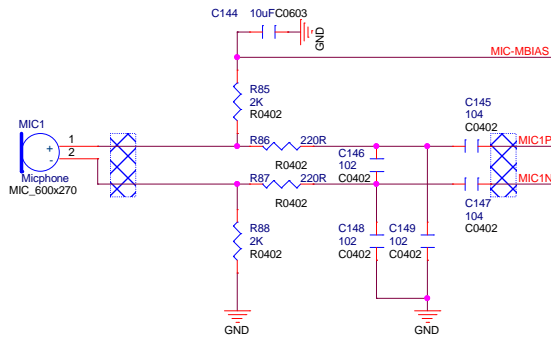


注:D点要靠近耳机插座, HPCOM、HPCOMFB分开走类差分线回到主控。

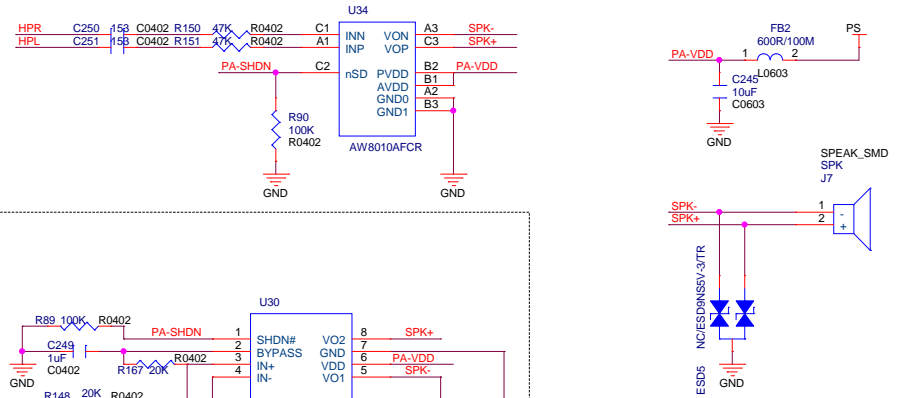
注: 该电路为直接驱动模式电路, 不支持耳机MIC, 不适合金属外壳; 如果要耳机MIC或外壳为金属, 请参考Option: AUDIO(AC couple)部分的电路设计。



