# Notes: Unless Otherwise Stated

## Scheme Spec:

FLASH: MLC, 3V
DRAM: DDR3, 1.5V
Key: Vol+,Vol-,MENU,SEARCH,HOME,ESC,ENTER
Power: DCIN, 5V, 2A; BAT, 4.2V
USB0: OTG
USB2: WIFI
WIFI: USB WIFI&SDIO WIFI+BT
Card: TFcard
Other: Headphone, MIC, G-Sensor,Camera

## Power Supply:

| Name | Vout | Imax | Use |
|---|---|---|---|
| AXP209 DCDC2 | 1.25V | 1600mA | CPU |
| AXP209 DCDC3 | 1.2V | 1200mA | CORE |
| AXP209 LDO1 | 1.3V | 30mA | RTC |
| AXP209 LDO2 | 3V | 200mA | AVCC |
| AXP209 LDO3 | 2.8V | 400mA | CSI0-IO |
| AXP209 LDO4 | 2.8V | 200mA | CSI1-IO |
| AP2125 LDO | 1.8V | 300mA | CSI-DVDD |
| AP3410 DCDC | 1.5V | 1200mA | DRAM |
| AP3410 DCDC | 3V | 1200mA | VCC/LCD/NAND//WIFI |
| SY7208 | 5V | 1000mA | HDMI/USB |
| AP2125 LDO | 3.3V | 300mA | WIFI |
| AP3032 DCDC | | 1400mA | LCD |
| AP3032 DCDC | | 1400mA | LCD |
| AP3032 DCDC | | 1400mA | LCD MIPI |

## Schematics Index:



| Rev | Description | Date | Drawn | Checked | Approved |
|---|---|---|---|---|---|
| A20_PAD_STD_V1.0 | | 2013-01-30 | | | |
| A20_PAD_STD_V1.1 | | 2013-04-01 | Dennislo | | |
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| | | | | | |

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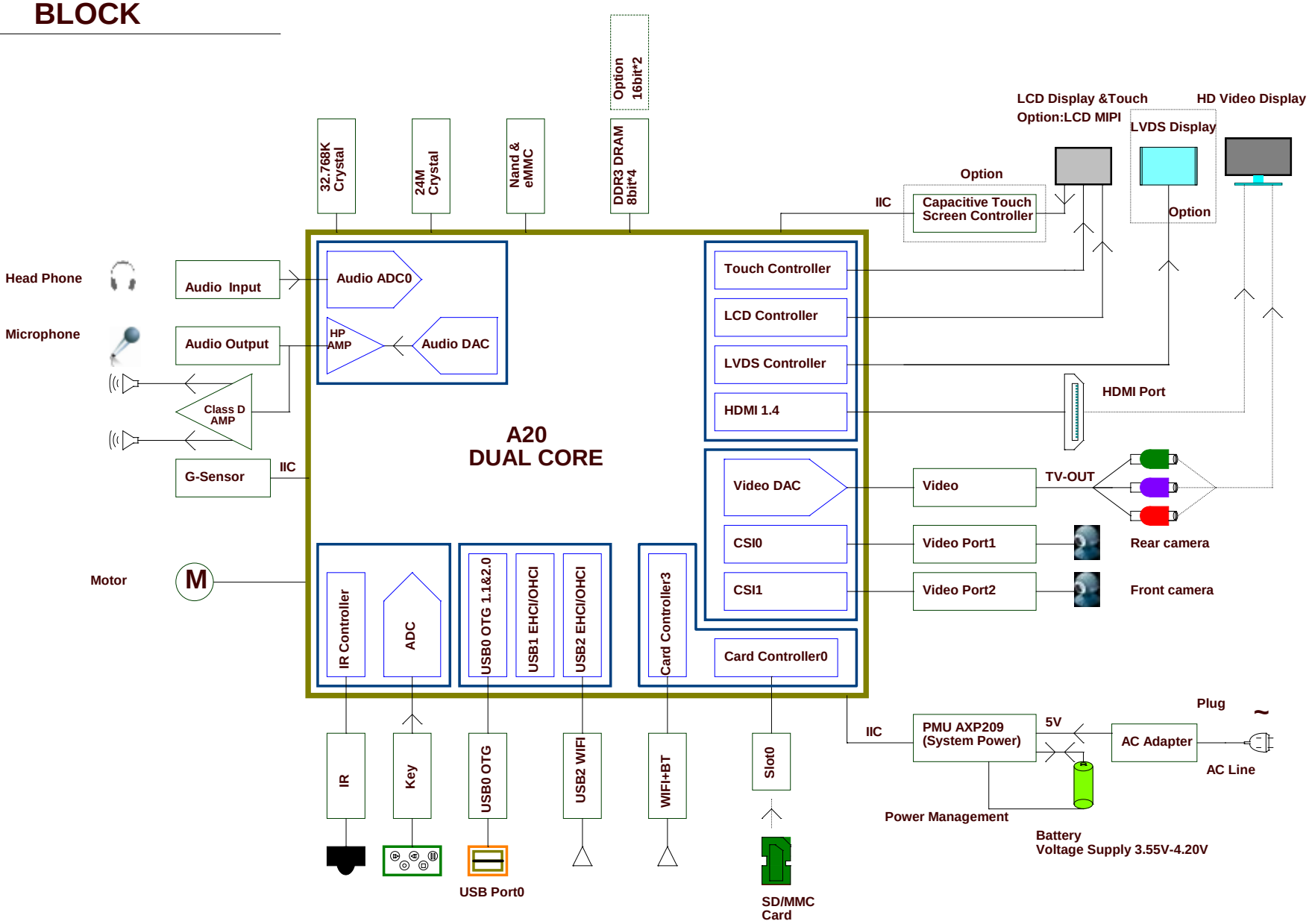
# BLOCK




| | | |
|---|---|---|
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# PIO ASSIGNMENT

| Pin Group | Pin Name | Define | Function |
|---|---|---|---|
| PA(18) | PA0 | GPIO | |
| | PA1 | GPIO | |
| | PA2 | GPIO | |
| | PA3 | GPIO | |
| | PA4 | ETXD3 | |
| | PA5 | SPI3-CS0 | LCD-CSX |
| | PA6 | SPI3-CLK | LCD-SCK |
| | PA7 | SPI3-MOSI | LCD-SDI |
| | PA8 | SPI3-MISO | LCD-SDO |
| | PA9 | GPIO | |
| | PA10 | GPIO | |
| | PA11 | GPIO | |
| | PA12 | GPIO | |
| | PA13 | GPIO | |
| | PA14 | GPIO | |
| | PA15 | GPIO | |
| | PA16 | GPIO | |
| | PA17 | GPIO | |
| PB(24) | PB0 | TWI0_SCK | PMU |
| | PB1 | TWI0_SDA | |
| | PB2 | PWM0 | PWM |
| | PB3 | GPIO_OUT | MT-C |
| | PB4 | IR0_RX | IR |
| | PB5 | GPIO_OUT | BT-RST |
| | PB6 | I2S_BCLK | BT-PCM-CLK |
| | PB7 | I2S_LRCK | BT-PCM-SYNC |
| | PB8 | I2S_DO0 | BT-PCM-OUT |
| | PB9 | GPIO_OUT | USB0-DRV |
| | PB10 | GPIO | |
| | PB11 | GPIO | |
| | PB12 | I2S_DI | BT-PCM-IN |
| | PB13 | GPIO_OUT | TP-WAKEUP |
| | PB14 | JTAG_MS0 | JTAG |
| | PB15 | JTAG_CK0 | |
| | PB16 | JTAG_DO0 | |
| | PB17 | JTAG_DI0 | |
| | PB18 | TWI1_SCK | TWI1 |
| | PB19 | TWI1_SDA | |
| | PB20 | TWI2_SCK | TWI2 |
| | PB21 | TWI2_SDA | |
| | PB22 | UART0_TX | UART (DBUG) |
| | PB23 | UART0_RX | |

| Pin Group | Pin Name | Define | Function |
|---|---|---|---|
| PC(25) | PC0 | NWE# | NAND |
| | PC1 | NALE | |
| | PC2 | NCLE | |
| | PC3 | NCE1 | |
| | PC4 | NCE0 | |
| | PC5 | NRE# | |
| | PC6 | NRB0 | |
| | PC7 | NRB1 | |
| | PC8 | NDQ0 | |
| | PC9 | NDQ1 | |
| | PC10 | NDQ2 | |
| | PC11 | NDQ3 | |
| | PC12 | NDQ4 | |
| | PC13 | NDQ5 | |
| | PC14 | NDQ6 | |
| | PC15 | NDQ7 | |
| | PC16 | NWP | |
| | PC17 | NCE2 | |
| | PC18 | NCE3 | |
| | PC19 | GPIO | |
| | PC20 | GPIO | |
| | PC21 | GPIO | |
| | PC22 | GPIO | |
| | PC23 | GPIO | |
| | PC24 | NDQS | |
| PD(28) | PD0 | LCD0_D0 | LCD |
| | PD1 | LCD0_D1 | |
| | PD2 | LCD0_D2 | |
| | PD3 | LCD0_D3 | |
| | PD4 | LCD0_D4 | |
| | PD5 | LCD0_D5 | |
| | PD6 | LCD0_D6 | |
| | PD7 | LCD0_D7 | |
| | PD8 | LCD0_D8 | |
| | PD9 | LCD0_D9 | |
| | PD10 | LCD0_D10 | |
| | PD11 | LCD0_D11 | |
| | PD12 | LCD0_D12 | |
| | PD13 | LCD0_D13 | |
| | PD14 | LCD0_D14 | |
| | PD15 | LCD0_D15 | |
| | PD16 | LCD0_D16 | |
| | PD17 | LCD0_D17 | |

