

野火_i.MX6UL EVK底板_原理图_V1.0

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Title
野火_i.MX6UL EVK底板_原理图

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| Size A4 | Document Number 目录 | Rev V1.0 |
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历史版本

| 版本号 | 日期 | 设计 | 描述 |
|------|------------|-----|--|
| V1.0 | 2019-01-24 | ZWC | 初始版本 |
| V1.0 | 2019-12-31 | ZWC | 整理对外发布，稳定版 |
| V1.1 | 2021-06-16 | ZWC | 1.修改供电电源 2.WIFI的SD CLK通过跳帽选通，解决SD卡的兼容性问题 3.触摸按键增加触摸IC 4.更改串口隔离方案 |
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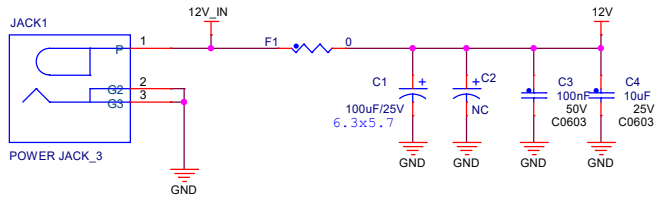
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Title
 野火_i.MX6UL EVK底板_原理图

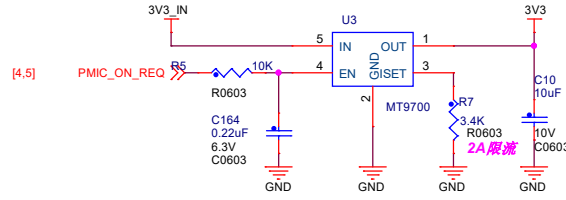
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| Size A4 | Document Number 历史版本 | Rev V1.0 |
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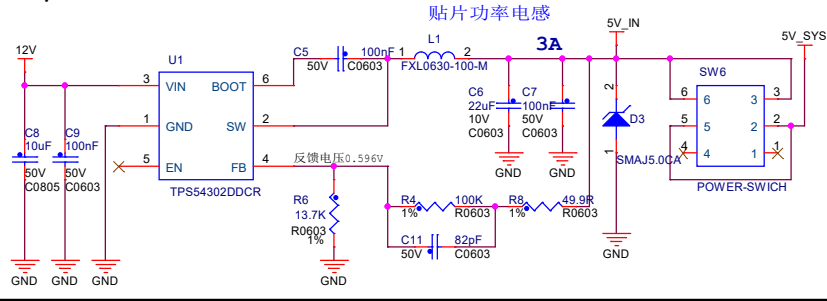
DC IN : 12V



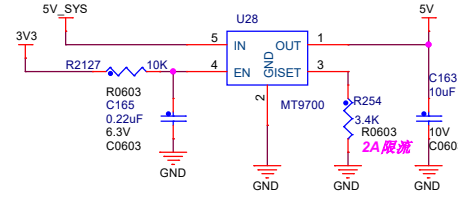
3.3V 输出控制及过流保护



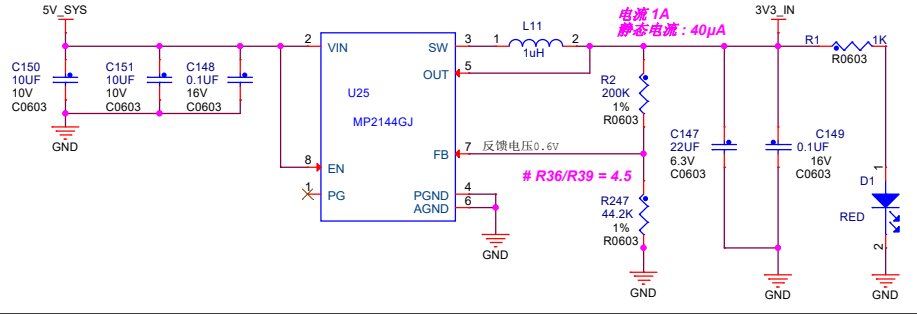
DC/DC 5V



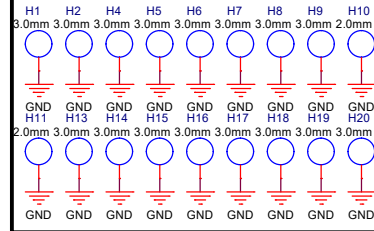
5V输出控制及过流保护



5V转3.3V

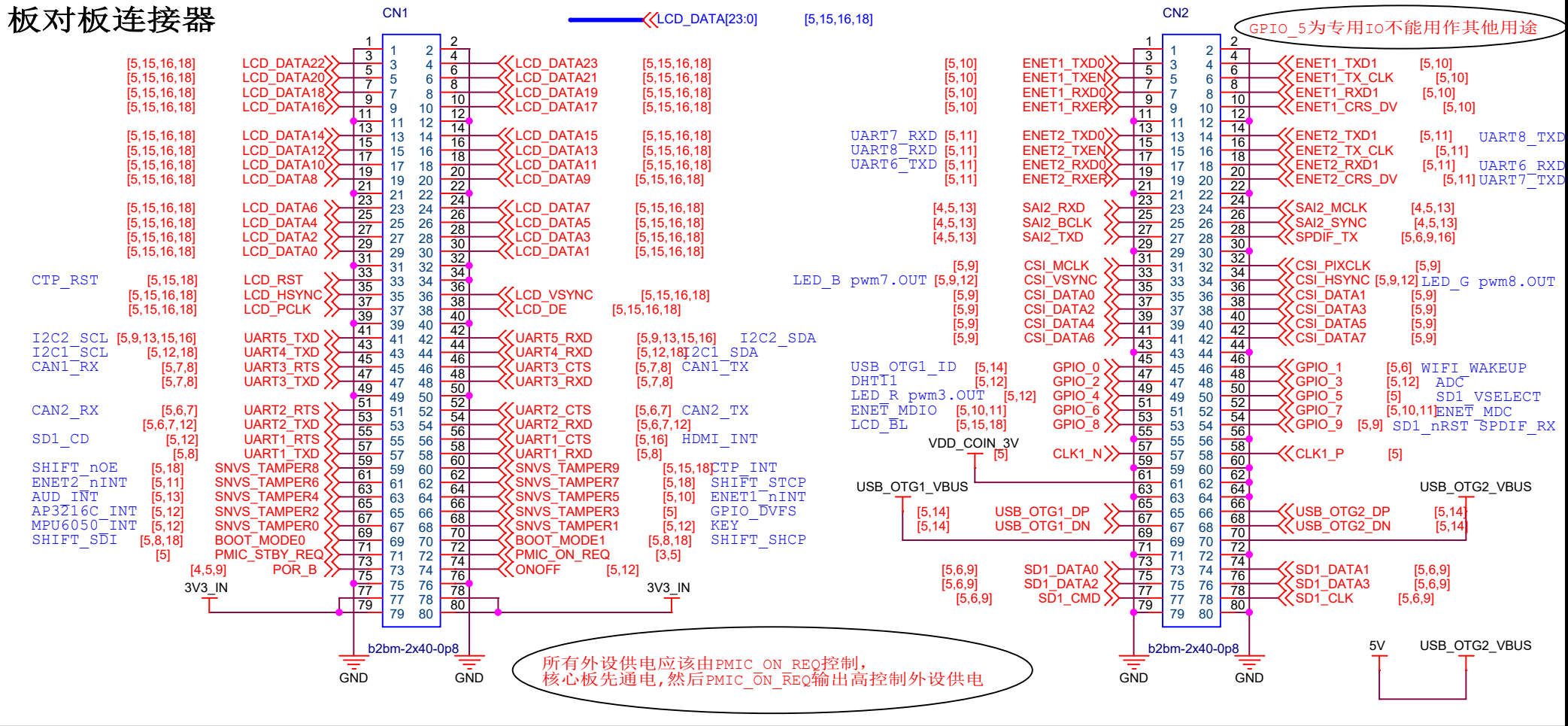


定位孔

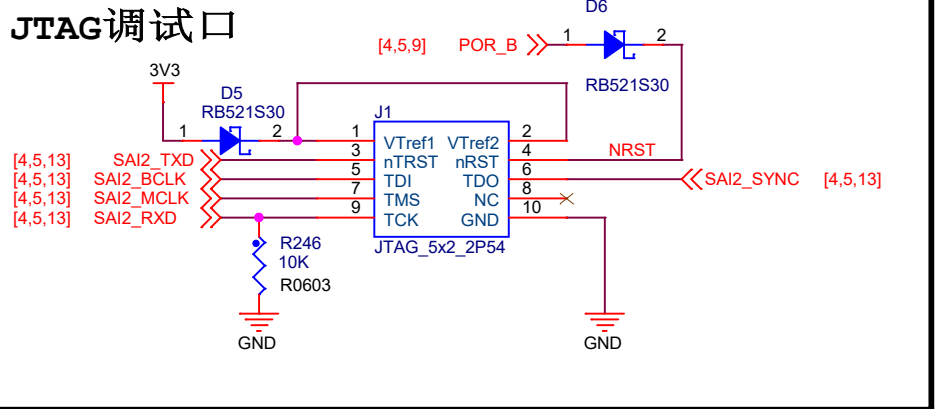


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| Title 野火_1.MX6UL EVK底板_原理图 | | |
| Size A3 | Document Number 电源 | Rev V1.0 |
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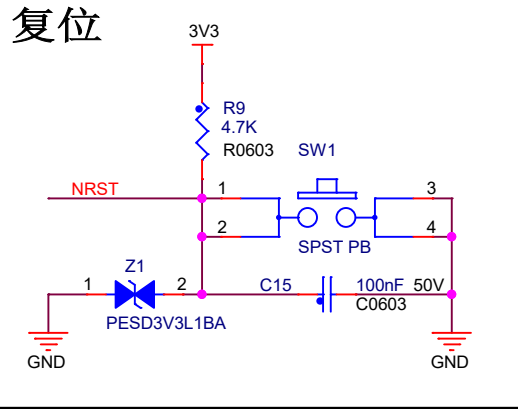
板对板连接器