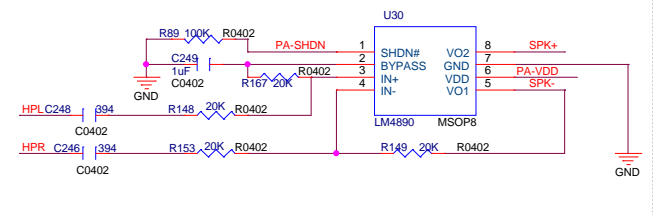
Analog Microphone



Speaker

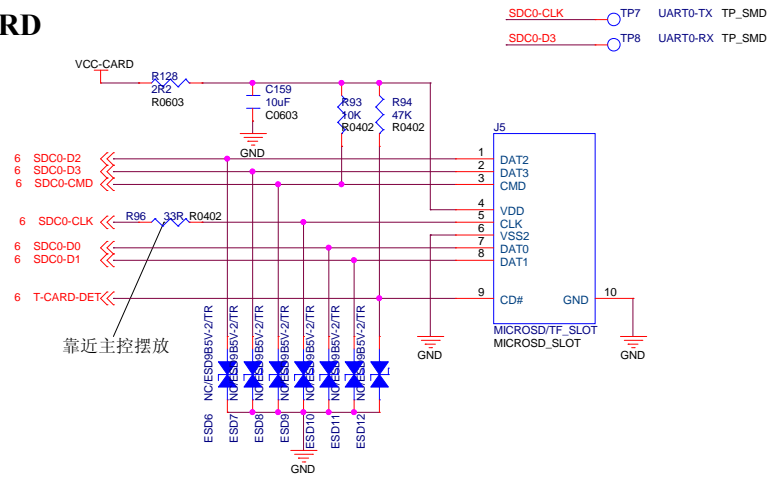


Option



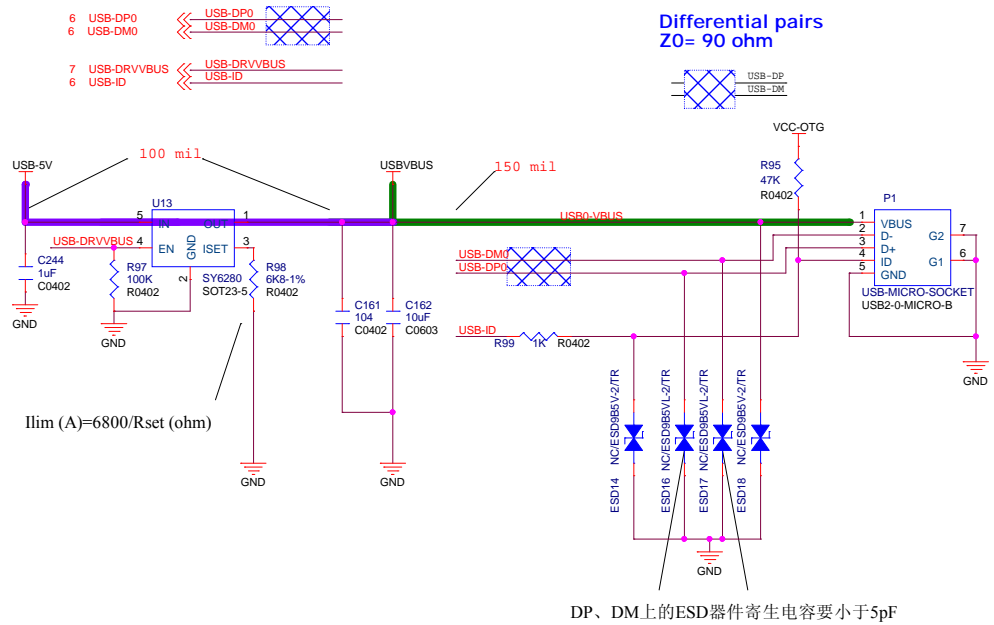
T-CARD/USB/KEY/SENSOR

T-CARD



靠近主控摆放

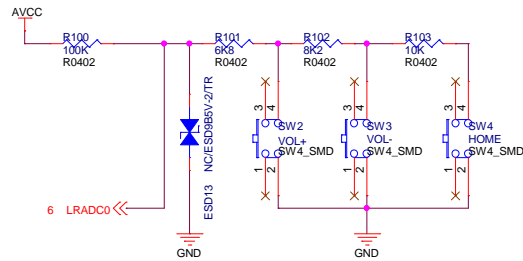
USB



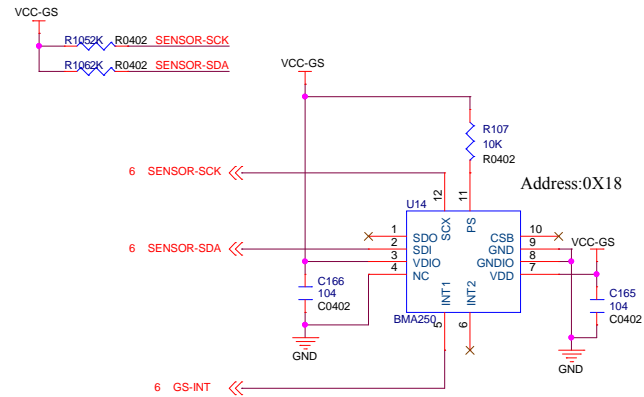
$I_{lim} (A) = 6800 / R_{set} (ohm)$

DP、DM上的ESD器件寄生电容要小于5pF

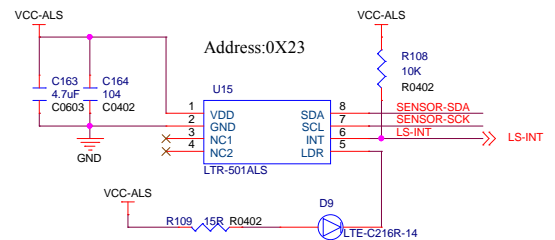
KEY



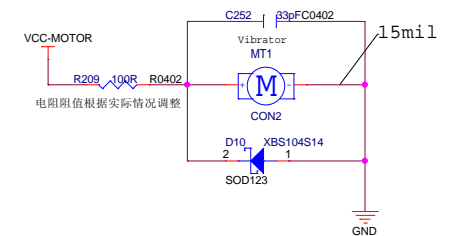
SENSOR