| Pin Group | Pin Name | Define | Function |
|---|---|---|---|
| PD(28) | PD18 | LCD0_D18 | LCD |
| | PD19 | LCD0_D19 | |
| | PD20 | LCD0_D20 | |
| | PD21 | LCD0_D21 | |
| | PD22 | LCD0_D22 | |
| | PD23 | LCD0_D23 | |
| | PD24 | LCD0_CLK | |
| | PD25 | LCD0_DE | |
| | PD26 | LCD0_HSYNC | |
| | PD27 | LCD0_VSYNC | |
| PE(12) | PE0 | CSI0_PCLK | CSI0 |
| | PE1 | CSI0_MCLK | |
| | PE2 | CSI0_HSYNC | |
| | PE3 | CSI0_VSYNC | |
| | PE4 | CSI0_D0 | |
| | PE5 | CSI0_D1 | |
| | PE6 | CSI0_D2 | |
| | PE7 | CSI0_D3 | |
| | PE8 | CSI0_D4 | |
| | PE9 | CSI0_D5 | |
| | PE10 | CSI0_D6 | |
| | PE11 | CSI0_D7 | |
| PF(6) | PF0 | SDC0_D1 | SDC0 |
| | PF1 | SDC0_D0 | |
| | PF2 | SDC0_CLK | |
| | PF3 | SDC0_CMD | |
| | PF4 | SDC0_D3 | |
| | PF5 | SDC0_D2 | |
| PG(12) | PG0 | CSI1_PCLK | CSI1 |
| | PG1 | CSI1_MLCK | |
| | PG2 | CSI1_HSYNC | |
| | PG3 | CSI1_VSYNC | |
| | PG4 | CSI1_D0 | |
| | PG5 | CSI1_D1 | |
| | PG6 | CSI1_D2 | |
| | PG7 | CSI1_D3 | |
| | PG8 | CSI1_D4 | |
| | PG9 | CSI1_D5 | |
| | PG10 | CSI1_D6 | |
| | PG11 | CSI1_D7 | |

| Pin Group | Pin Name | Define | Function |
|---|---|---|---|
| PH(28) | PH0 | EINT0 | USB-ICTRL |
| | PH1 | GPIO_IN | SD0-DET |
| | PH2 | GPIO_IN | |
| | PH3 | GPIO_OUT | USB2-DRV |
| | PH4 | GPIO_IN | USB0-IDDET |
| | PH5 | GPIO_IN | ACIN-EN |
| | PH6 | GPIO_OUT | LCD-RST |
| | PH7 | GPIO_OUT | LCD-BL-EN |
| | PH8 | GPIO_OUT | LCD-PWR |
| | PH9 | GPIO_OUT | WIFI-SHDN |
| | PH10 | GPIO_IN | WIFI-HOST-WAKE |
| | PH11 | GPIO | |
| | PH12 | GPIO | |
| | PH13 | GPIO_OUT | CAM-R-RESET# |
| | PH14 | GPIO_OUT | CAM-F-RESET# |
| | PH15 | GPIO_OUT | PA-SHDN# |
| | PH16 | GPIO_OUT | CAM-PWR-EN |
| | PH17 | GPIO | |
| | PH18 | EINT18 | CAM-R-STBY-EN |
| | PH19 | EINT19 | CAM-F-STBY-EN |
| | PH20 | EINT20 | |
| | PH21 | EINT21 | TP-INT |
| | PH22 | GPIO | |
| | PH23 | GPIO | |
| | PH24 | GPIO | |
| | PH25 | GPIO | |
| | PH26 | GPIO | |
| | PH27 | GPIO | |
| PI(22) | PI0 | GPIO | |
| | PI1 | GPIO | |
| | PI2 | GPIO | |
| | PI3 | GPIO | |
| | PI4 | SDC3_CMD | WIFI |
| | PI5 | SDC3_CLK | |
| | PI6 | SDC3_D0 | |
| | PI7 | SDC3_D1 | |
| | PI8 | SDC3_D2 | |
| | PI9 | SDC3_D3 | |
| | PI10 | GPIO | |
| | PI11 | GPIO | |
| | PI12 | SPI0_MOSI | CLK-32K |
| | PI13 | GPIO | |
| | PI14 | GPIO | |

| Pin Group | Pin Name | Define | Function |
|---|---|---|---|
| PI(22) | PI15 | GPIO | |
| | PI16 | GPIO | |
| | PI17 | GPIO | |
| | PI18 | GPIO | |
| | PI19 | GPIO | |
| | PI20 | GPIO_OUT | BT-WAKE |
| | PI21 | GPIO_OUT | BT-HOST-WAKE |

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| | | |
|---|---|---|
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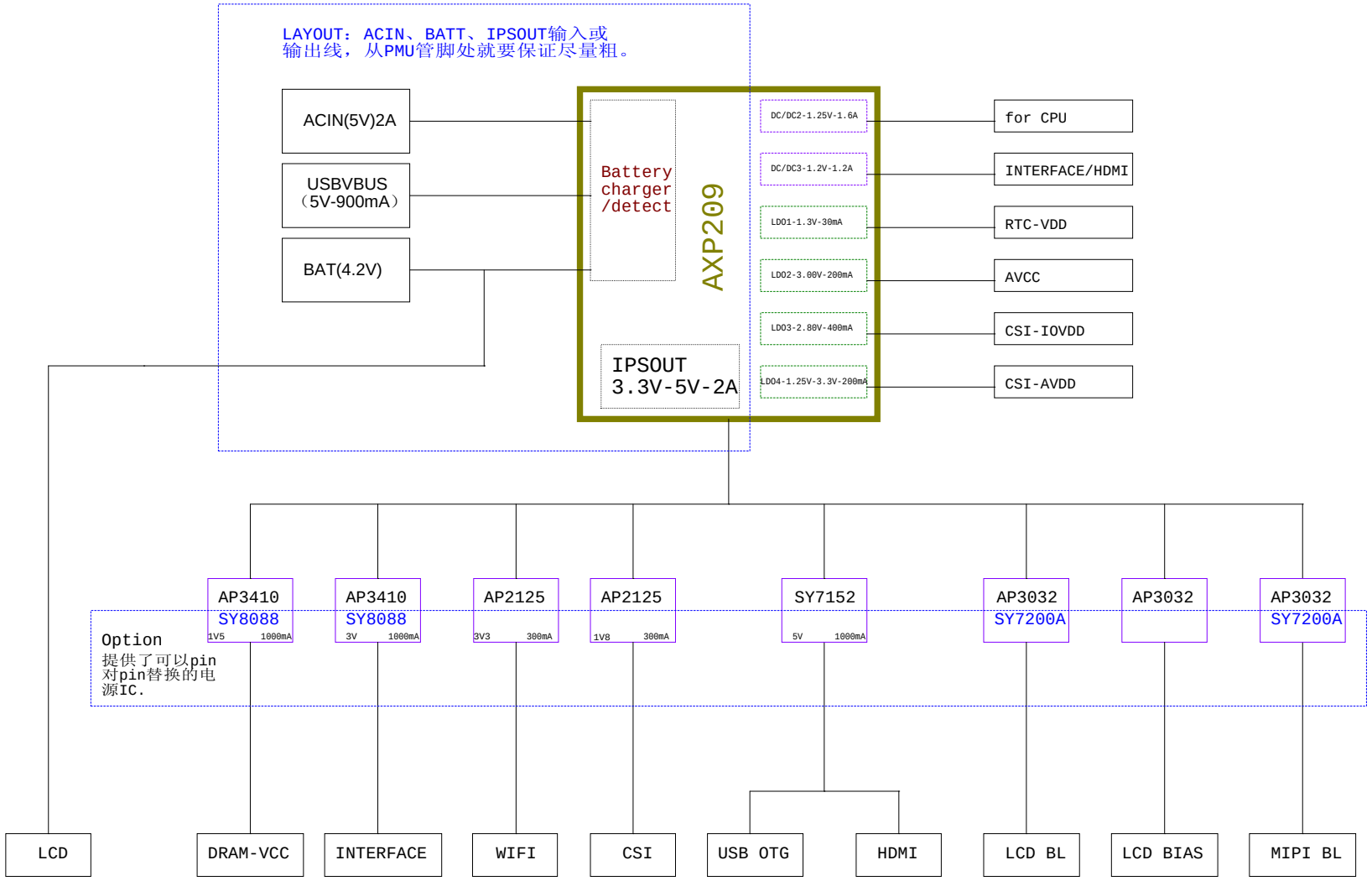
# POWER TREE

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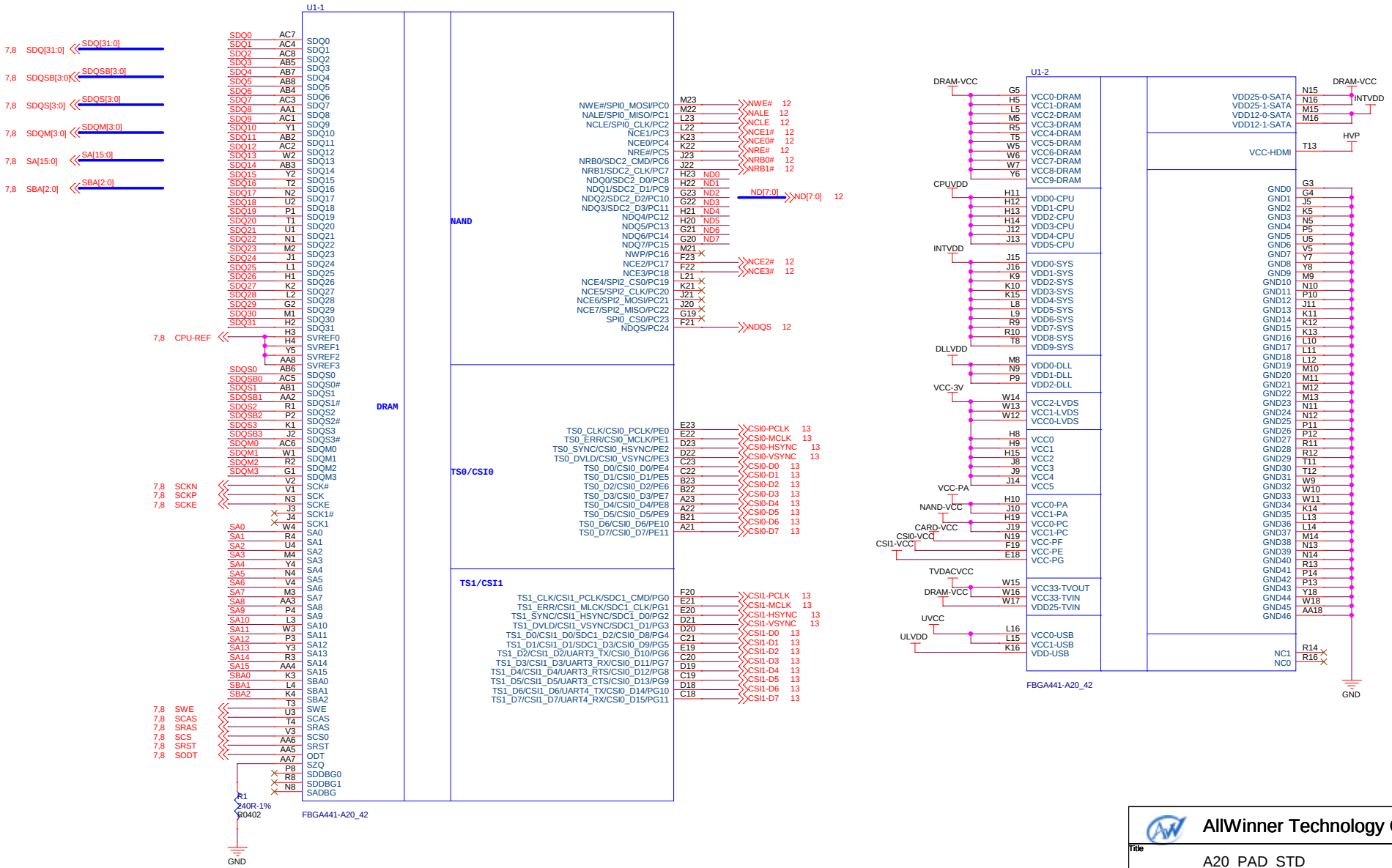
# CPU1

