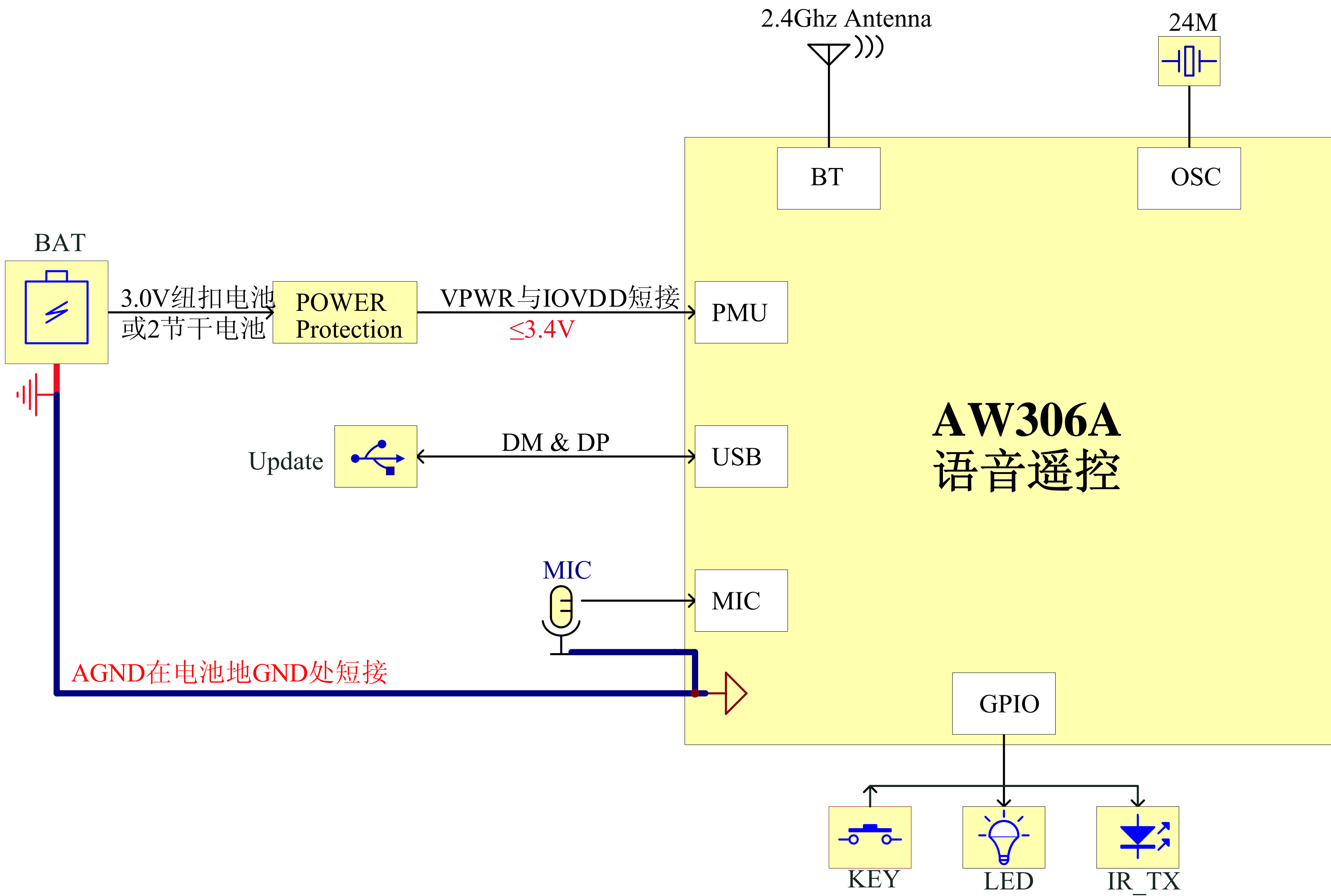
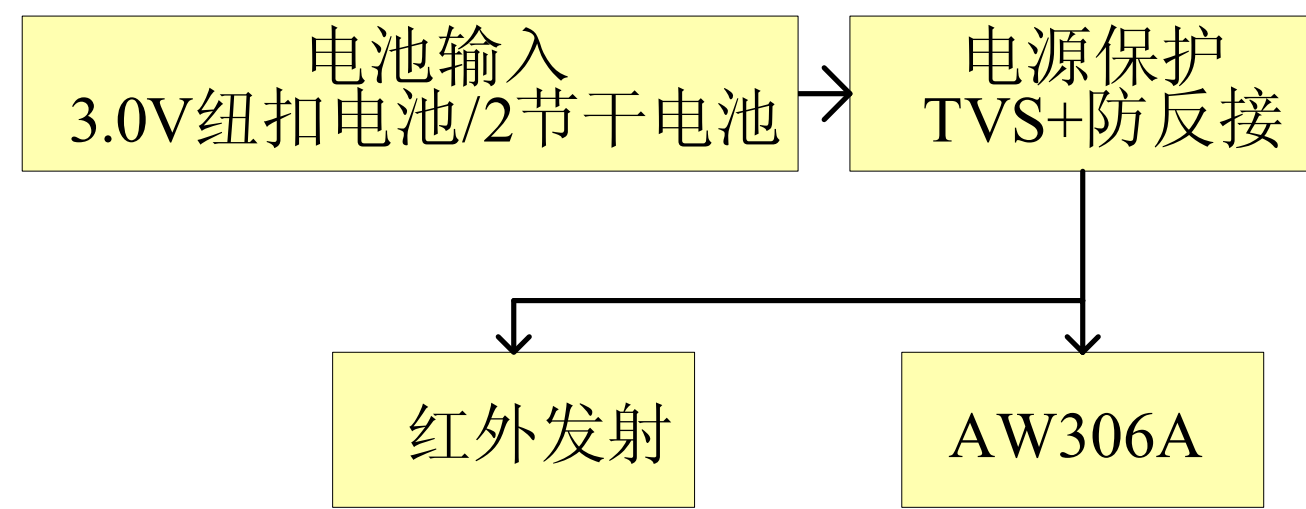