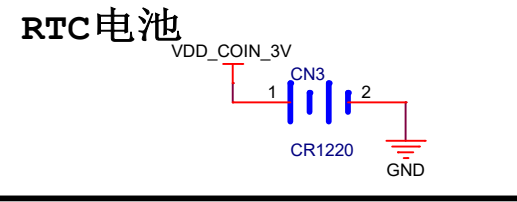
JTAG调试口



复位



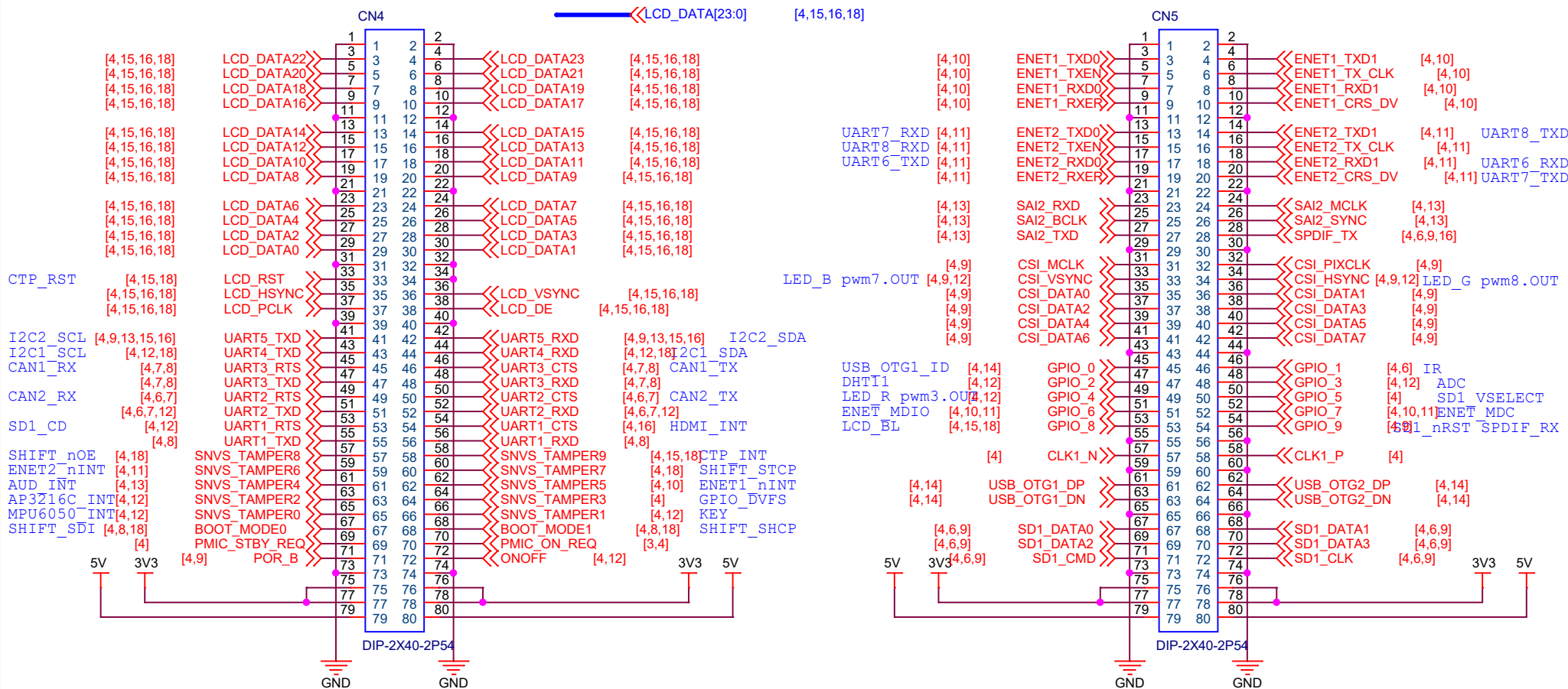
RTC电池



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| Size A4 | Document Number: CPU_B2B | Rev: V1.0 |
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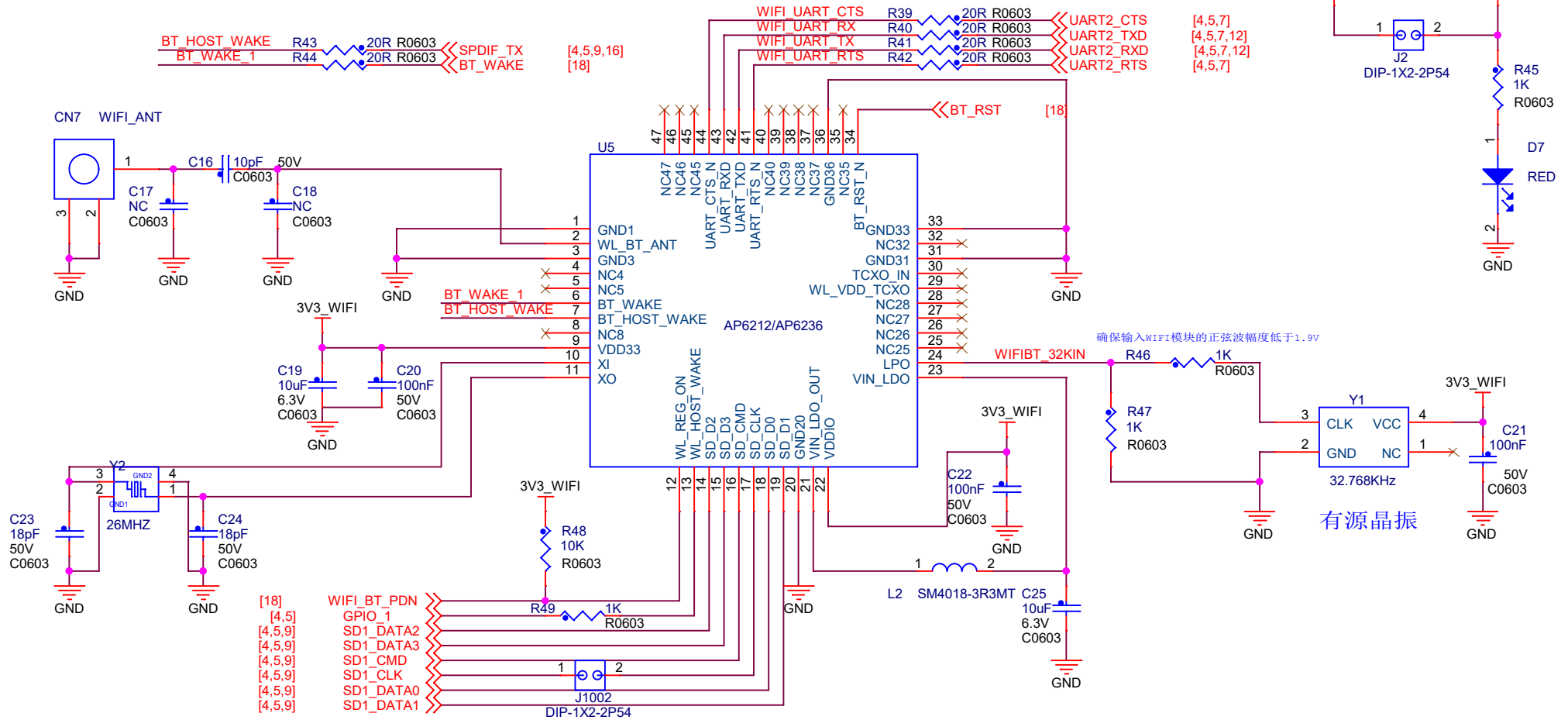
引出IO口 (排针)

所有IO全部引出, 包括GPIO引出107个, 差分时钟一组, USB专用口2个, POR_B复位脚1个, 电源控制口2个



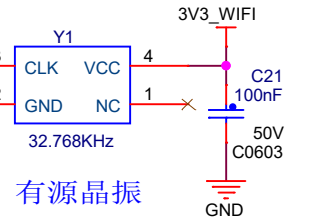
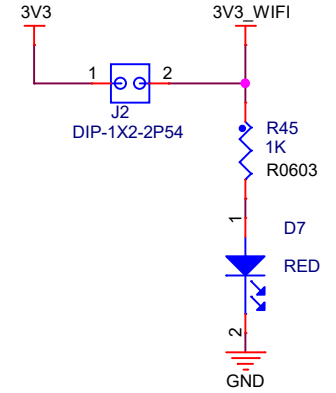
WIFI&Bluetooth

与SD卡共用SDIO接口，因此WIFI跟SD卡不能同时使用



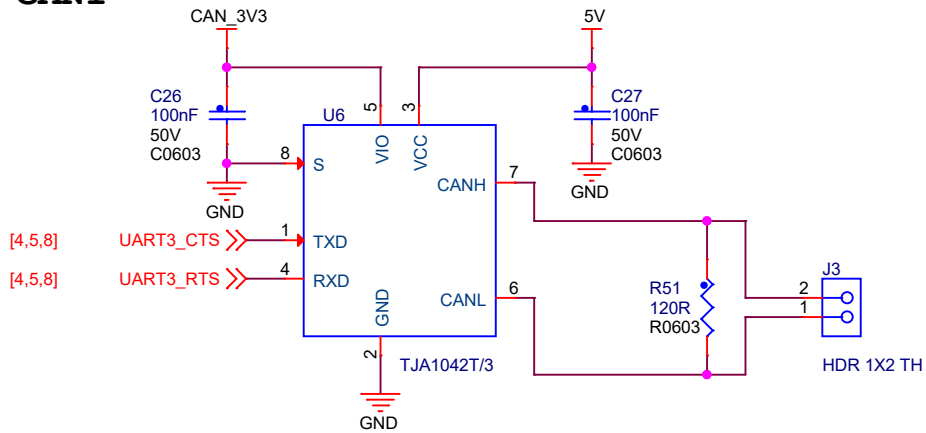
使用SD卡的时候断开这个跳帽
使用WIFI的时候接上这个跳帽
解决SD卡兼容性的问题

WIFI电源指示灯

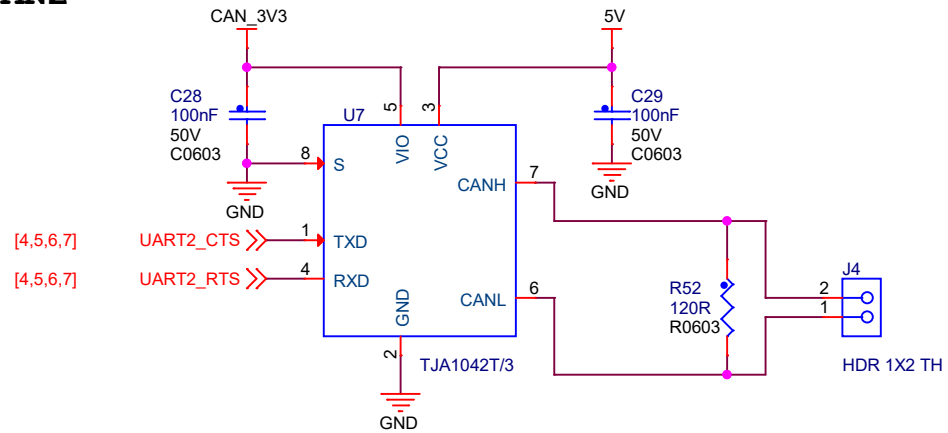


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| Size A4 | Document Number WIFI&Bluetooth | Rev V1.0 |
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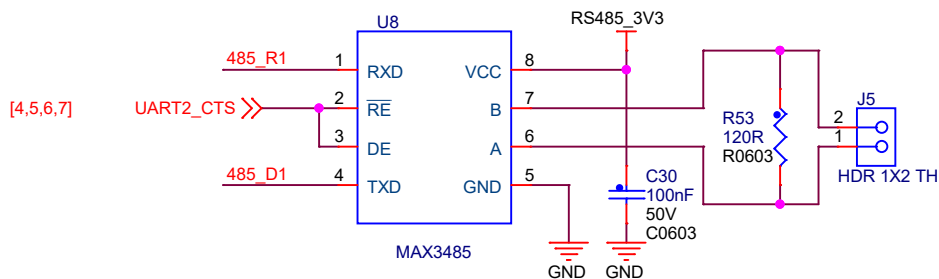
CAN1