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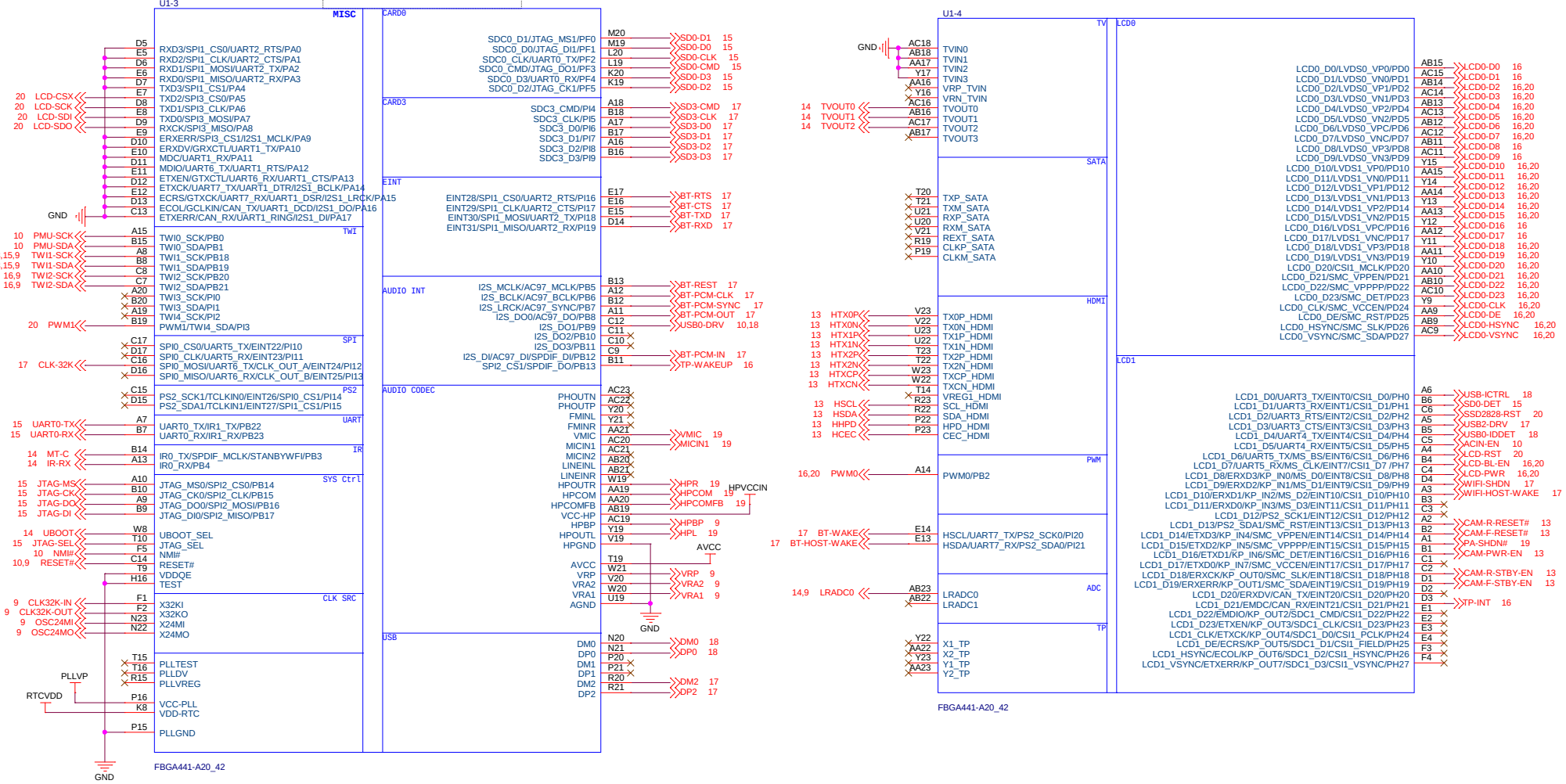
# CPU2

注意：PA剩余口全部
过孔接地，用于散热。

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| | | |
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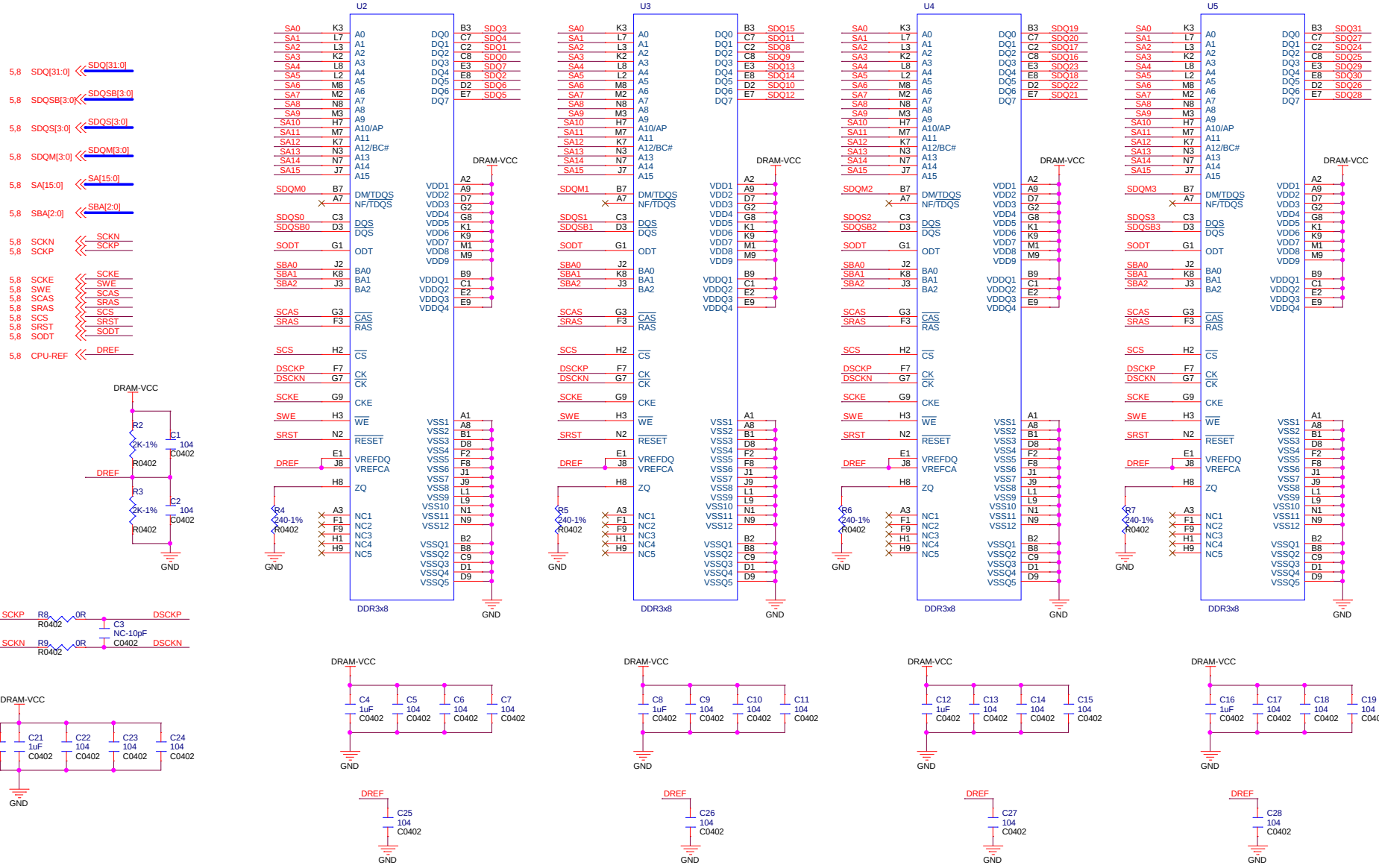
# DDR3-8BITX4

Please directly copy the refered DRAM layout and follow the PCB layout guide. This circuit is only for single-side PCB layout.