G-SENSOR IC与屏平行放置，放在屏的左上方，右上方放置PIN1脚。



Motor



电阻阻值根据实际情况调整

MODEM

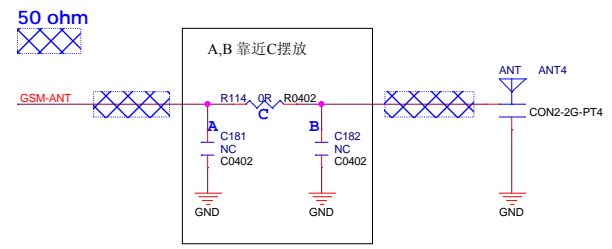
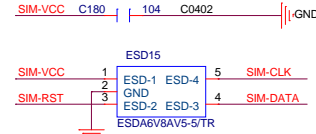
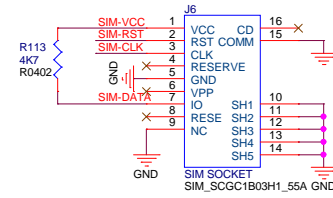
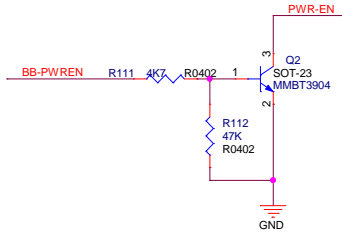
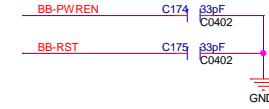
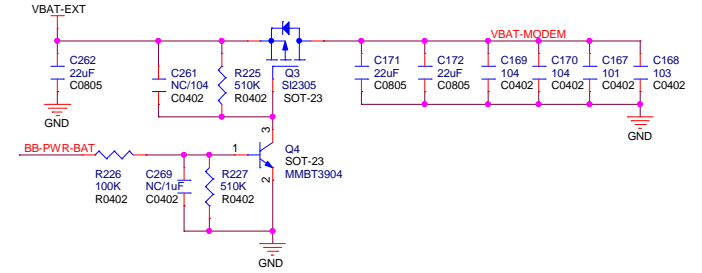
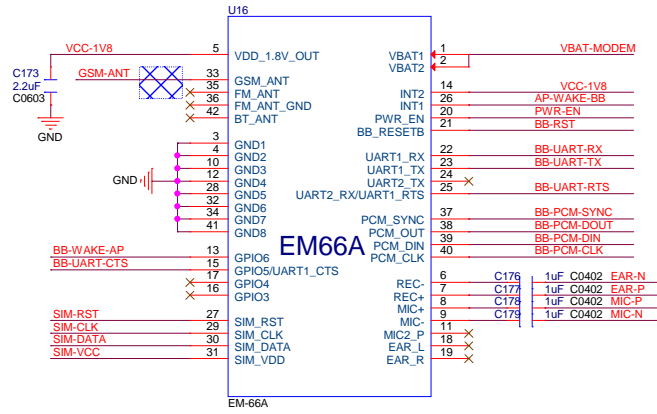
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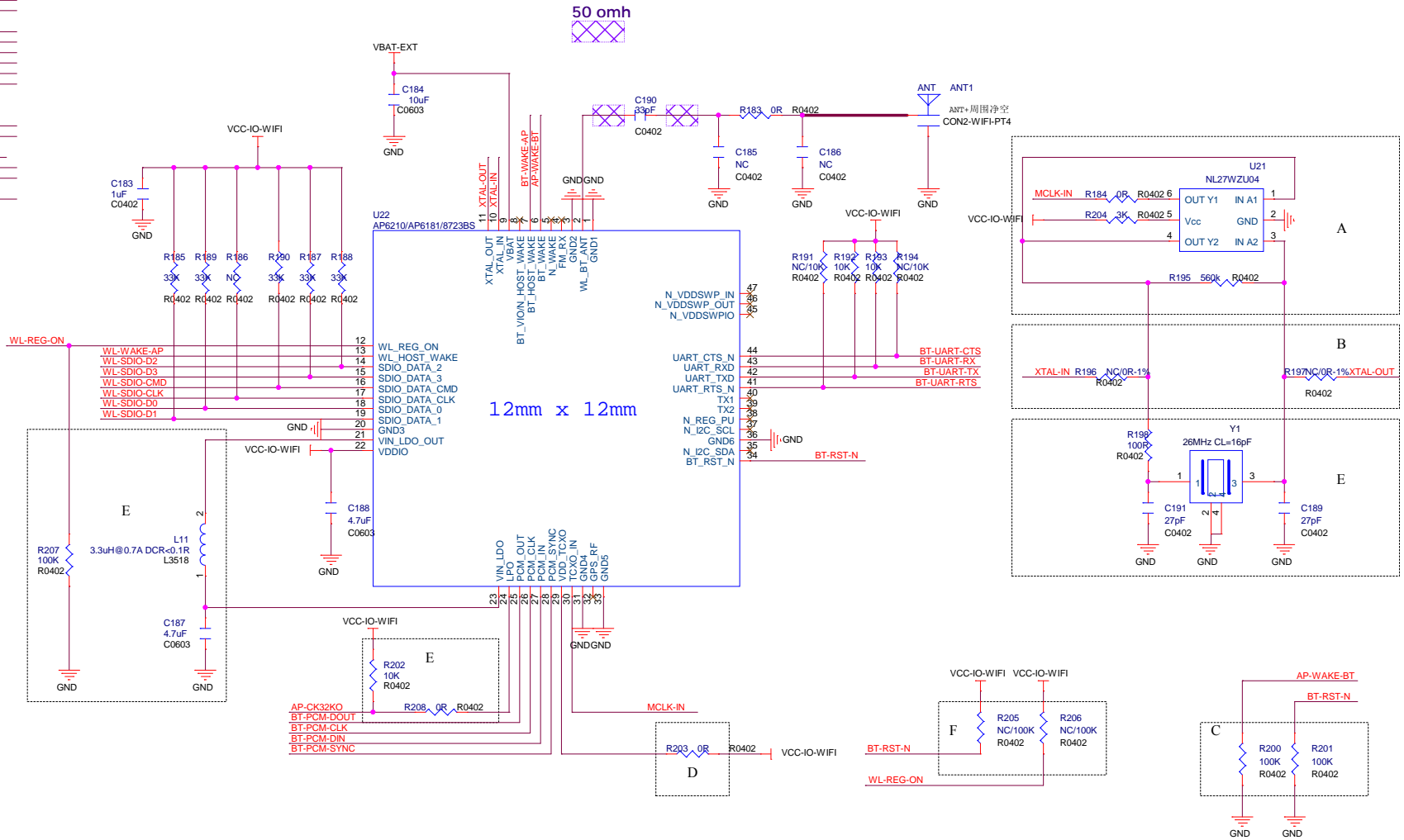