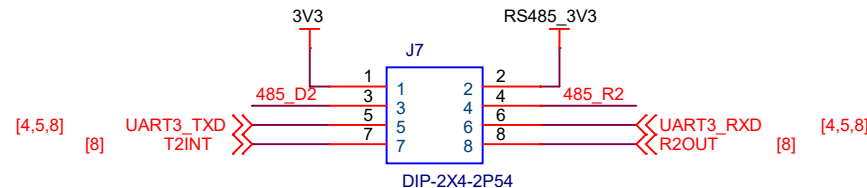
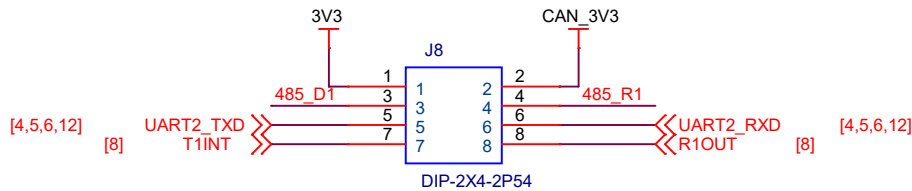
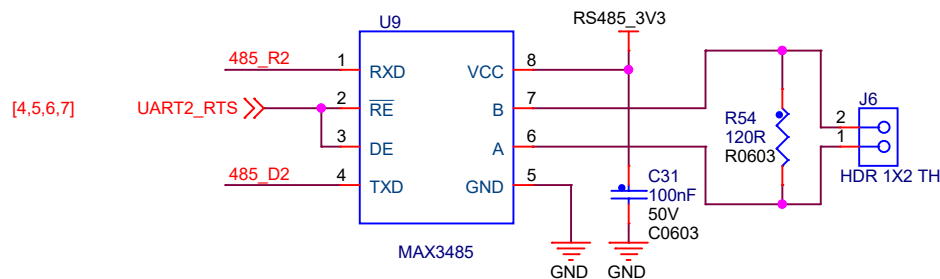
CAN2



RS485-1



RS485-2



CAN1和CAN2的电源
由跳帽J8的1和2脚控制，默认不接

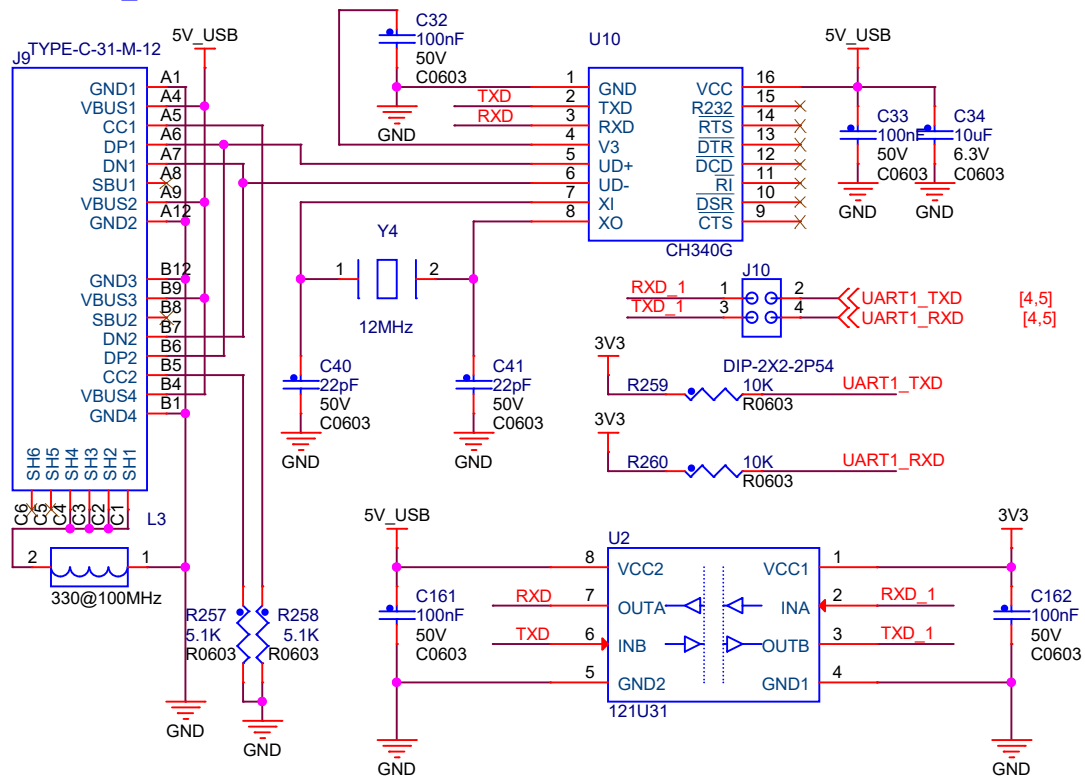
RS485-1和RS485-2的电源
由跳帽J7的1和2脚控制，默认不接

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| Title | | |
| 野火_i.MX6UL EVK底板_原理图 | | |
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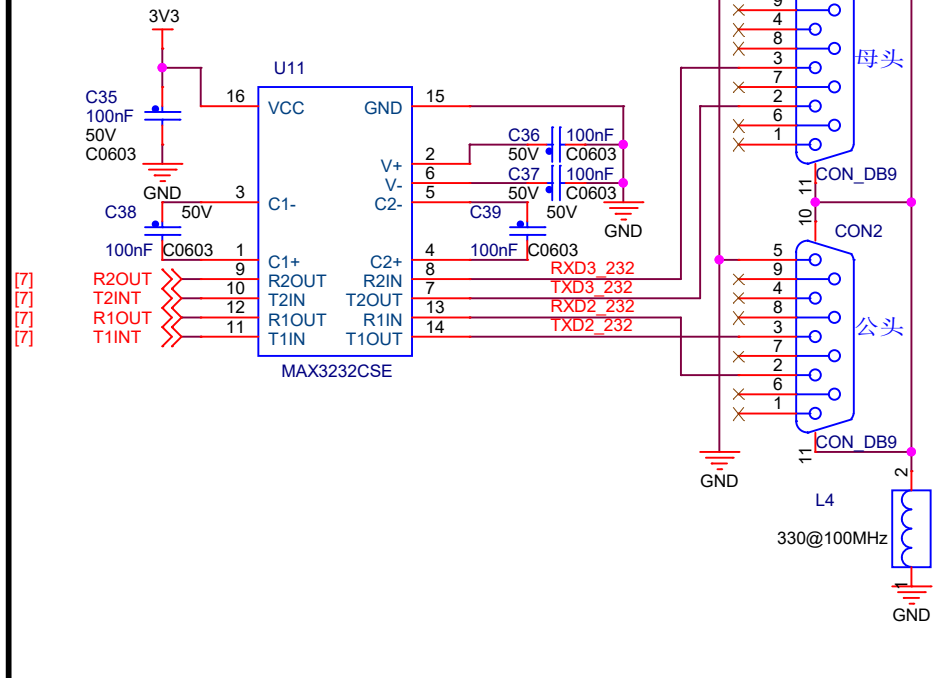
USB转串口

注意：5V_USB仅给CH340G供电，不用于底板供电



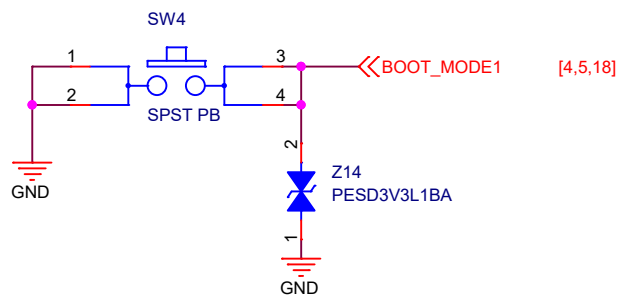
RS232串口

2路RS232串口



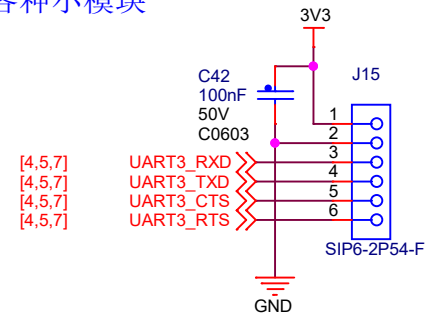
串行烧录启动切换

按下按键再复位即可进入串行烧录模式



EBF-Module

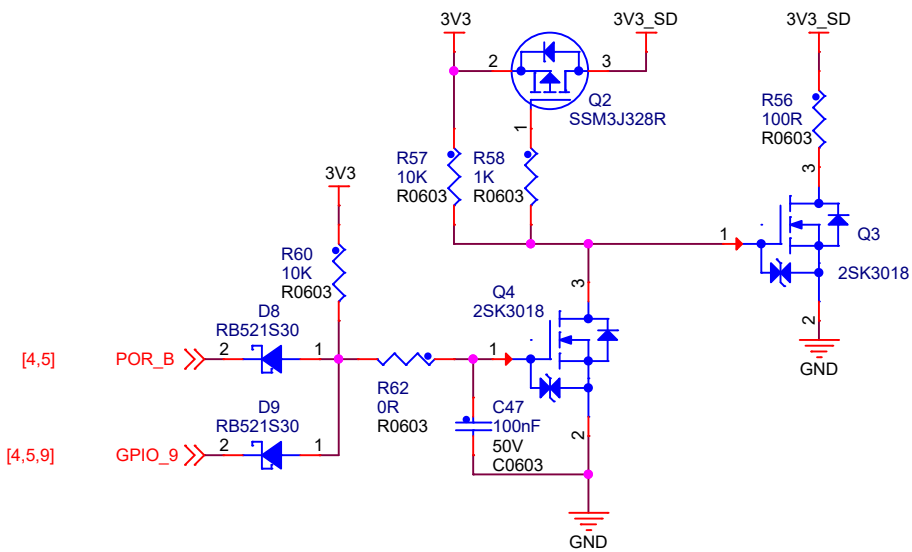
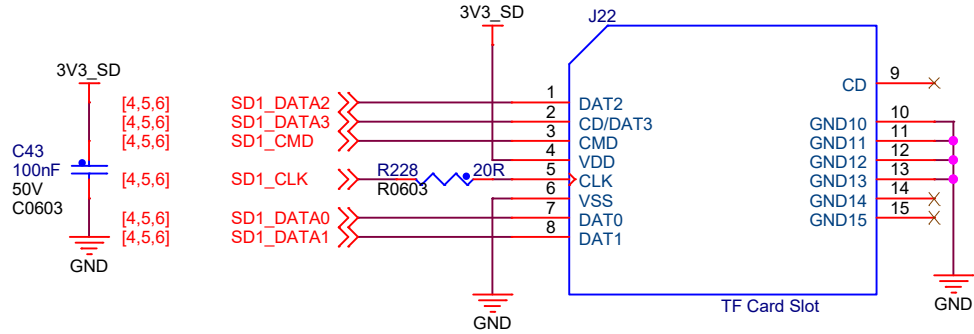
用于接野火的各种小模块



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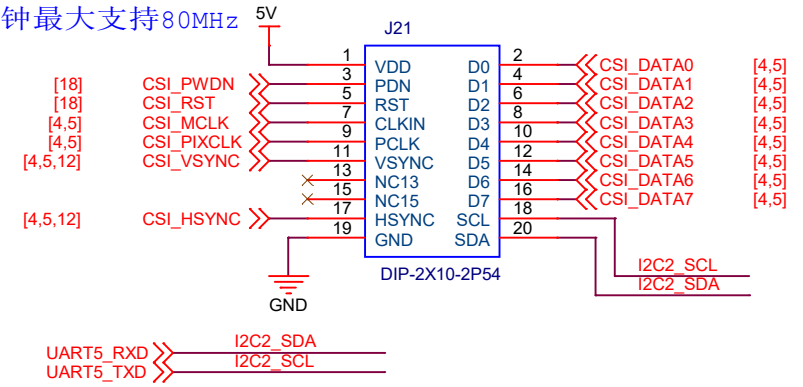
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|--------------------------------|-----------------|----------|
| Title | | |
| 野火_i.MX6UL EVK底板_原理图 | | |
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| 串口(RS232/TTL/USB转串口) | | |
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SD卡 与WIFI复用SDIO引脚