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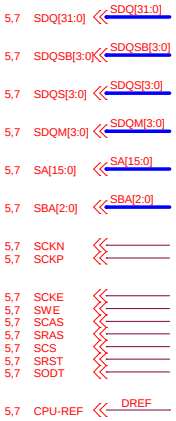
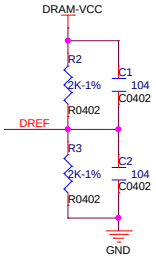
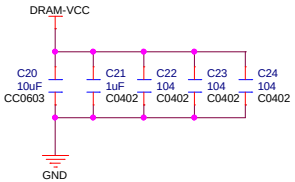
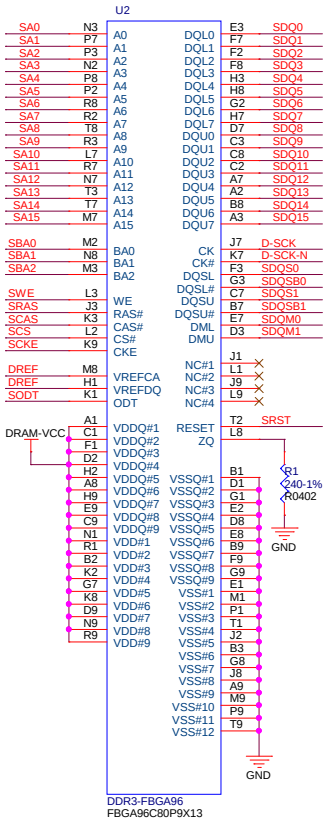
# DDR3-16BITX2

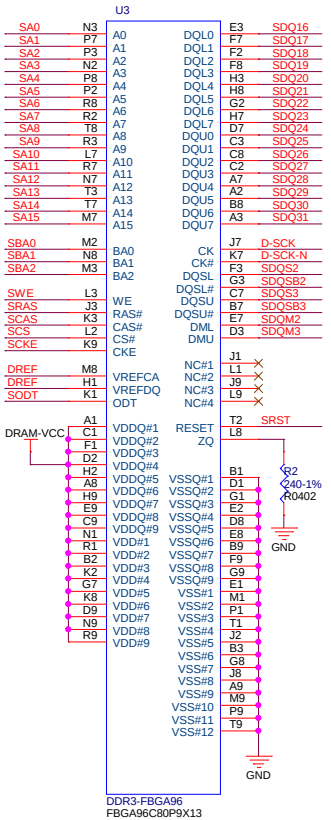


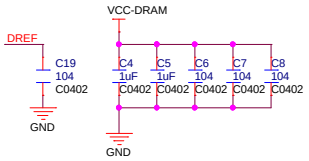



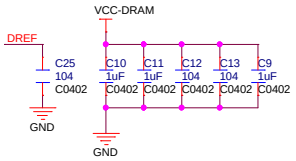


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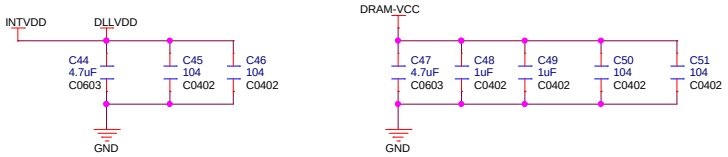
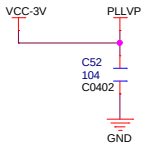
# BESIDE CPU

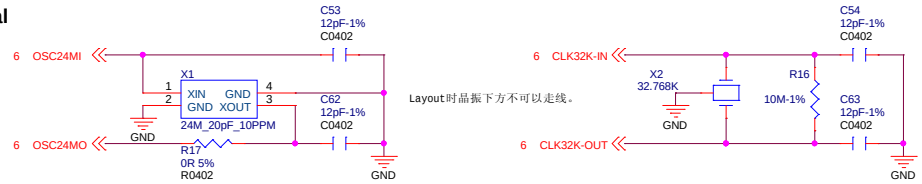
## DRAM



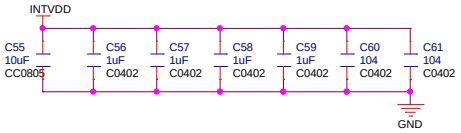

## PLL



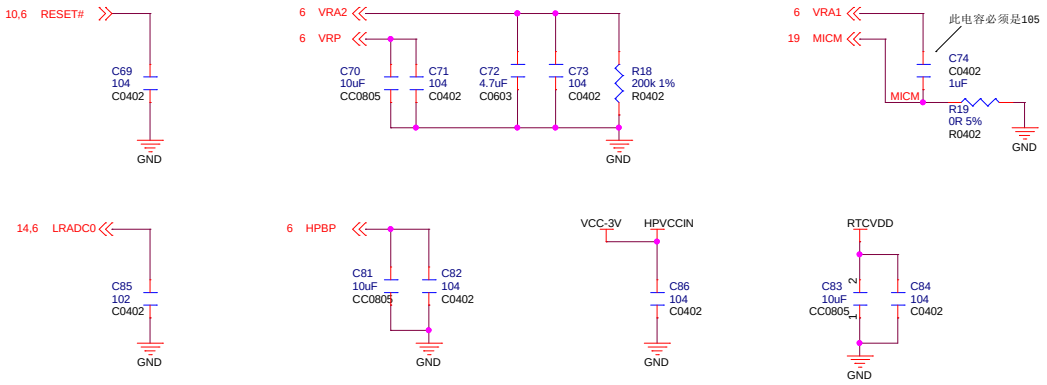

## Crystal



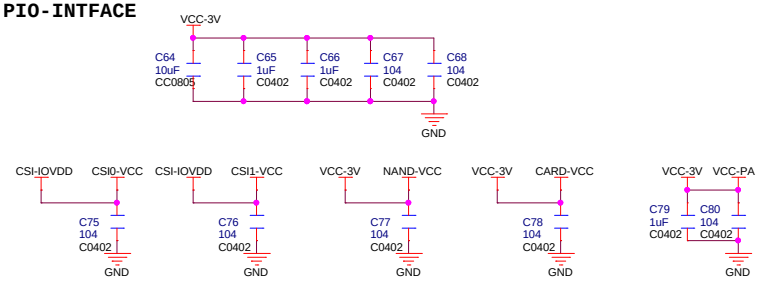

## CORE



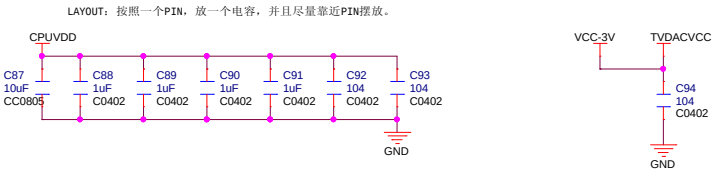

## AUDIO&SYS&TP




## PIO-INTFACE

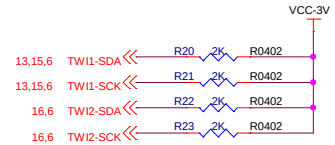



## CPU&TV




## USB


## TWI-PULLUP




## HDMI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| | | |
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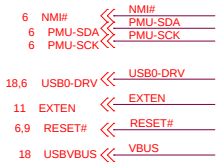
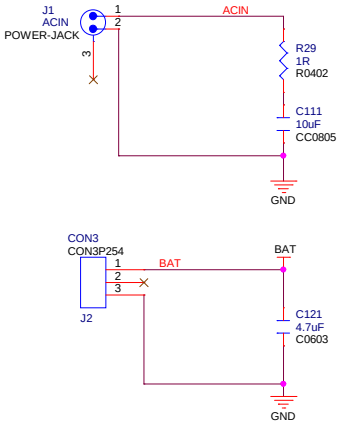
# POWER-PMU