这部分电路根据天线的实际情况进行调整。

SDIO WIFI&BT

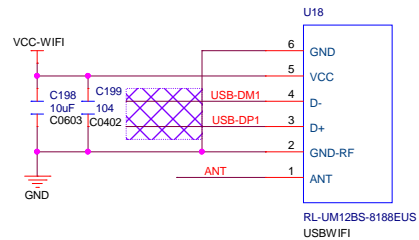
- 13,18,19 BB-PCM-CLK << BT-PCM-CLK
- 13,18,19 BB-PCM-SYNC << BT-PCM-SYNC
- 13,18,19 BB-PCM-DOUT << BT-PCM-DIN
- 13,18,19 BB-PCM-DIN << BT-PCM-DOUT
- 6,18 AP-UART1-CTS << BT-UART1-RTS
- 6,18 AP-UART1-RTS << BT-UART1-CTS
- 6,18 AP-UART1-RX << BT-UART1-TX
- 6,18 AP-UART1-TX << BT-UART1-RX
- 6,18 WL-SDIO-D2 << WL-SDIO-D2
- 6,18 WL-SDIO-D3 << WL-SDIO-D3
- 6,18 WL-SDIO-CMD << WL-SDIO-CMD
- 6,18 WL-SDIO-CLK << WL-SDIO-CLK
- 6,18 WL-SDIO-D0 << WL-SDIO-D0
- 6,18 WL-SDIO-D1 << WL-SDIO-D1
- 6,18 WL-PMU-EN << WL-REG-ON
- 6,18 WL-WAKE-AP << WL-WAKE-AP
- 6,18 BT-WAKE-AP << BT-WAKE-AP
- 6,18 BT-RST-N << BT-RST-N
- 6,18 AP-WAKE-BT << AP-WAKE-BT
- 6 AP-CK32KO << AP-CK32KO

Note:
 AP6210, 贴 A+C+D+E, 不贴B+F
 AP6181, 贴 B+E, 不贴A+C+D+F
 8723BS, 贴F, 不贴A+B+C+D+E

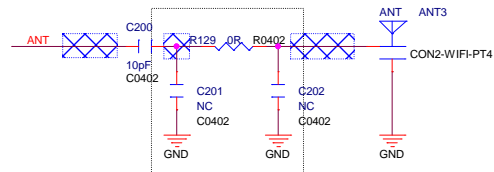


USB WIFI

当使用3G模组时，请使用SDIO接口WIFI模组，不要使用USB接口的WIFI模组。



特别注意wifi模组的封装，脚位定义的正确性



这部分电路根据天线的实际情况进行调整。

AUDIO(AC couple)