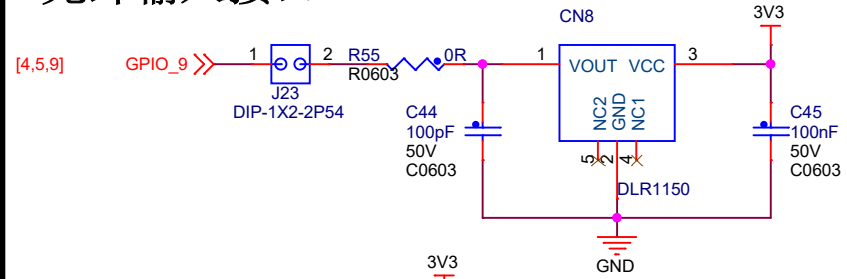


摄像头接口

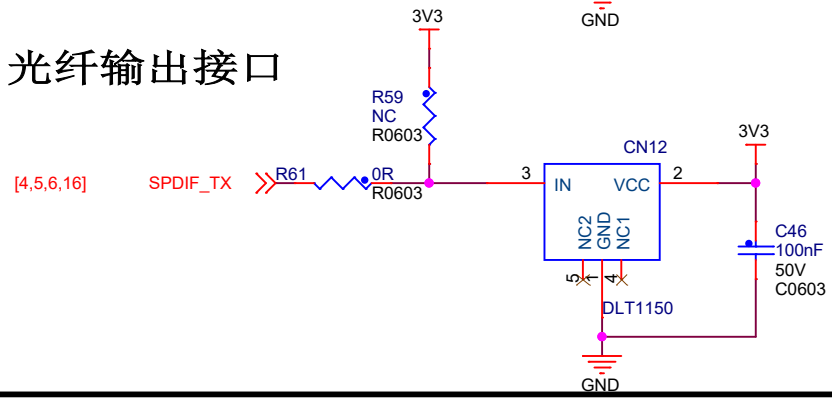
像素时钟最大支持80MHz



光纤输入接口



光纤输出接口



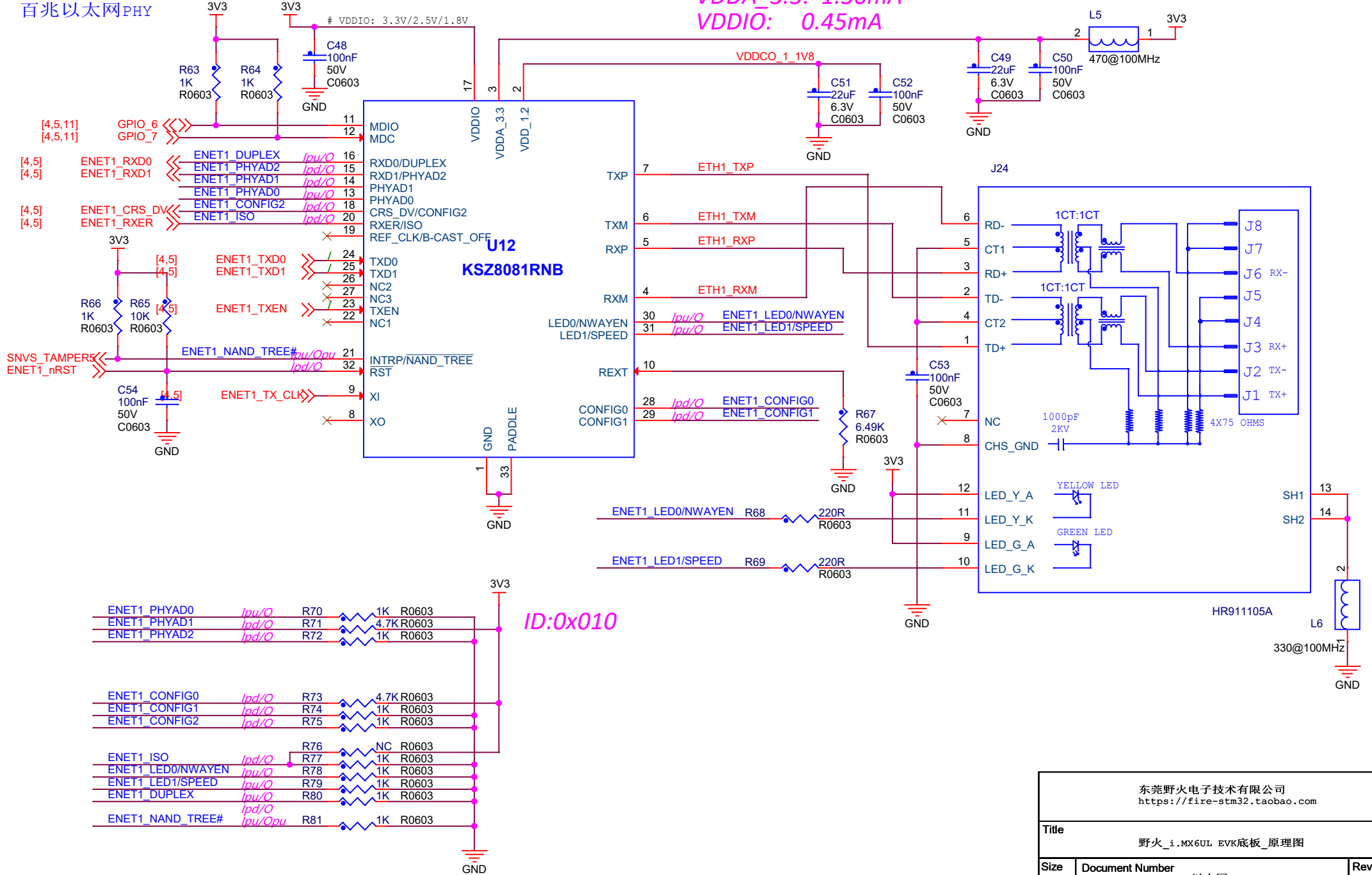
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https://fire-stm32.taobao.com

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| Title | | |
| 野火_i.MX6UL EVK底板_原理图 | | |
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| | SD卡/摄像头/光纤 | |
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以太网接口1

百兆以太网PHY

软件掉电模式:
VDDA_3.3: 1.36mA
VDDIO: 0.45mA



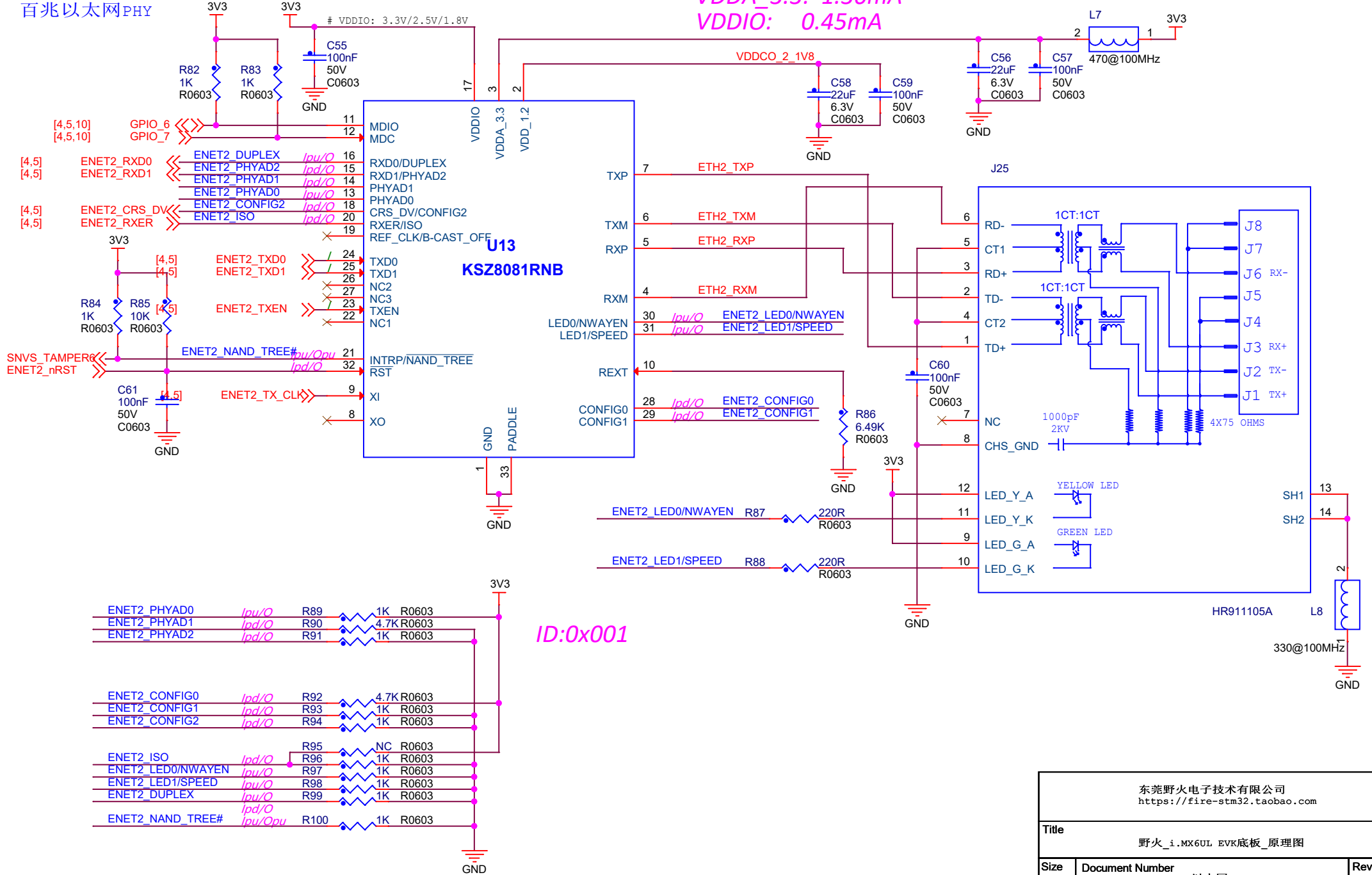
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| Title | | |
| 野火_i.MX6UL EVK底板_原理图 | | |
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| | 以太网x1 | |
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以太网接口2

百兆以太网PHY

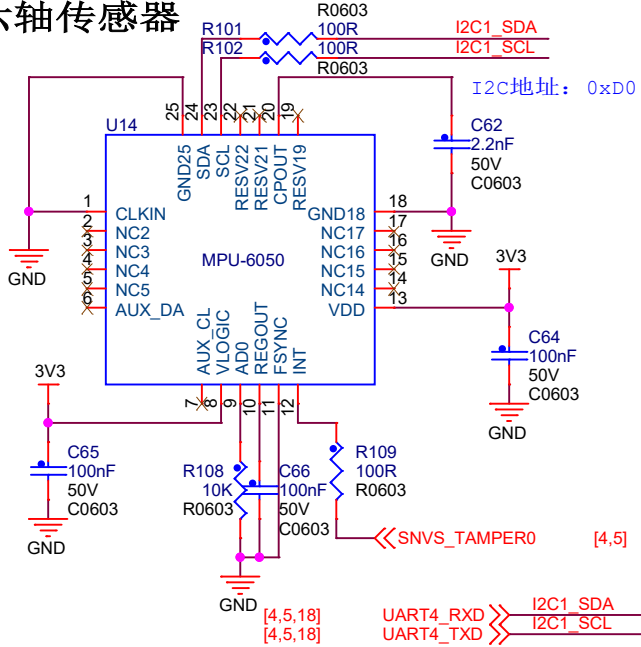
软件掉电模式:
 VDDA_3.3: 1.36mA
 VDDIO: 0.45mA