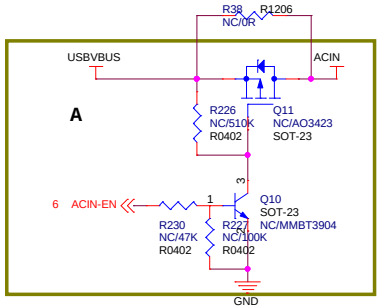


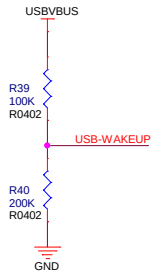

## POWER INPUT

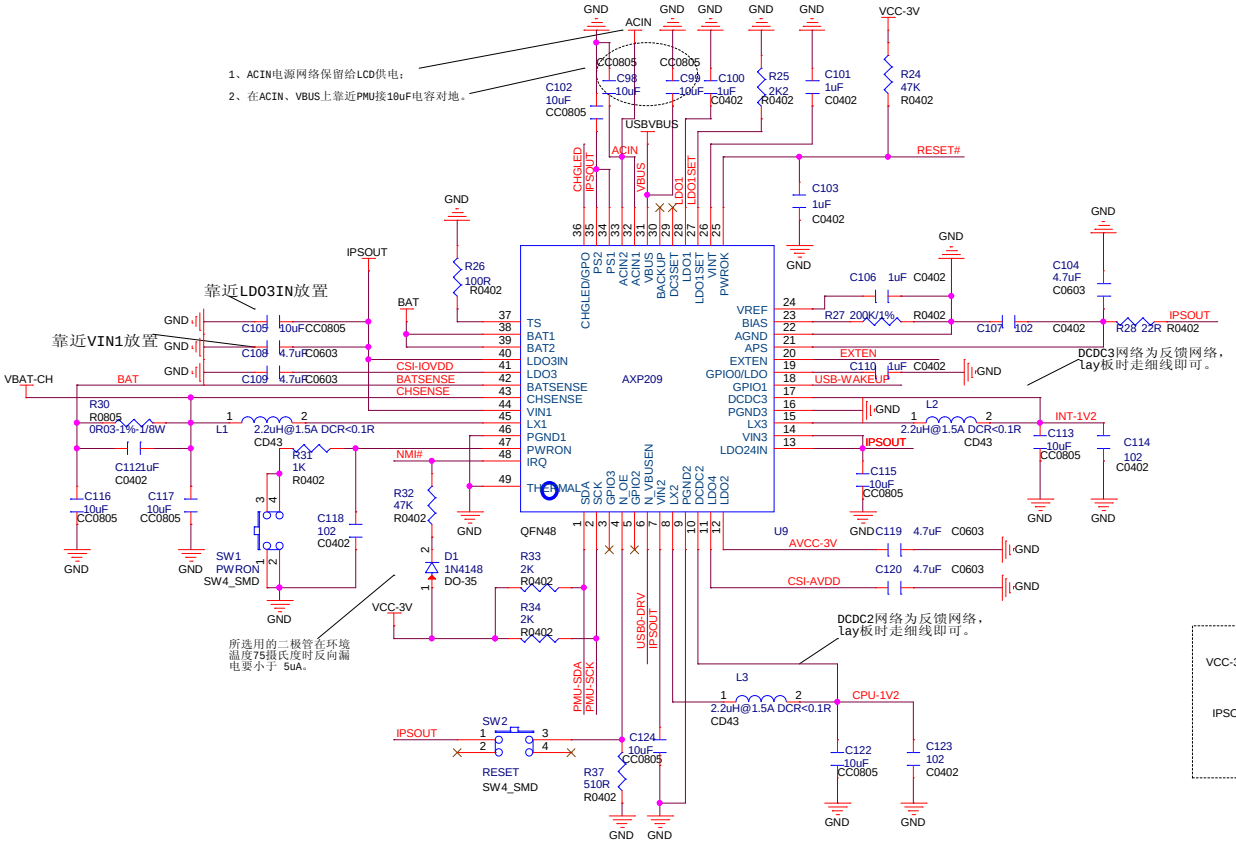



此时不支持电池温度检测

注意：
1、在没有ACIN插座，只使用USB供电时，
把A部分器件贴上；
2、有ACIN时A部分器件不贴。

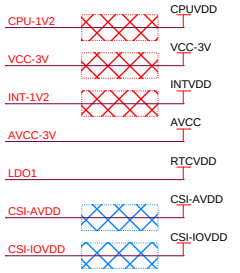


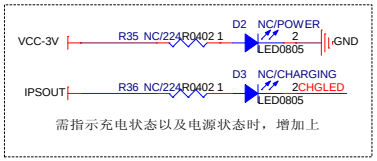




**POWER LINE:Width>=80mil**

**POWER LINE:Width>=40mil**




需指示充电状态以及电源状态时，增加上

备注：
对于电感尺寸有轻薄要求的，推荐使用乾坤的PSE250201B-2R2MS,其体积为2.6x2.1平方毫米，饱和电流为1.8A,直流阻抗为85毫欧。

| | | |
|---|---|---|
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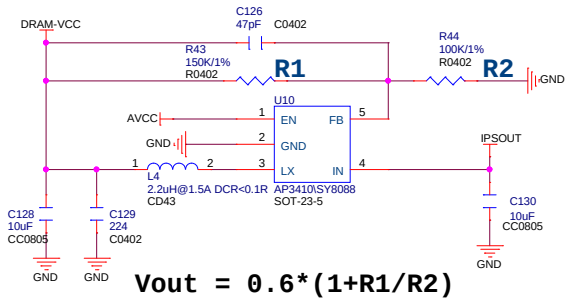
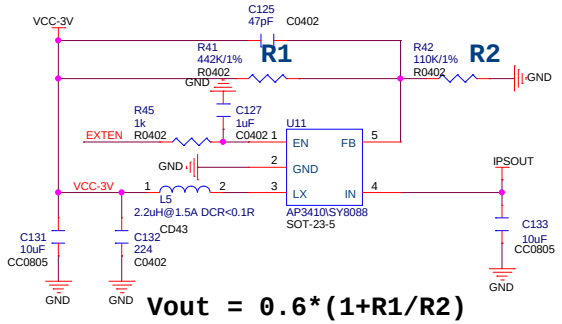
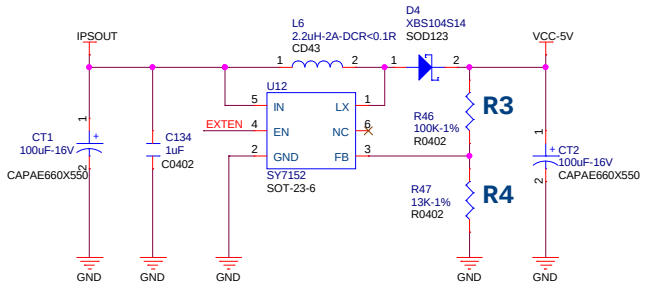
# POWER-DC/DC


Vout = 0.6*(1+R1/R2)




Vout = 0.6*(1+R1/R2)




Vout = 0.6*(1+R3/R4)

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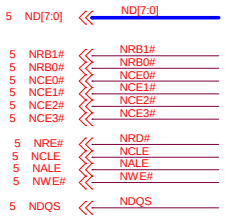
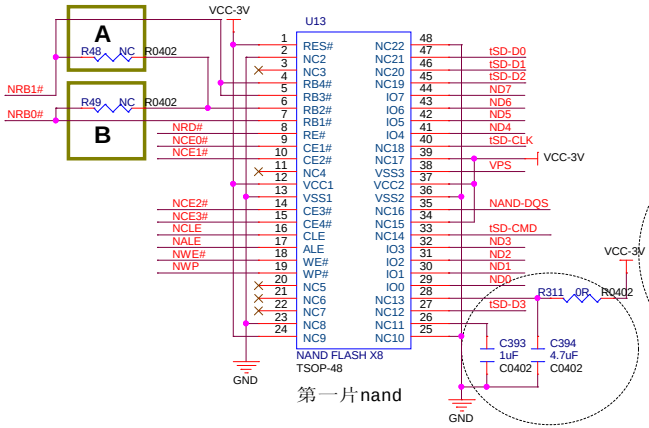
# NAND Flash

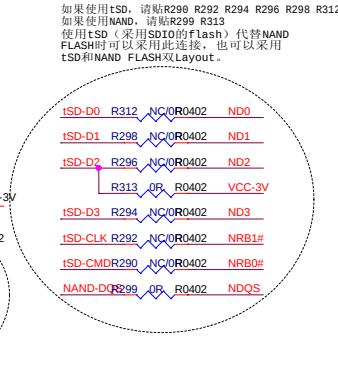
(1) 接1片单片选Nand 时，电阻A，B全断开
(2) 接1片双片选Nand 时，连接电阻A， 断开电阻B
(3) 接1片四片选Nand 时，连接电阻B， 断开电阻A
(4) 接2片单片选或接2片双片选Nand 时，连接电阻A， 断开电阻B



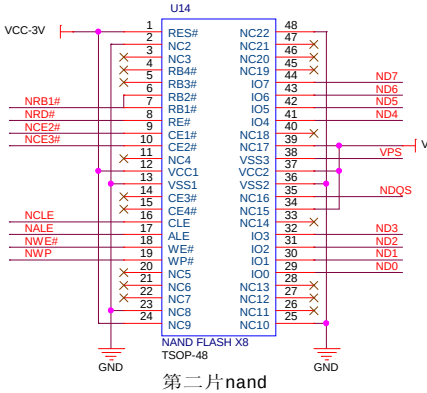

## TSOP-48 Nand



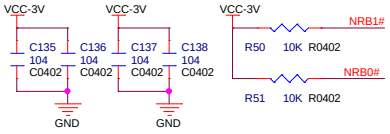

第一片nand

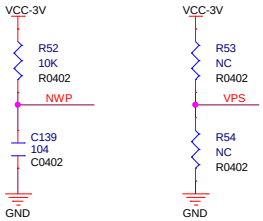



tSD电源，如果使用tSD，这部分保留。

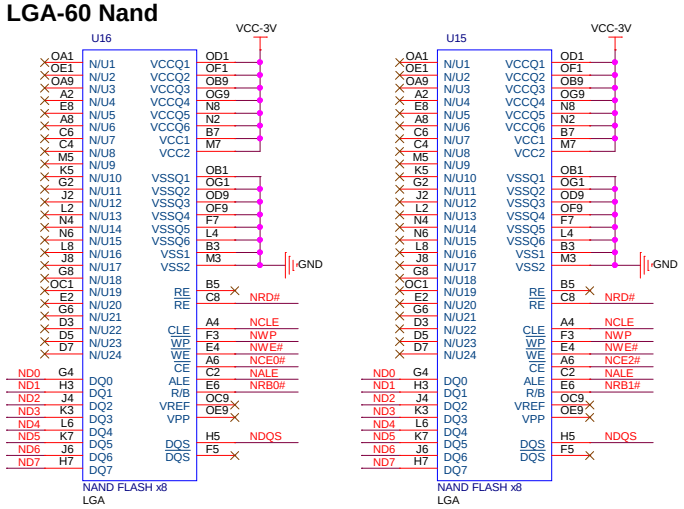



第二片nand



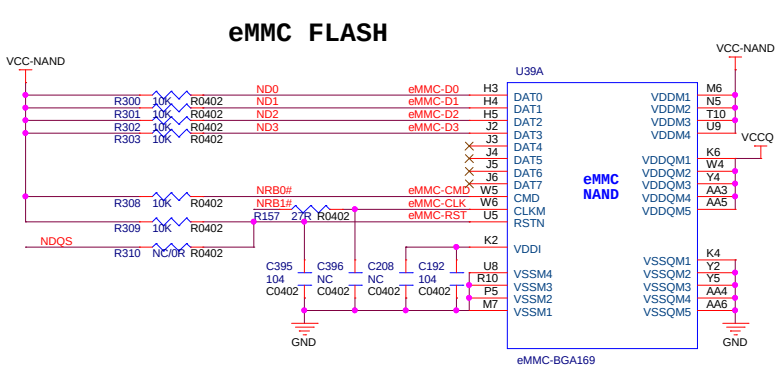




## LGA-60 Nand




第一片nand　　第二片nand

## eMMC FLASH

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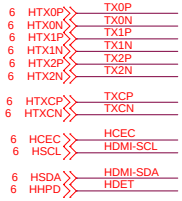
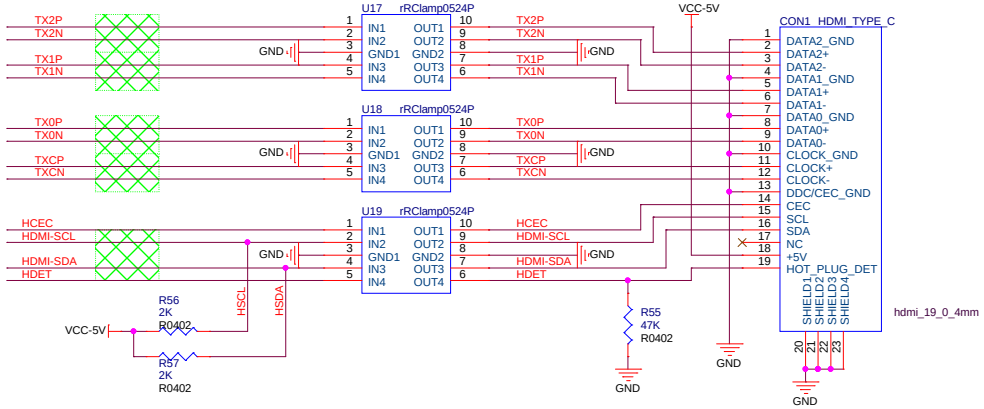
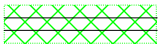
# HDMI-CSI