注：该页为耦合驱动模式电路，如果使用耳机MIC或外壳为金属，请参考该部分的电路设计。

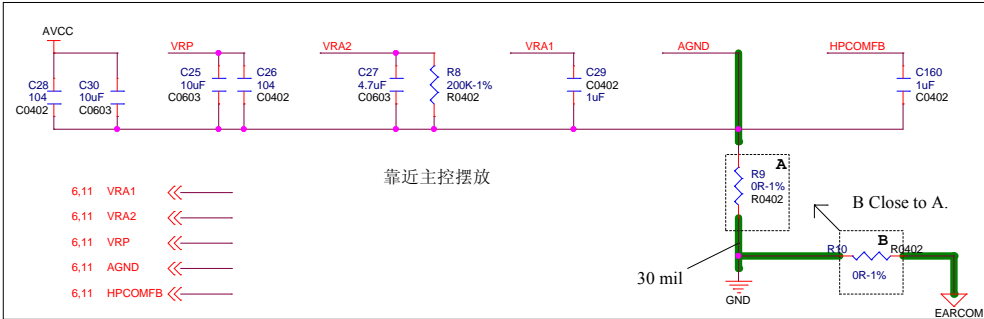
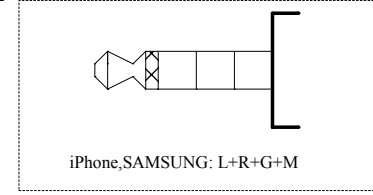
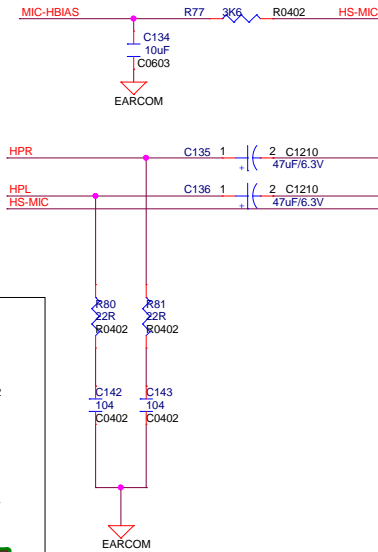
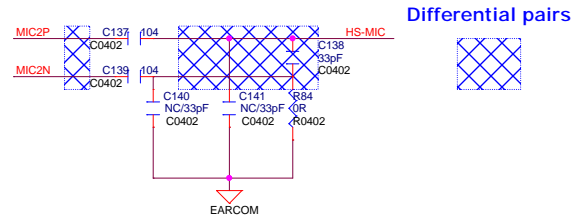
Head Phone

- 6.11 MIC-HBIAS << MIC-HBIAS
- 6.11 MIC-MBIAS << MIC-MBIAS
- 6.11 MIC1P << MIC1P
- 6.11 MIC1N << MIC1N
- 6 MIC2P << MIC2P
- 6 MIC2N << MIC2N

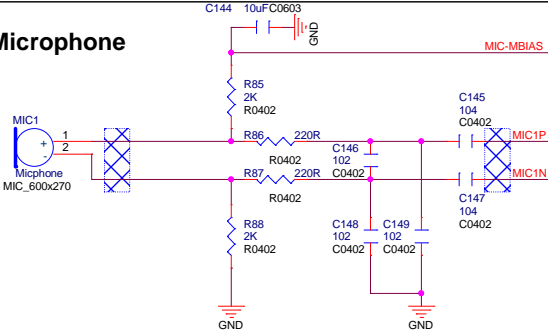
- 6.11 HPR << HPR
- 6.11 HPL << HPL

- 6.11 HPCOM << HPCOM

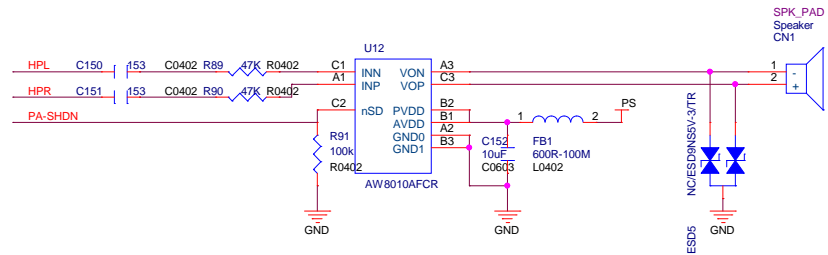
- 6.11 PA-SHDN << PA-SHDN



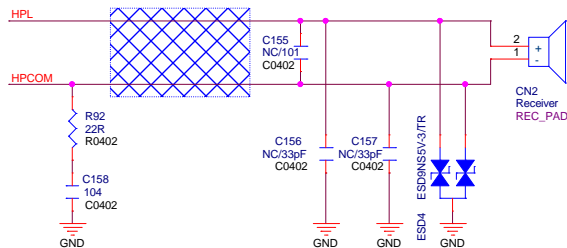
Analog Microphone



Speaker



Receiver



Option:DRAM DDR3

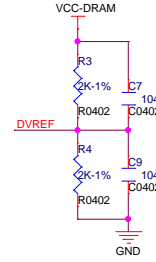
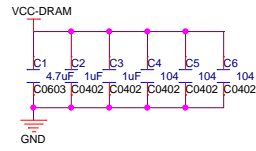
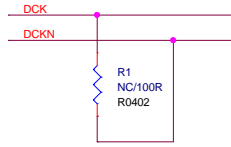
4