版本更新说明		
版本号	更新日期	更新说明
V1.0	2023.11.09	初始版本

AW306A BLE蓝牙语音遥控硬件框图



供电路径



版本更新说明		
版本号	更新日期	更新说明
V1.0	2023.11.09	初始版本
V1.1	2024.01.24	删除APA并联桥式负载（PBTIL）描述，调整封装IO命名等
V1.2	2024.03.01	更正部分文字说明（如USB驱动电流改为8mA）

杰理方案咨询(QQ号:1418295957, 邮箱:fae@zh-jieli.com)

## 产品安全规范

- 1、电源电路：
  - a、注意电源类型，严格按照电源输入电压范围。
  - b、使用VMPWR，则加VOVDD( $\leq 5V$ )，如3.7V锂电池5V电源适配器应用，或配合使用VMPWR，和VOVDD接法( $\leq 3.4V$ )，如3.0V纽扣电池和2节干电池应用。
  - c、注意电源纹波，防止因纹波过大引起VMPWR和VOVDD电压不稳，必要时考虑反接电路的纹波。
- 2、信号电路：
  - a、注意在信号输入电压升高下降时，确保输入电压在芯片的允许值（优于0.02V至0.2V的最好）。
  - b、注意信号输入频率，芯片支持最高频率为100KHz。
  - c、主控VPPW是接收器信号频率至少1倍，主控芯片输入耐压值 $\geq 3V$ ，其它芯片耐压值应依据其工作电压选择（防止过压，造成损坏）。
- 3、接口电路：
  - a、整机功耗必须考虑：一般接收4mA，发送45KmA。
  - b、天线输入必须加匹配电路。
- 4、测试电路：
  - a、测试电路一般要求 $\geq 40dB$ （增益用放大器电路来调整），建议留有余量设计。
  - b、VPPWR输入端必须加匹配电路（根据使用频率型号）。