## HDMI



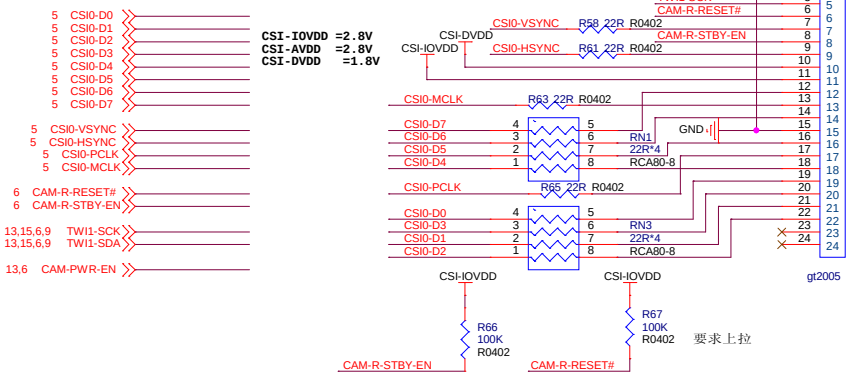

**Differential pairs**
**Z0= 100 ohm**



LAYOUT差分走线过孔不能超过2个，有完整铺地。

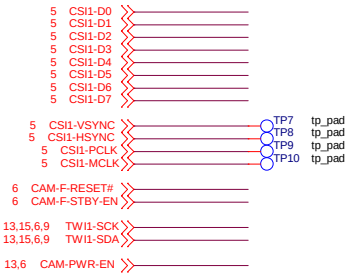
## CSI0-BACK

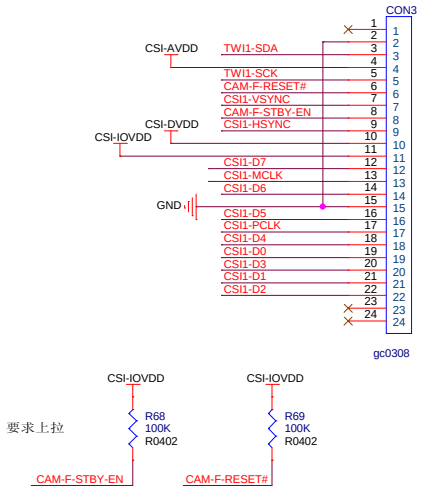
200W-后置高分辨率

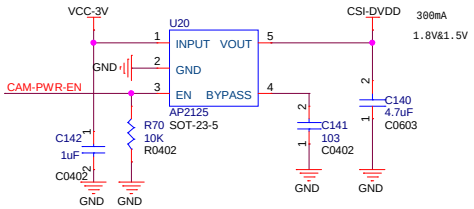



## CSI1-FRONT

30W-前置低分辨率




1、LAYOUT时，请保证摄像头成像方向与LCD显示一致；
2、LAYOUT时，请尽量保证两个摄像头的连接器不要分开太远，保证电源以及信号到达CSI的一致性；
3、若选用其他模组，请检查CSI-IOVDD，CSI-AVDD，CSI-DVDD的具体电压值以及负载能力能够满足。

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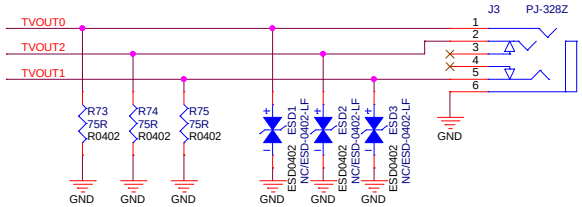
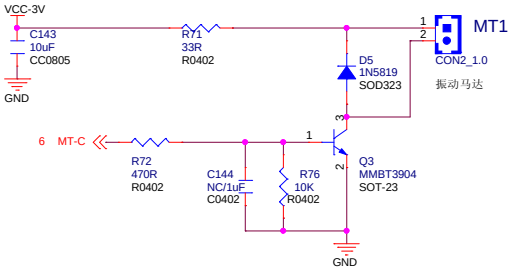
# KEY-IR-TVOUT-MT

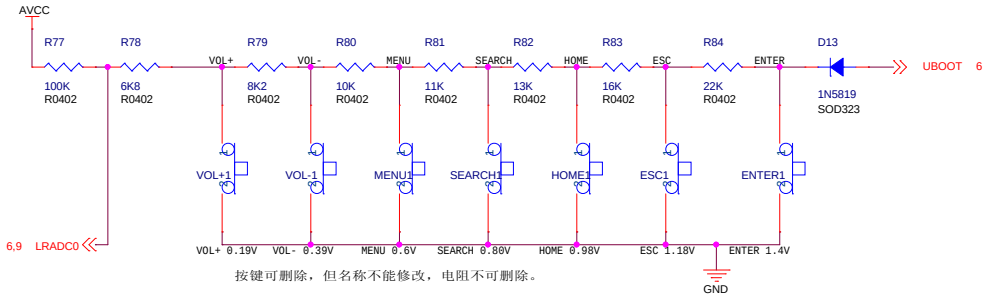
## TVOUT


## Motor

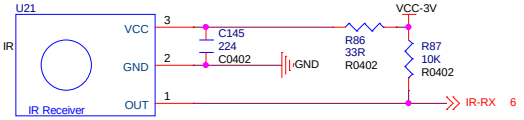



## KEY




按键可删除，但名称不能修改，电阻不可删除。

## IR MODULE

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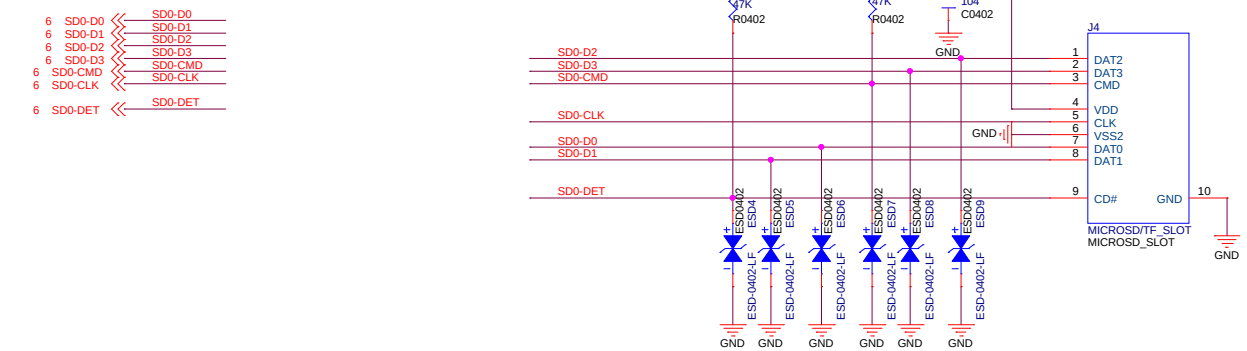
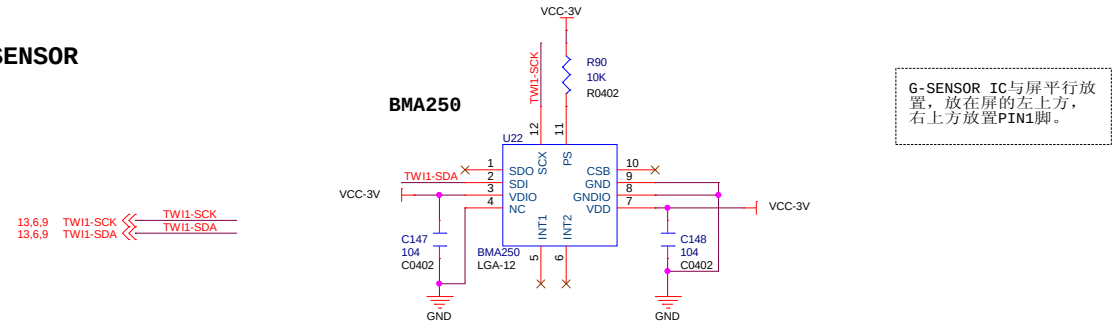
# CARD-DEBUG-GS