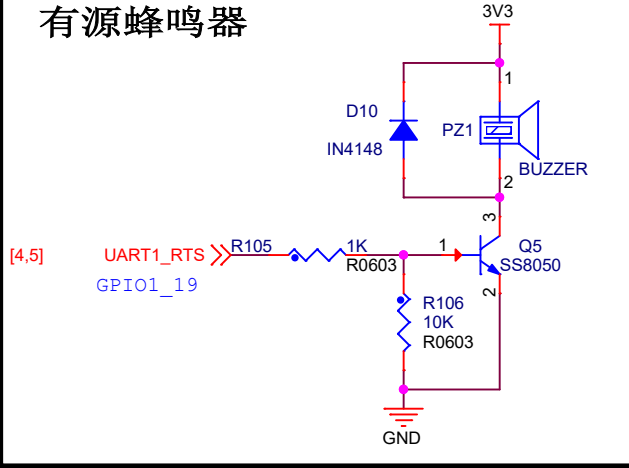
ID:0x001

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| Size A4 | Document Number 以太网x2 | Rev V1.0 |
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六轴传感器

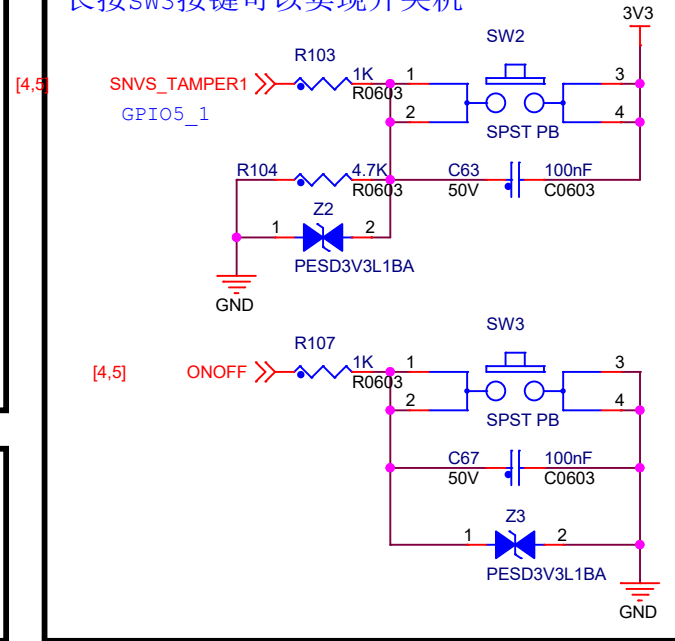


有源蜂鸣器

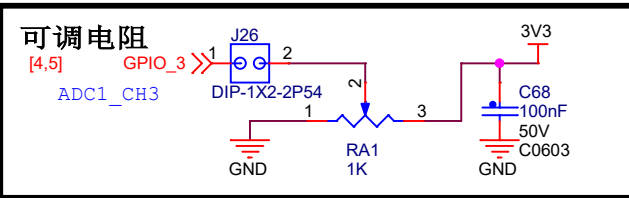


按键

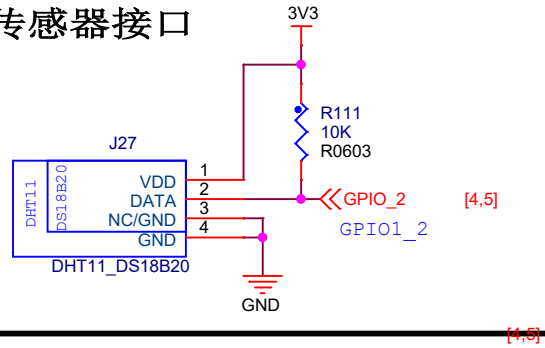
长按SW3按键可以实现开关机



可调电阻

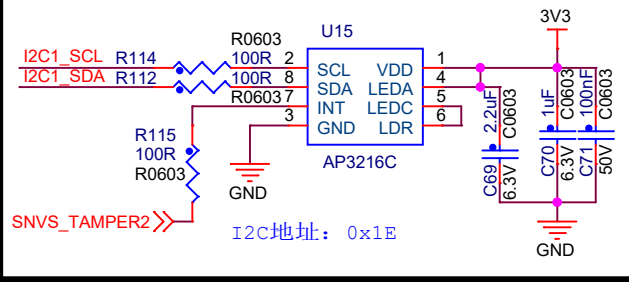


温湿度传感器接口

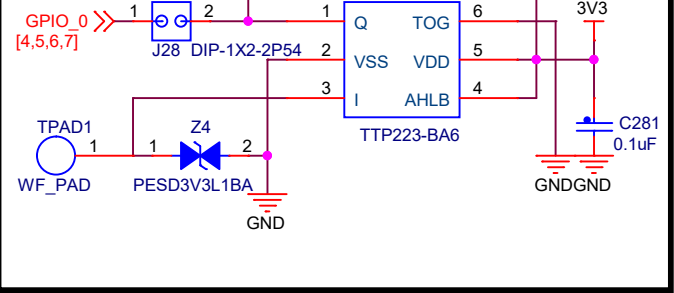


ALS+PS+IRLED (三合一)

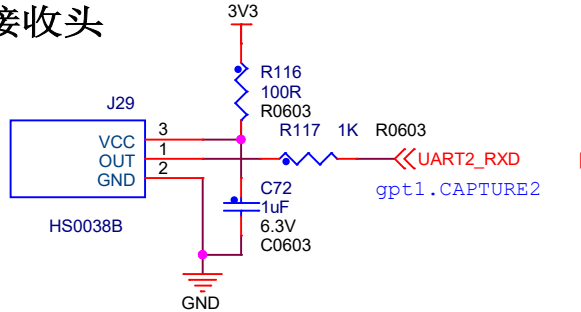
环境光传感器、接近传感器、红外LED三合一



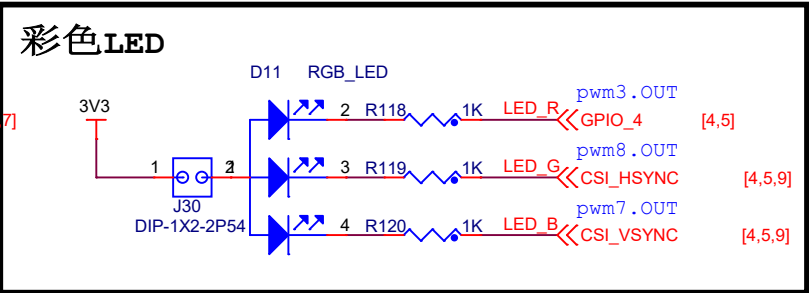
触摸按键



红外接收头

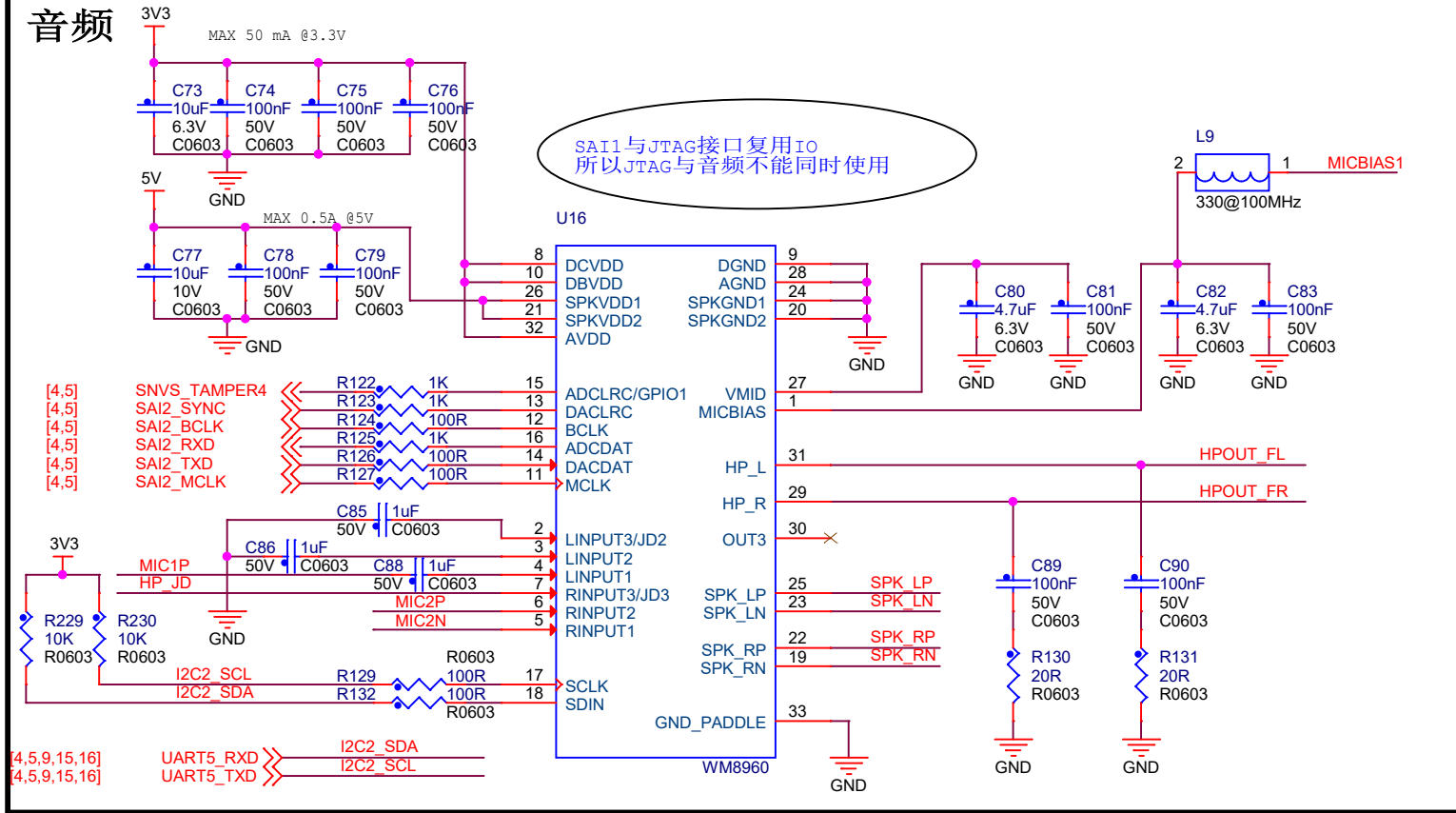


彩色LED

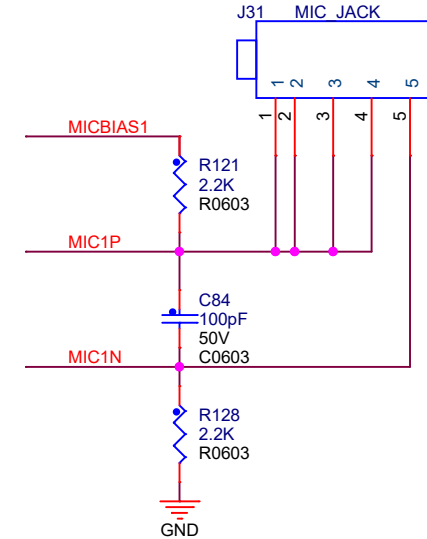


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| Size A4 | Document Number 传感器/按键/LED | Rev V1.0 |
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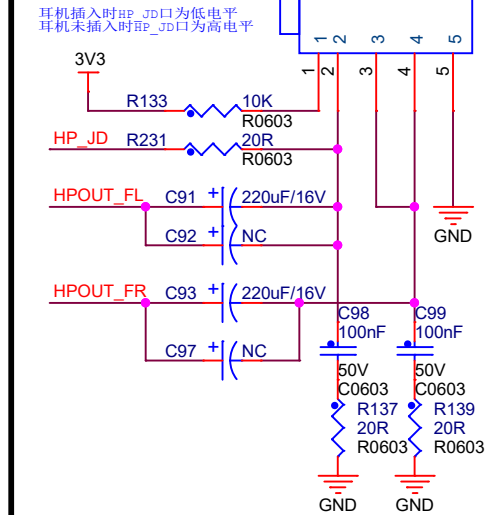
音频