3

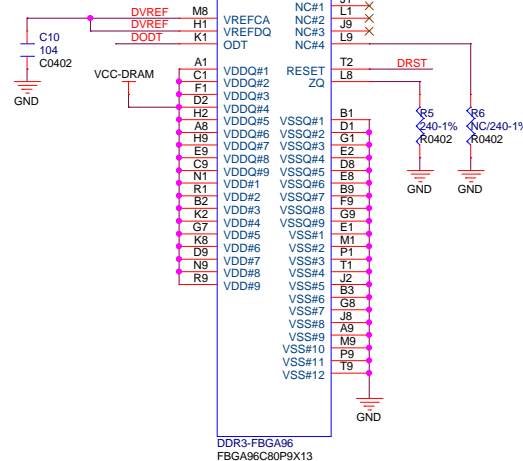
2

1

- 5.6 DQ[15:0] << [Symbol]
- 5.6 DA[15:0] << [Symbol]
- 5.6 DBA[2:0] << [Symbol]
- 5.6 DCS << DCS
- 5.6 DCK << DCK
- 5.6 DCKN << DCKN
- 5.6 DCKE << DCKE
- 5.6 DQS0 << DQS0
- 5.6 DQSN << DQSN
- 5.6 DQS1 << DQS1
- 5.6 DQS1N << DQS1N
- 5.6 DQM0 << DQM0
- 5.6 DQM1 << DQM1
- 5.6 DWE << DWE
- 5.6 DRAS << DRAS
- 5.6 DCAS << DCAS
- 5.6 DRST << DRST
- 5.6 DODT << DODT
- 5.6 DVREF << DVREF