## CARD0



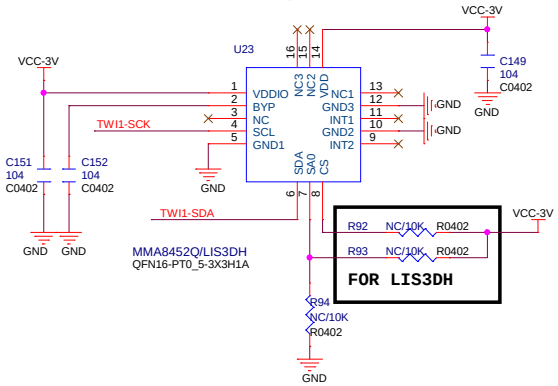

## G-SENSOR



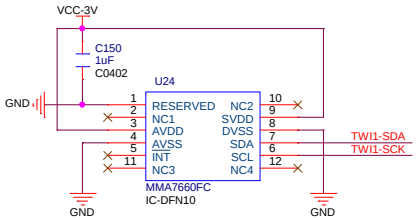

G-SENSOR IC与屏平行放置，放在屏的左上方，右上方放置PIN1脚。

## Option

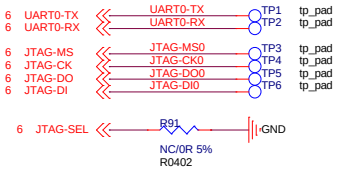
### MMA8452Q/LIS3DH




### MMA7660FC




## DEBUG




预留JTAG、UART测试点，并要保证测试点方便焊接排列整齐，以备调试使用。

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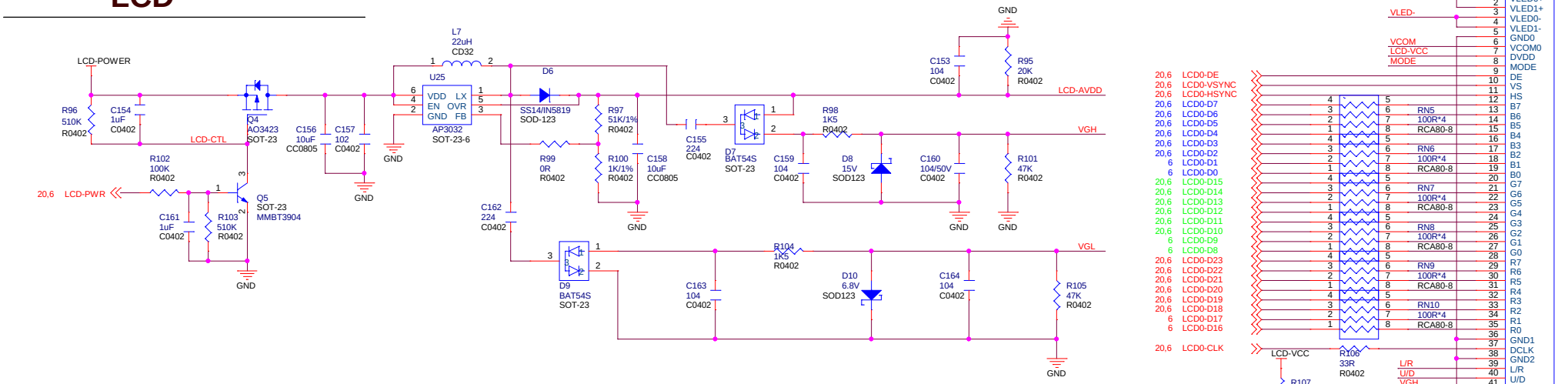
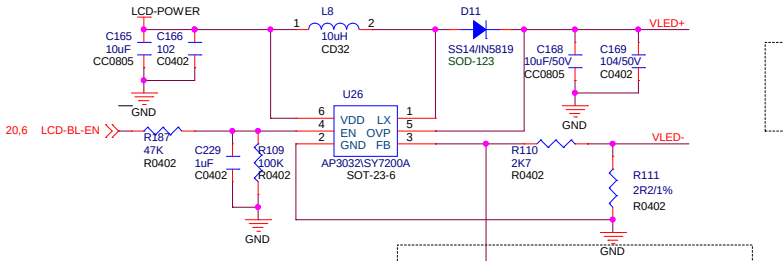
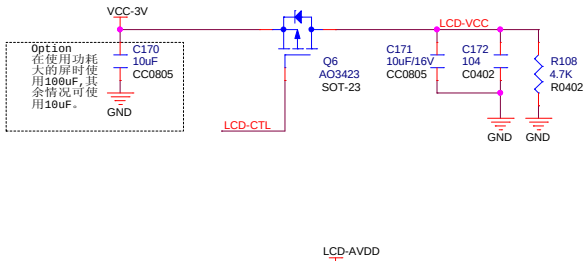
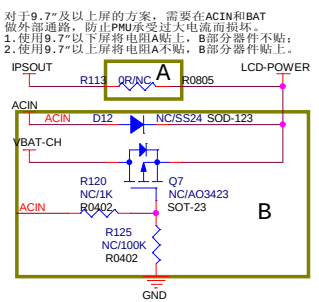
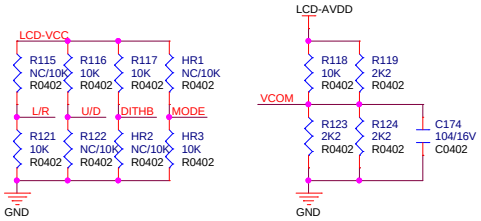
# LCD

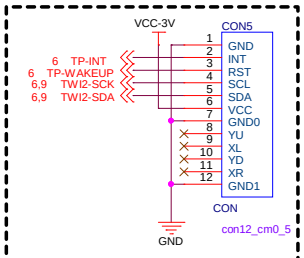


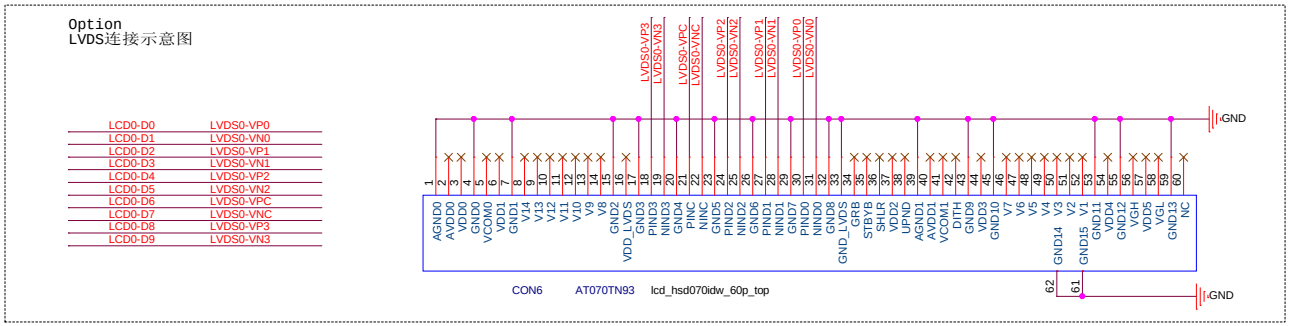

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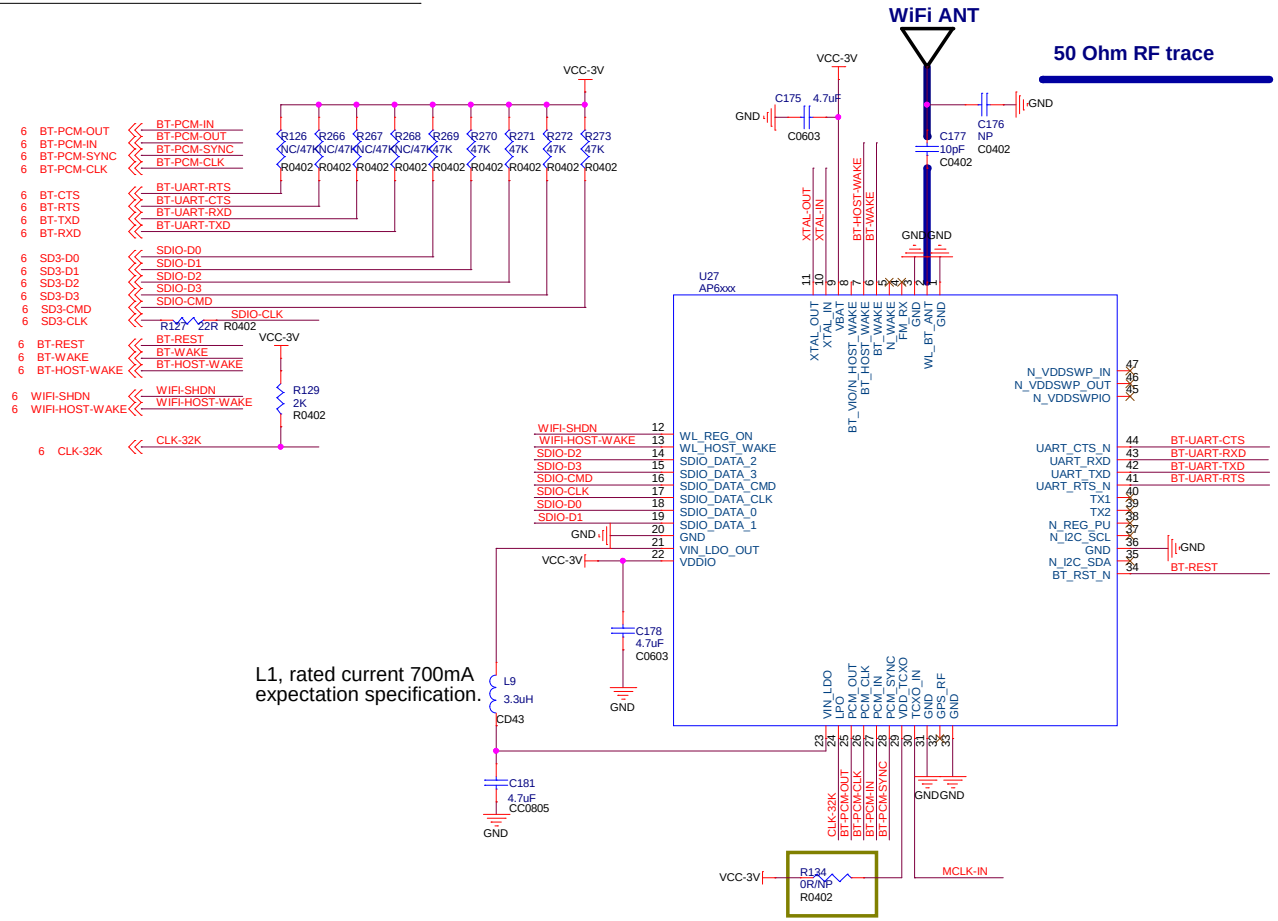
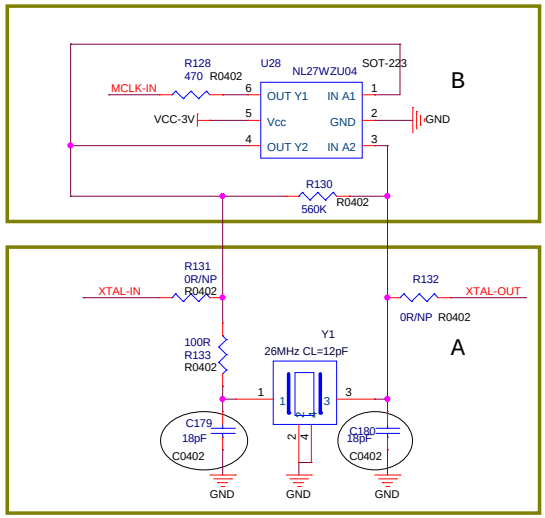
# WIFI-BT