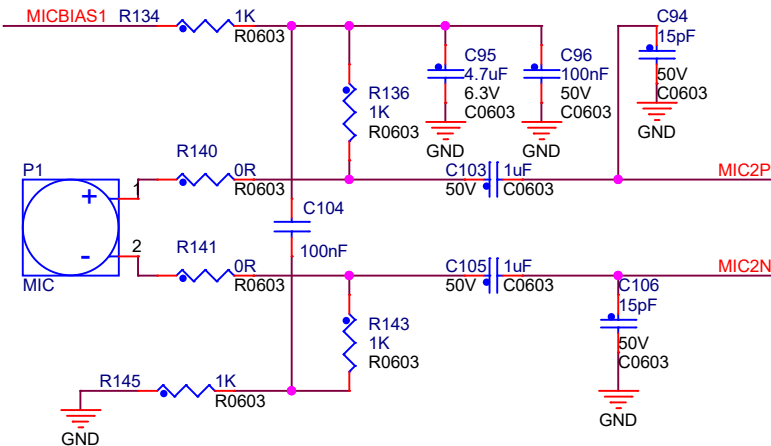
MIC插头



耳机插头

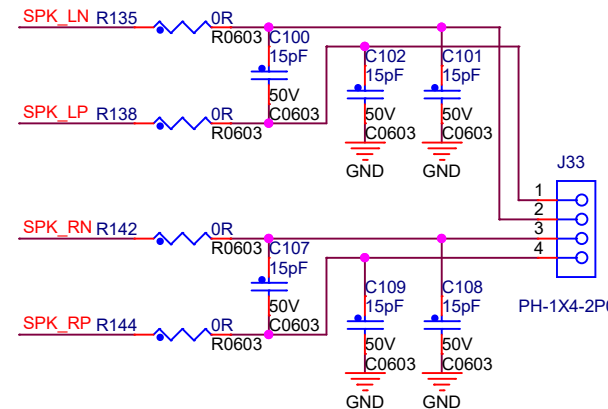


MIC



喇叭插座

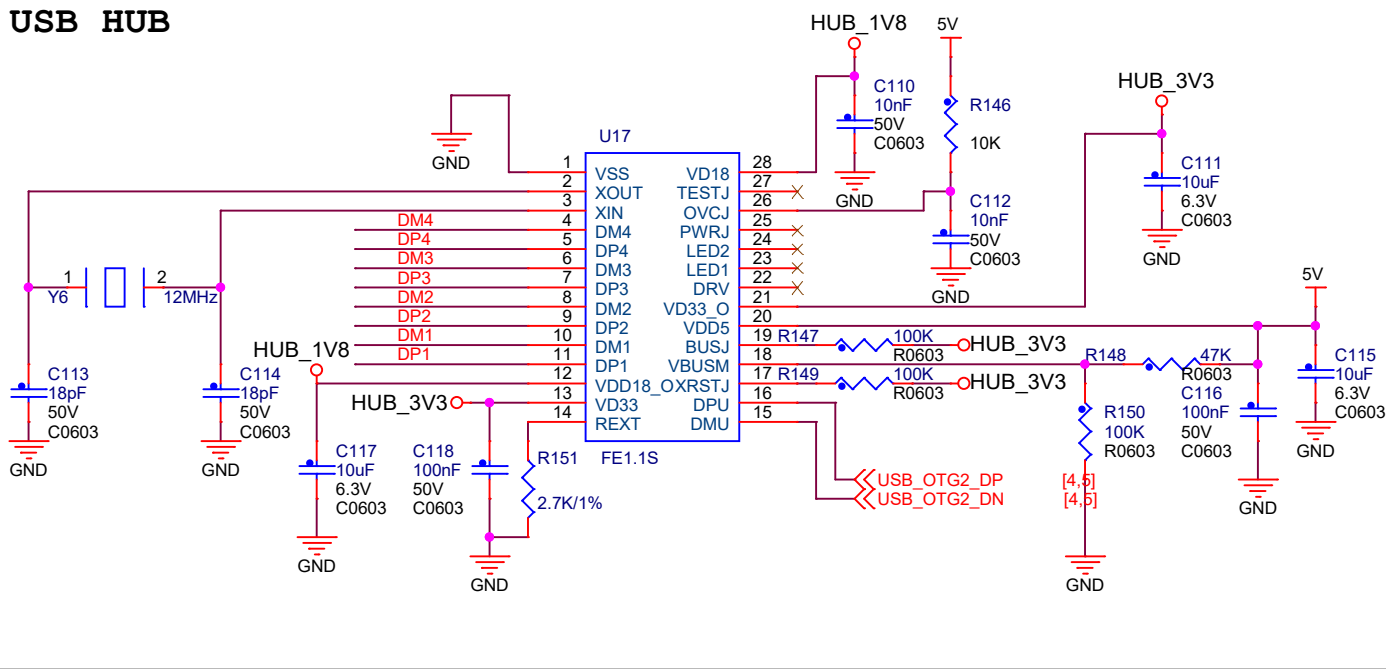
可以驱动2个8Ω 1W的喇叭 (BTL方式)



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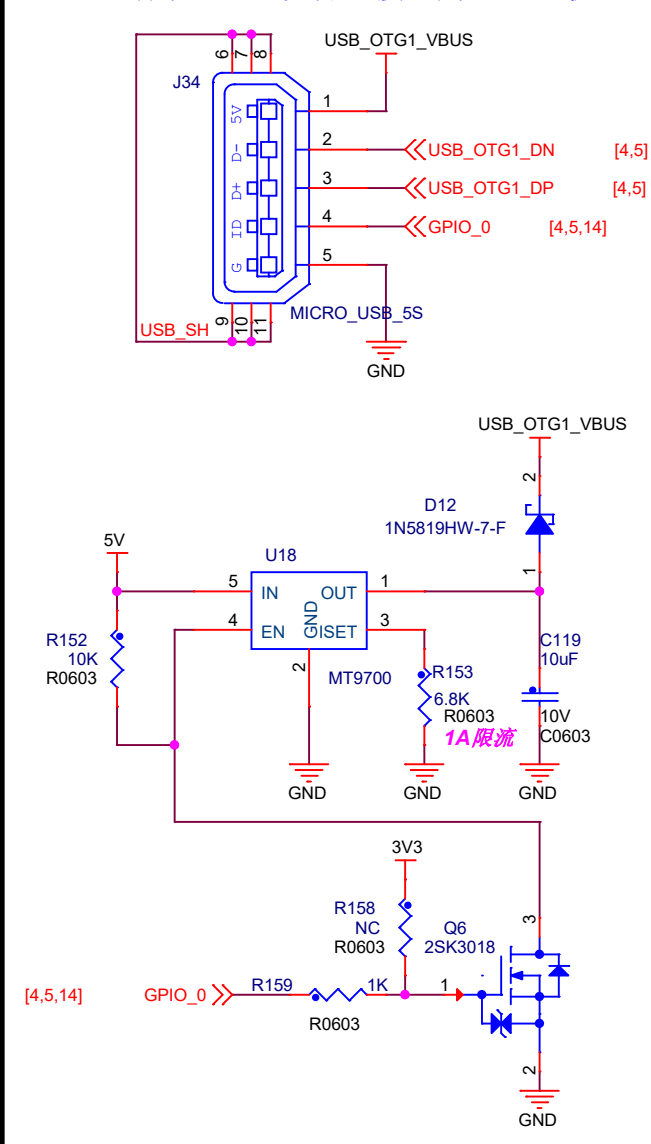
| | | |
|--------------------------------|-----------------|----------|
| Title | | |
| 野火_i.MX6UL EVK底板_原理图 | | |
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| | 音频 | |
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USB HUB