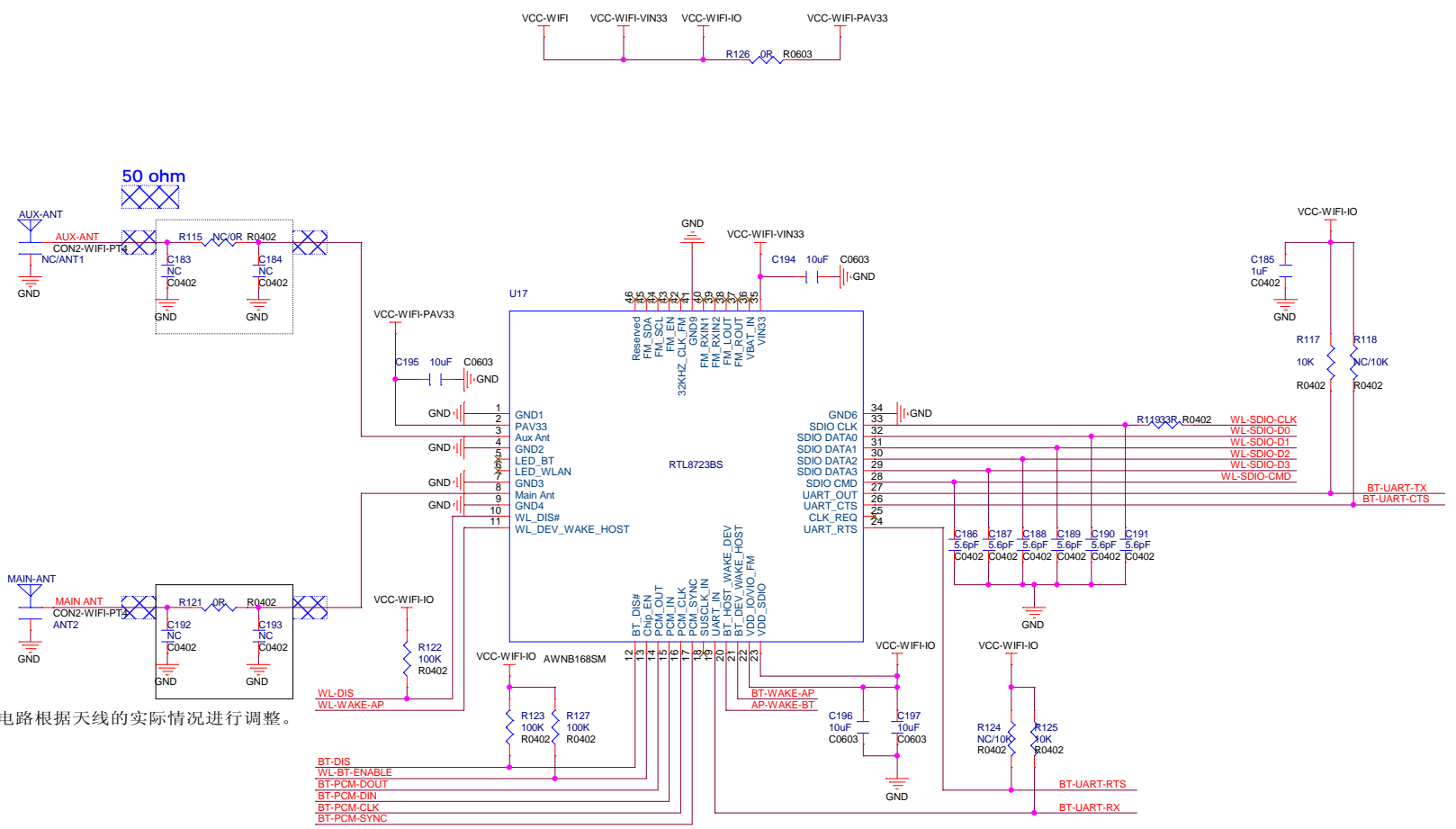
DA0	N3	A0	DQL0	F7	DQ1
DA1	P7	A1	DQL1	F2	DQ4
DA2	P3	A2	DQL2	F8	DQ0
DA3	N2	A3	DQL3	H3	DQ7
DA4	P8	A4	DQL4	H6	DQ2
DA5	P2	A5	DQL5	G2	DQ5
DA6	R6	A6	DQL6	H7	DQ3
DA7	R2	A7	DQL7	D7	DQ9
DA8	T8	A8	DQU0	C3	DQ12
DA9	R3	A9	DQU1	C8	DQ6
DA10	L7	A10	DQU2	C2	DQ13
DA11	R7	A11	DQU3	A7	DQ11
DA12	N7	A12	DQU4	A2	DQ15
DA13	T3	A13	DQU5	B8	DQ10
DA14	T7	A14	DQU6	A3	DQ14
DA15	M7	A15	DQU7		
DBA0	M2	BA0	CK	J7	DCK
DBA1	N8	BA1	CK#	K7	DCKN
DBA2	M3	BA2	DQSL	F3	DQS0
			DQSL#	G3	DQSN
DWE	L3	WE	DQSU	G7	DQS1
DRAS	J3	RAS#	DQSU#	B7	DQS1N
DCAS	K3	CAS#	DMIL	E7	DQM0
DCS	L2	CS#	DMU	D3	DQM1
DCKE	K9	CKE			
DVREF	M8	NC#1	J1	L1	X
DVREF	H1	VREFCA	NC#2	J9	X
DODT	K1	VREFDQ	NC#3	L9	X
		ODT	NC#4		
		RESET	T2	DRST	
		ZQ	L8		



DDR3-FBGA96
FBGA96C80P9X13

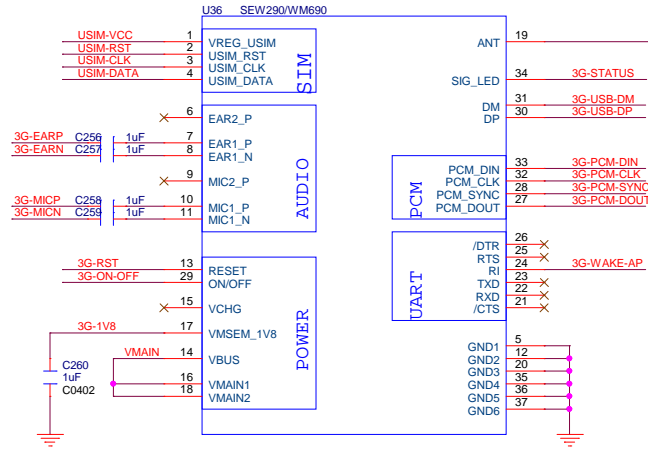
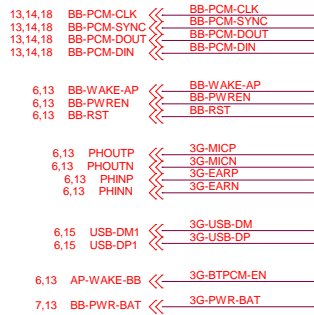
RTL8723BS