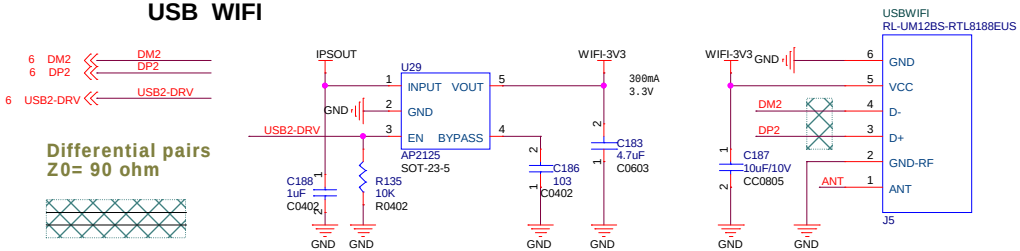


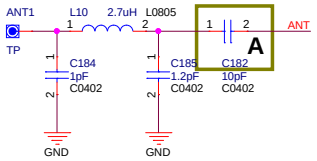

AP6210接上此电阻,AP6181和AP6330不接

AP6210需要框内A和B部分,R47,R48就NC
AP6181,AP6330只需要框内A部分




## USB WIFI




电容A请放在模组距离5mm之内，
电容A位贴0欧电阻也可以

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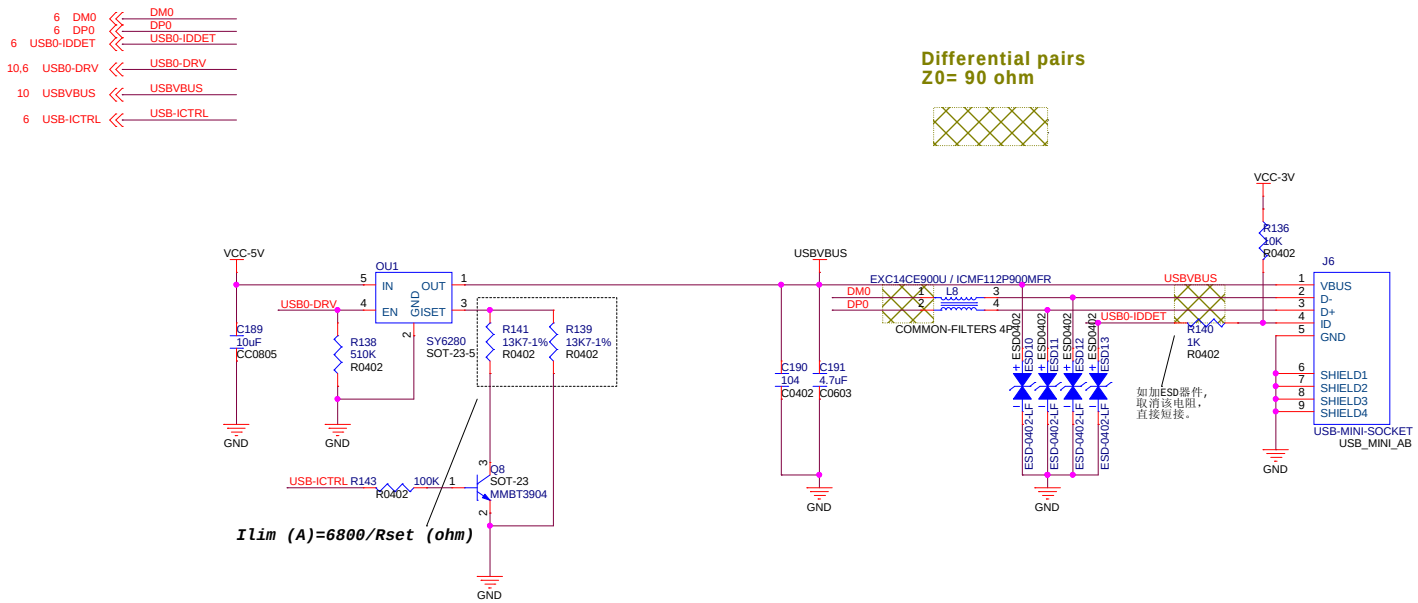
# USB-USB OTG

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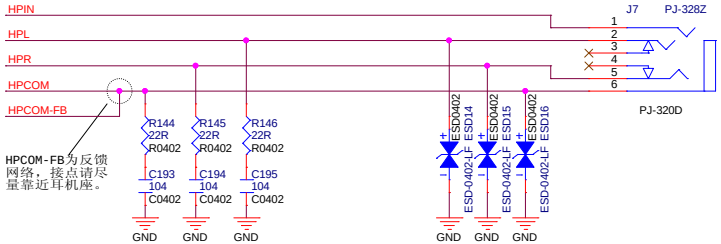
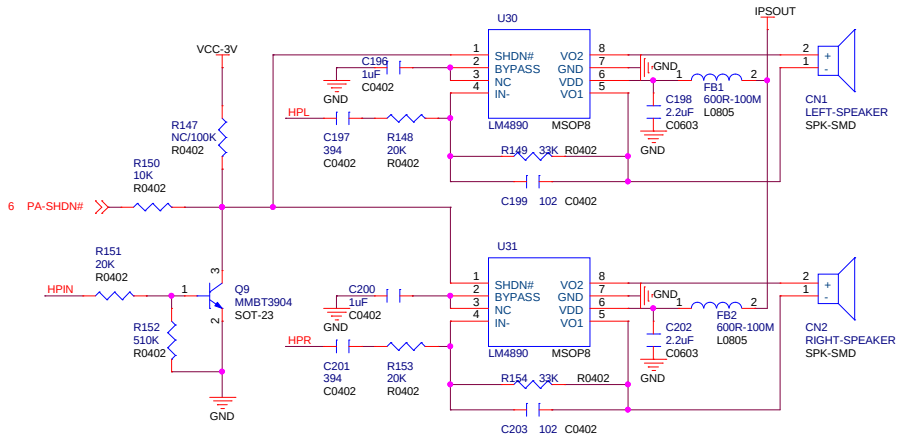
# HP-MIC-SPK

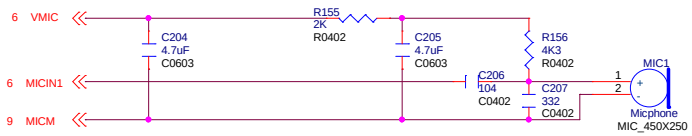
## Head Phone


## Speaker




## Microphone

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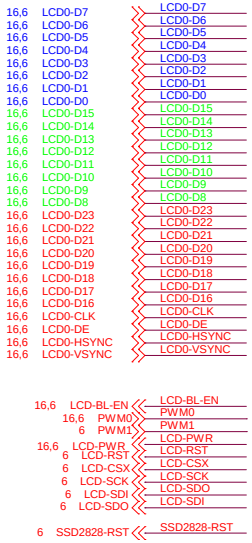
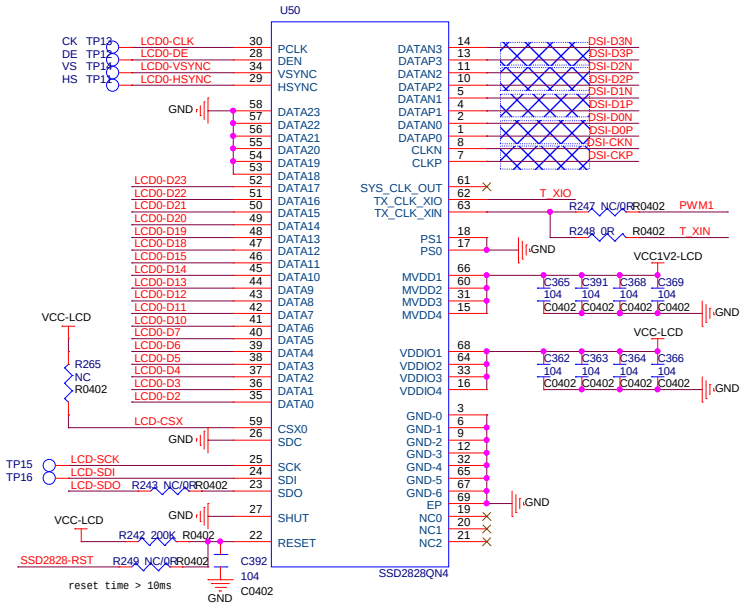
# LCD MIPI

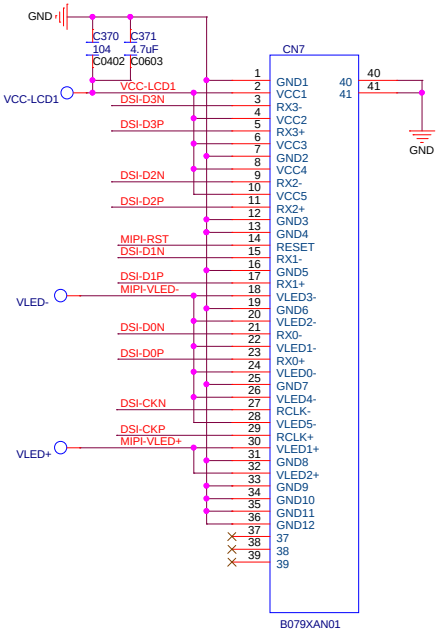
**Differential pairs**
**Z0= 100 ohm**

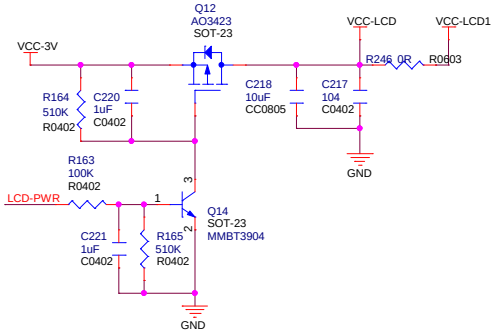


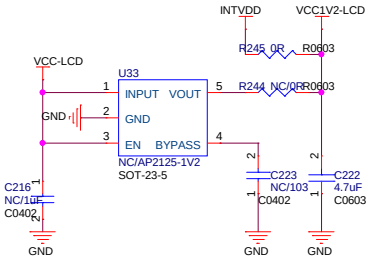


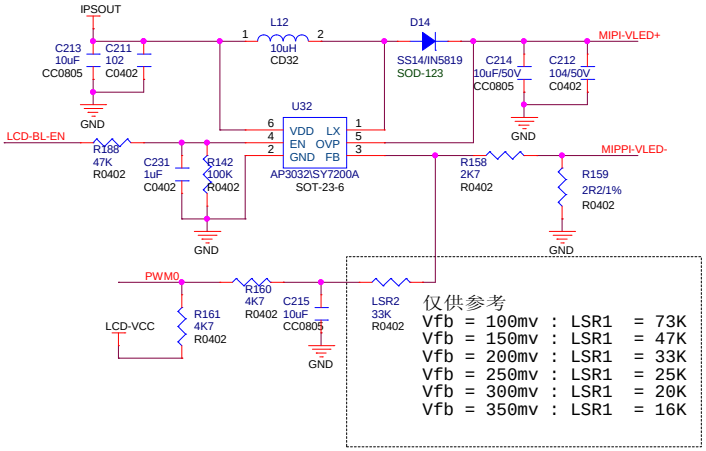


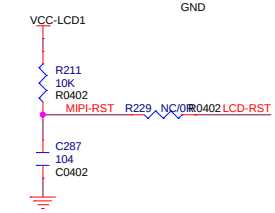


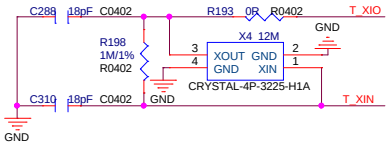

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