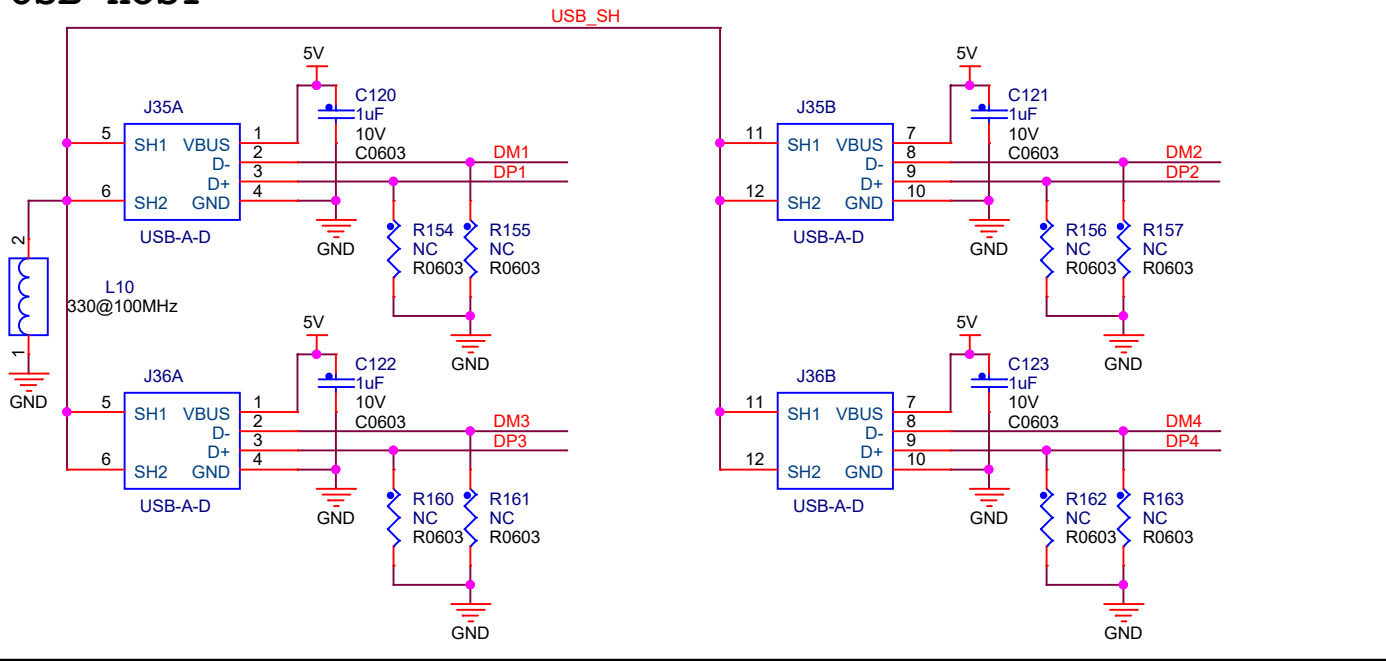


USB OTG

ID悬空时为Device设备，接地为HOST主机



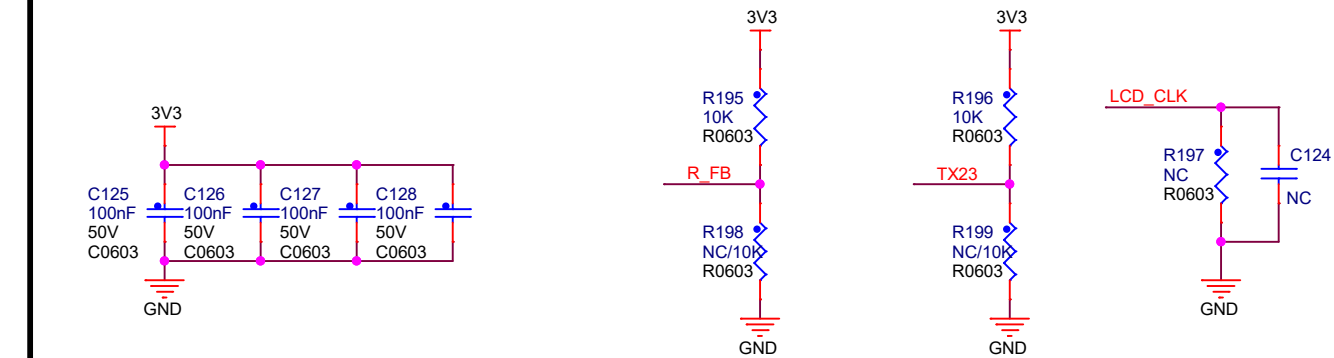
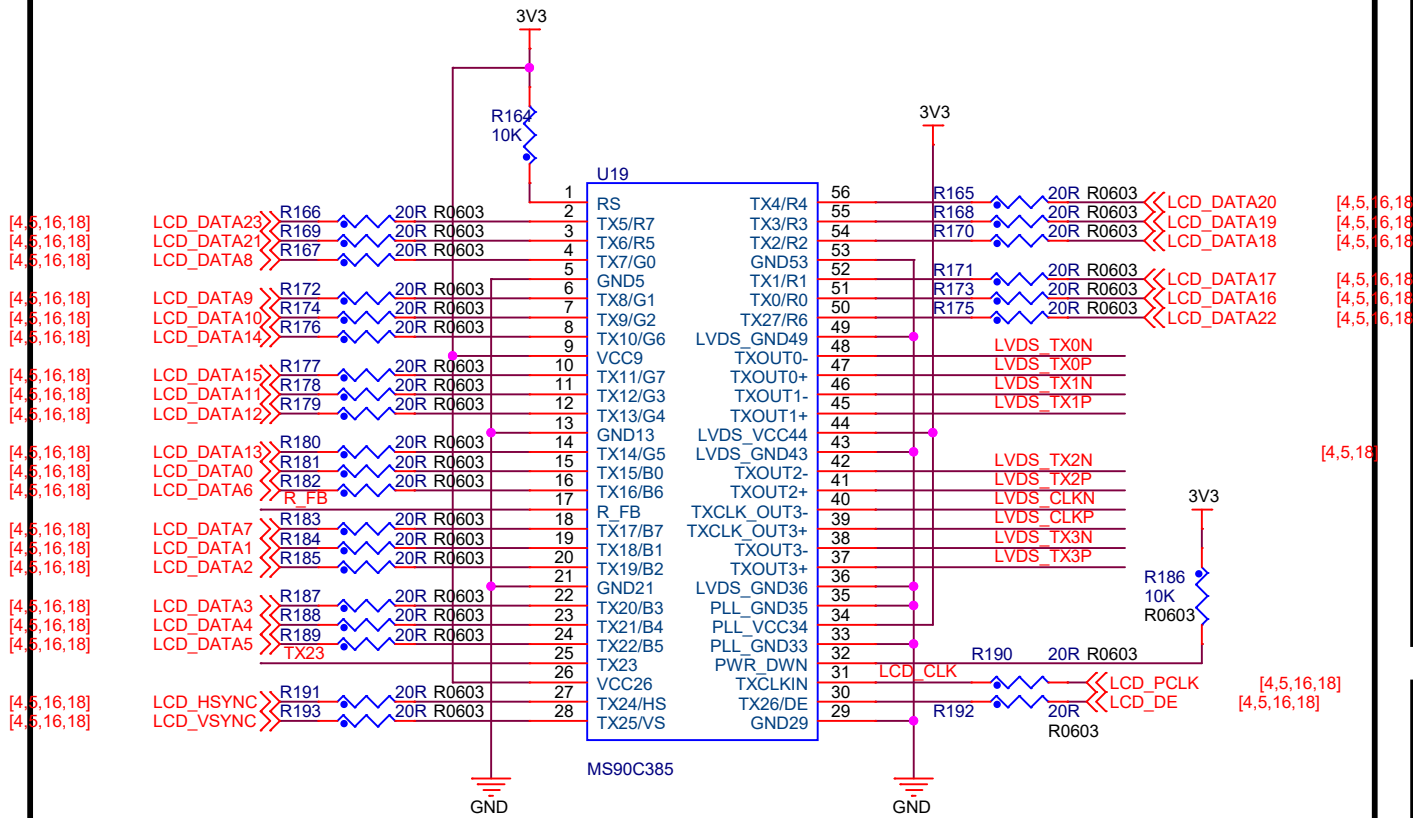
USB HOST



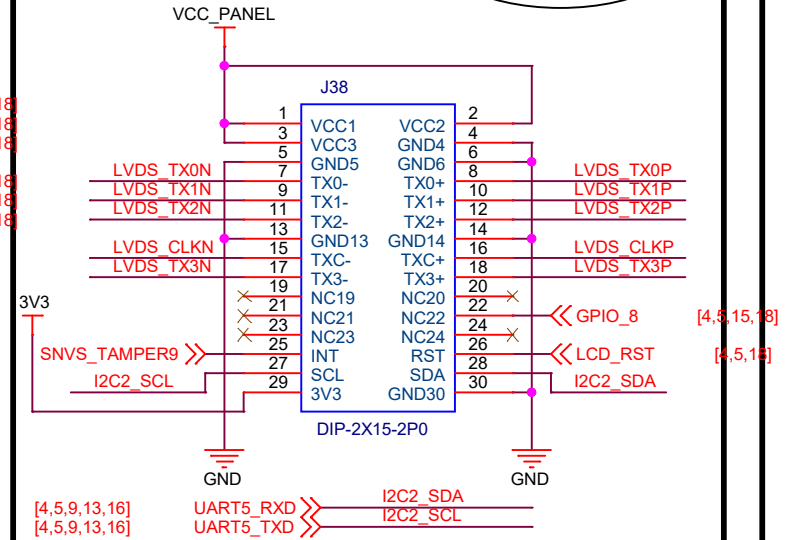
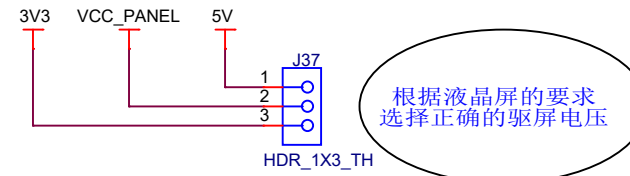
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| Title 野火_i.MX6UL EVR底板_原理图 | | |
| Size A4 | Document Number USB HOST/USB OTG | Rev V1.0 |
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RGB888转LVDS

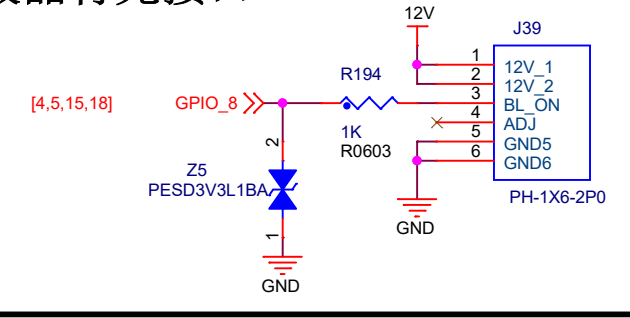
支持高达1366*768分辨率
支持单八位的LVDS接口的液晶屏



驱屏接口



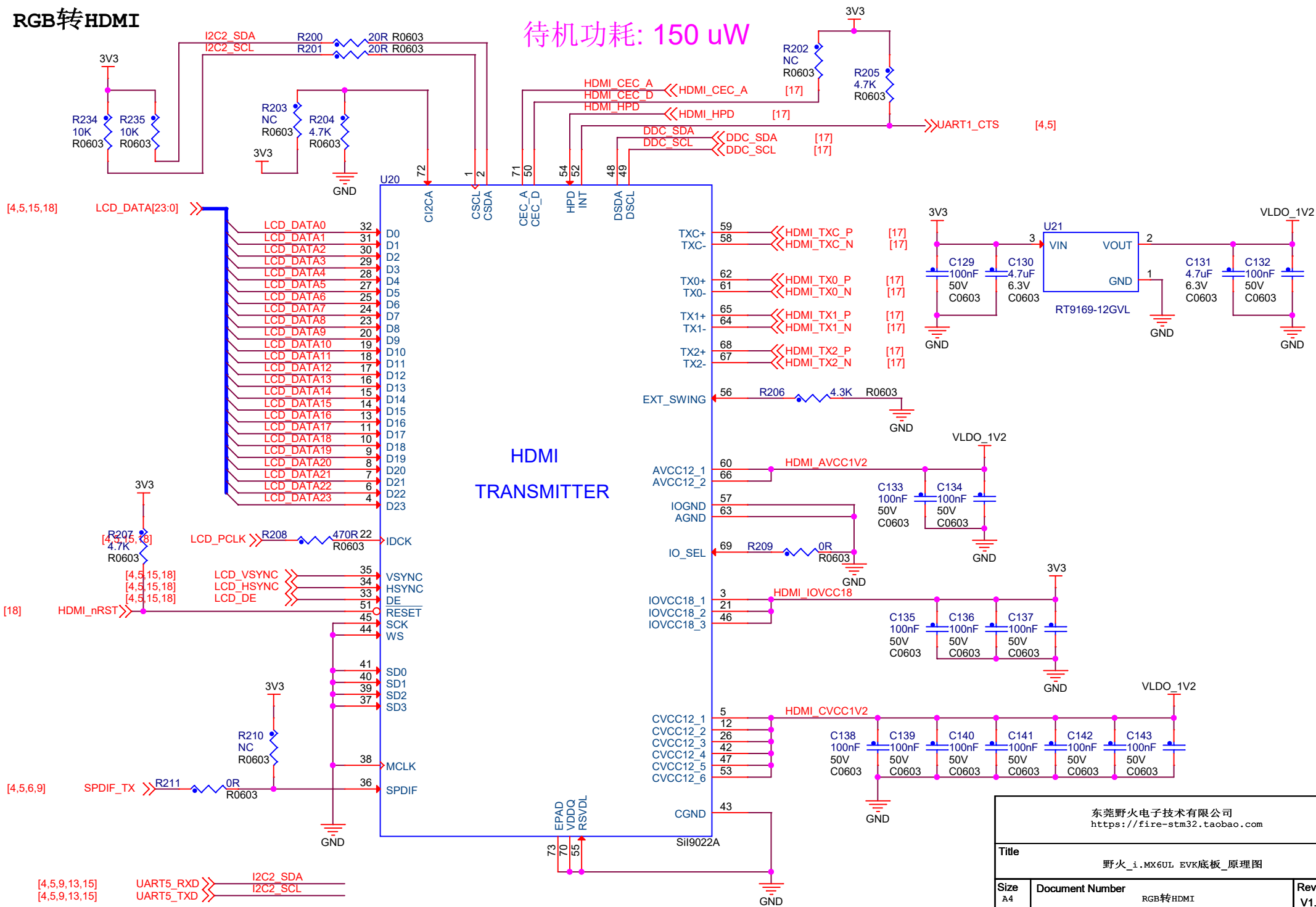
液晶背光接口



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| Title 野火_i.MX6UL EVK底板_原理图 | | |
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RGB转HDMI