- 13,14,19 BB-PCM-CLK << BT-PCM-CLK
- 13,14,19 BB-PCM-SYNC << BT-PCM-SYNC
- 13,14,19 BB-PCM-DOUT << BT-PCM-DIN
- 13,14,19 BB-PCM-DIN << BT-PCM-DOUT
- 6,14 AP-UART1-CTS << BT-UART-RTS
- 6,14 AP-UART1-RTS << BT-UART-CTS
- 6,14 AP-UART1-RX << BT-UART-TX
- 6,14 AP-UART1-TX << BT-UART-RX
- 6,14 WL-SDIO-D2 << WL-SDIO-D2
- 6,14 WL-SDIO-D3 << WL-SDIO-D3
- 6,14 WL-SDIO-CMD << WL-SDIO-CMD
- 6,14 WL-SDIO-CLK << WL-SDIO-CLK
- 6,14 WL-SDIO-D0 << WL-SDIO-D0
- 6,14 WL-SDIO-D1 << WL-SDIO-D1
- 6,14 WL-PMU-EN << WL-DIS
- 6,14 WL-WAKE-AP << WL-WAKE-AP
- 6,14 BT-WAKE-AP << BT-WAKE-AP
- 6,14 BT-RST-N << BT-DIS
- 6,14 AP-WAKE-BT << AP-WAKE-BT
- 6 WL-BT-ENABLE << WL-BT-ENABLE

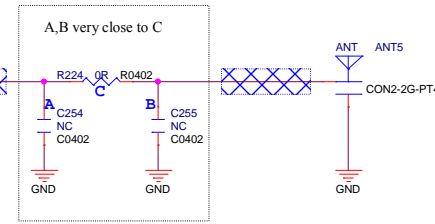


这部分电路根据天线的实际情况进行调整。

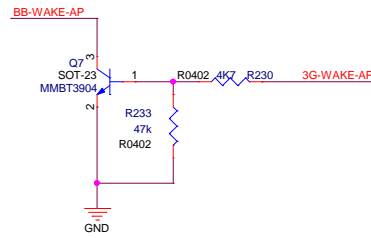
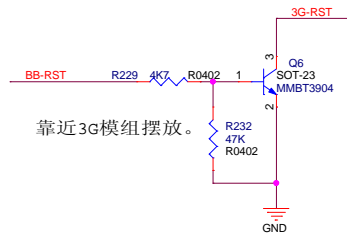
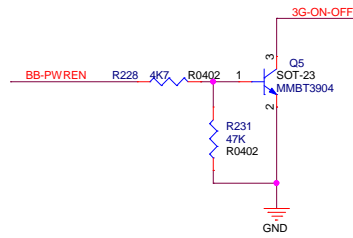
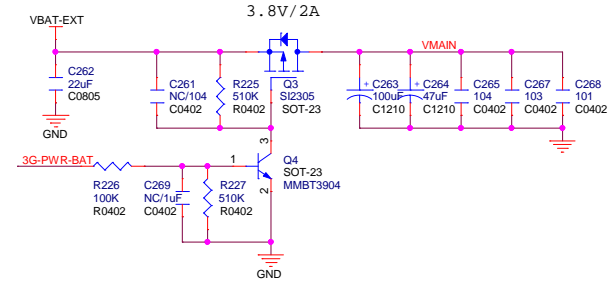
MODEM 3G



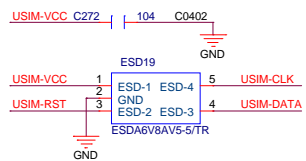
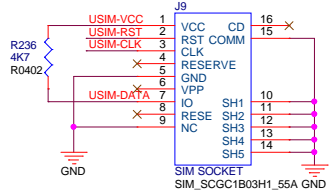
50 ohm



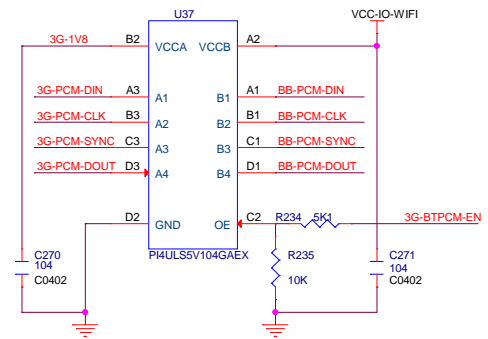
请根据天线实际情况调整匹配电路



靠近3G模组摆放。



注意：需要电压VCCB>=VCCA。



VCCB电压与蓝牙的供电保持一致；