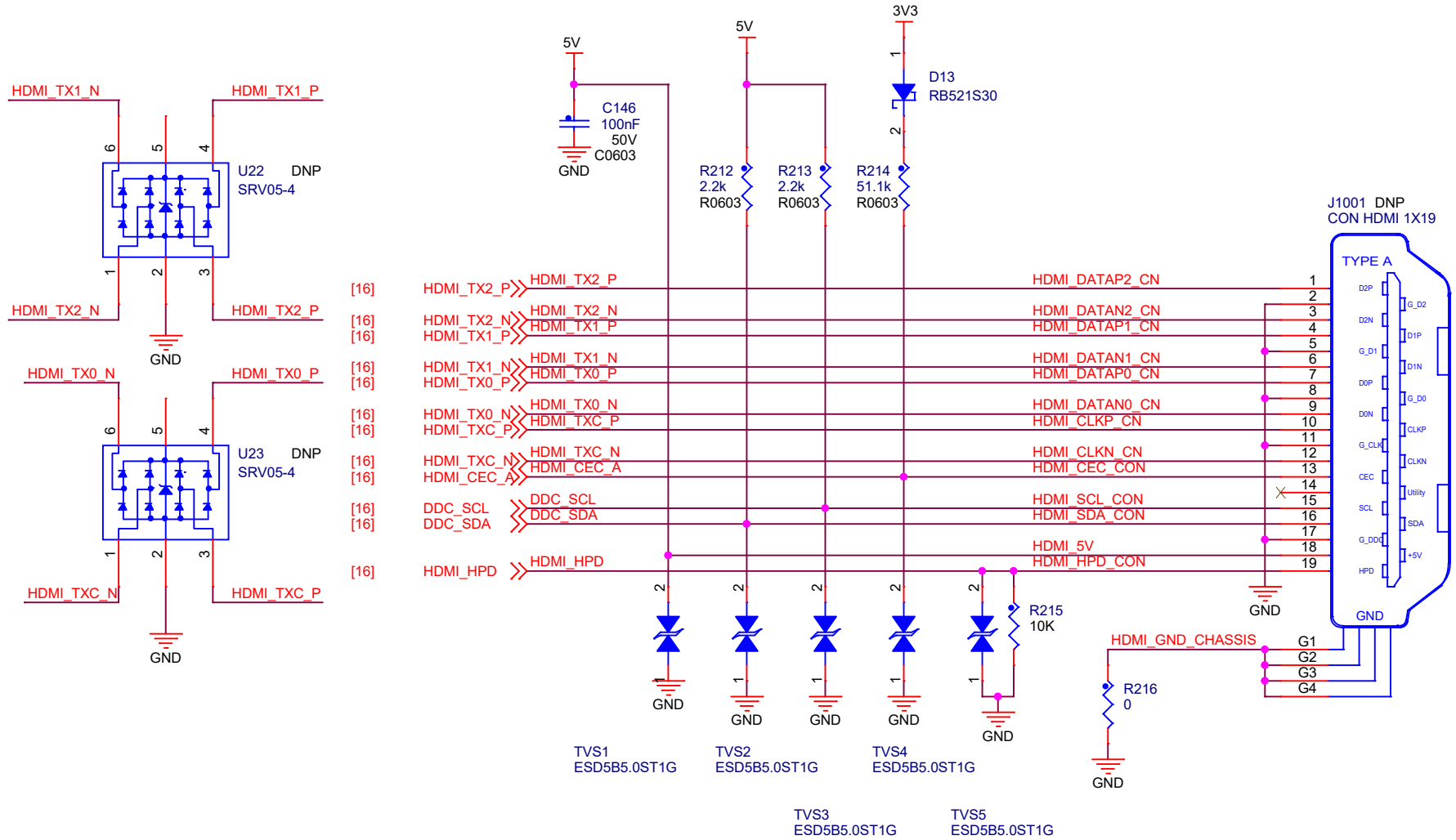
待机功耗: 150 uW



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| Title | | |
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HDMI连接器

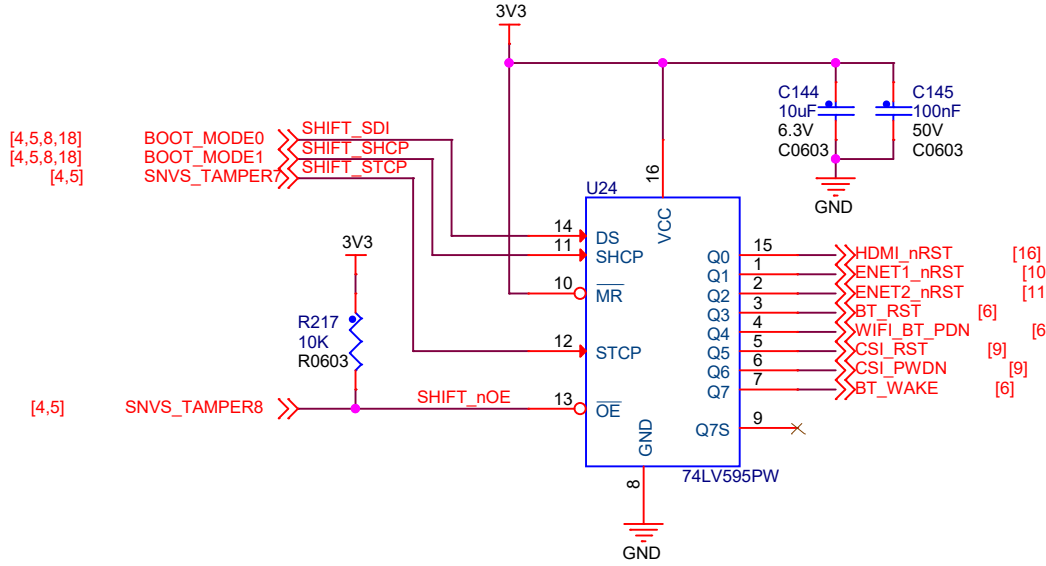
Type A型



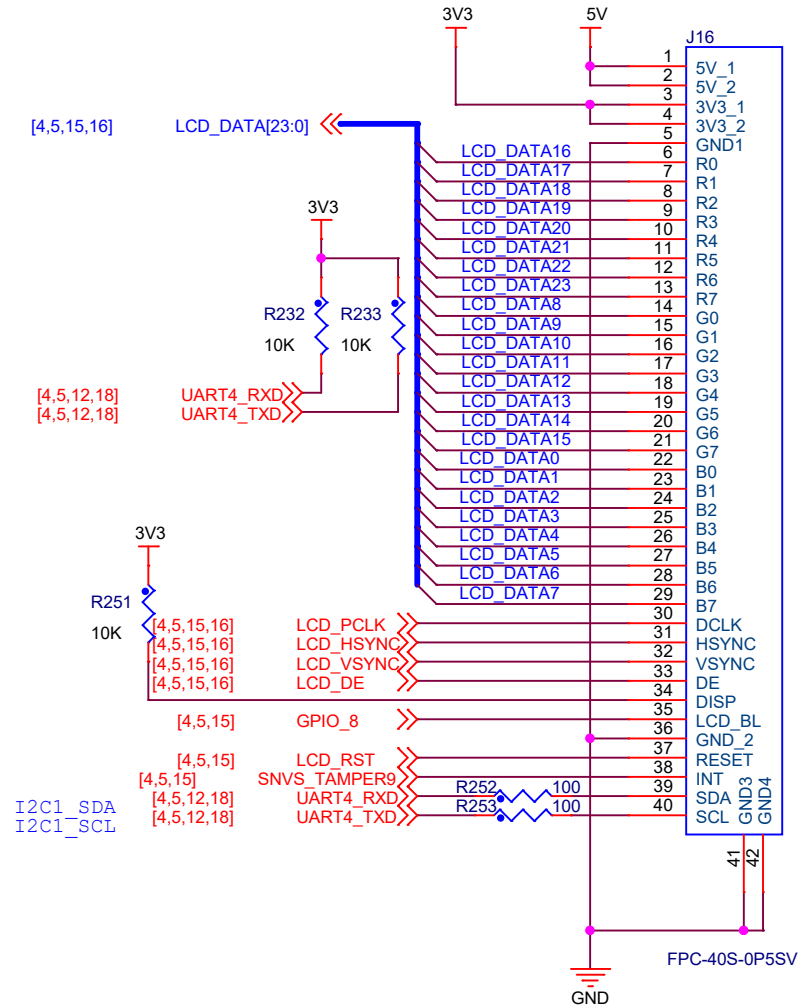
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| Title | | |
| 野火_i.MX6UL EVK底板_原理图 | | |
| Size | Document Number | Rev |
| A4 | HDMI连接器 | V1.0 |
| Date: | Wednesday, June 16, 2021 | Sheet 17 of 18 |

扩展IO

由于GPIOIO口资源比较紧张，使用四个IO口扩展八个输出控制口



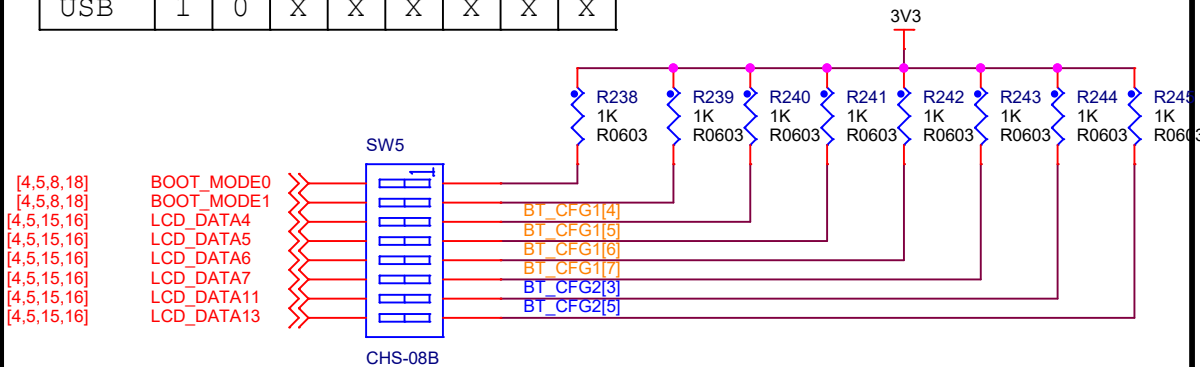
LCD-FPC接口



启动设置

拨码开关拨到ON位置为1，反之为0

| | | | | | | | | |
|------|---|---|---|---|---|---|---|---|
| SW5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| NAND | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| EMMC | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| SD | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| USB | 1 | 0 | X | X | X | X | X | X |



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Title
野火_i.MX6UL EVR底板_原理图

| | | |
|------------|------------------------------|-------------|
| Size A4 | Document Number 扩展IO/启动切换 | Rev V1.0 |
|------------|------------------------------|-------------|

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