## 设计注意事项

1. 电源：  
a) 内部供电为3.3V，支持供电电源VPPWR（不高于VDDHDD），输入<5.5V，和VDDHDD，输入<3.4V）；  
b) VDDHDD以3.3V电压供电，不可浮动，电压精度为±2%，1.5V/0.5V/1.0V/1.5V/2.0V/2.5V/3.0V/3.3V/4.0V/4.5V/5.0V/5.5V/6.0V/6.5V/7.0V/7.5V/8.0V/8.5V/9.0V/9.5V/10.0V/10.5V/11.0V/11.5V/12.0V/12.5V/13.0V/13.5V/14.0V/14.5V/15.0V/15.5V/16.0V/16.5V/17.0V/17.5V/18.0V/18.5V/19.0V/19.5V/20.0V/20.5V/21.0V/21.5V/22.0V/22.5V/23.0V/23.5V/24.0V/24.5V/25.0V/25.5V/26.0V/26.5V/27.0V/27.5V/28.0V/28.5V/29.0V/29.5V/30.0V/30.5V/31.0V/31.5V/32.0V/32.5V/33.0V/33.5V/34.0V/34.5V/35.0V/35.5V/36.0V/36.5V/37.0V/37.5V/38.0V/38.5V/39.0V/39.5V/40.0V/40.5V/41.0V/41.5V/42.0V/42.5V/43.0V/43.5V/44.0V/44.5V/45.0V/45.5V/46.0V/46.5V/47.0V/47.5V/48.0V/48.5V/49.0V/49.5V/50.0V/50.5V/51.0V/51.5V/52.0V/52.5V/53.0V/53.5V/54.0V/54.5V/55.0V/55.5V/56.0V/56.5V/57.0V/57.5V/58.0V/58.5V/59.0V/59.5V/60.0V/60.5V/61.0V/61.5V/62.0V/62.5V/63.0V/63.5V/64.0V/64.5V/65.0V/65.5V/66.0V/66.5V/67.0V/67.5V/68.0V/68.5V/69.0V/69.5V/70.0V/70.5V/71.0V/71.5V/72.0V/72.5V/73.0V/73.5V/74.0V/74.5V/75.0V/75.5V/76.0V/76.5V/77.0V/77.5V/78.0V/78.5V/79.0V/79.5V/80.0V/80.5V/81.0V/81.5V/82.0V/82.5V/83.0V/83.5V/84.0V/84.5V/85.0V/85.5V/86.0V/86.5V/87.0V/87.5V/88.0V/88.5V/89.0V/89.5V/90.0V/90.5V/91.0V/91.5V/92.0V/92.5V/93.0V/93.5V/94.0V/94.5V/95.0V/95.5V/96.0V/96.5V/97.0V/97.5V/98.0V/98.5V/99.0V/99.5V/100.0V/100.5V/101.0V/101.5V/102.0V/102.5V/103.0V/103.5V/104.0V/104.5V/105.0V/105.5V/106.0V/106.5V/107.0V/107.5V/108.0V/108.5V/109.0V/109.5V/110.0V/110.5V/111.0V/111.5V/112.0V/112.5V/113.0V/113.5V/114.0V/114.5V/115.0V/115.5V/116.0V/116.5V/117.0V/117.5V/118.0V/118.5V/119.0V/119.5V/120.0V/120.5V/121.0V/121.5V/122.0V/122.5V/123.0V/123.5V/124.0V/124.5V/125.0V/125.5V/126.0V/126.5V/127.0V/127.5V/128.0V/128.5V/129.0V/129.5V/130.0V/130.5V/131.0V/131.5V/132.0V/132.5V/133.0V/133.5V/134.0V/134.5V/135.0V/135.5V/136.0V/136.5V/137.0V/137.5V/138.0V/138.5V/139.0V/139.5V/140.0V/140.5V/141.0V/141.5V/142.0V/142.5V/143.0V/143.5V/144.0V/144.5V/145.0V/145.5V/146.0V/146.5V/147.0V/147.5V/148.0V/148.5V/149.0V/149.5V/150.0V/150.5V/151.0V/151.5V/152.0V/152.5V/153.0V/153.5V/154.0V/154.5V/155.0V/155.5V/156.0V/156.5V/157.0V/157.5V/158.0V/158.5V/159.0V/159.5V/160.0V/160.5V/161.0V/161.5V/162.0V/162.5V/163.0V/163.5V/164.0V/164.5V/165.0V/165.5V/166.0V/166.5V/167.0V/167.5V/168.0V/168.5V/169.0V/169.5V/170.0V/170.5V/171.0V/171.5V/172.0V/172.5V/173.0V/173.5V/174.0V/174.5V/175.0V/175.5V/176.0V/176.5V/177.0V/177.5V/178.0V/178.5V/179.0V/179.5V/180.0V/180.5V/181.0V/181.5V/182.0V/182.5V/183.0V/183.5V/184.0V/184.5V/185.0V/185.5V/186.0V/186.5V/187.0V/187.5V/188.0V/188.5V/189.0V/189.5V/190.0V/190.5V/191.0V/191.5V/192.0V/192.5V/193.0V/193.5V/194.0V/194.5V/195.0V/195.5V/196.0V/196.5V/197.0V/197.5V/198.0V/198.5V/199.0V/199.5V/200.0V/200.5V/201.0V/201.5V/202.0V/202.5V/203.0V/203.5V/204.0V/204.5V/205.0V/205.5V/206.0V/206.5V/207.0V/207.5V/208.0V/208.5V/209.0V/209.5V/210.0V/210.5V/211.0V/211.5V/212.0V/212.5V/213.0V/213.5V/214.0V/214.5V/215.0V/215.5V/216.0V/216.5V/217.0V/217.5V/218.0V/218.5V/219.0V/219.5V/220.0V/220.5V/221.0V/221.5V/222.0V/222.5V/223.0V/223.5V/224.0V/224.5V/225.0V/225.5V/226.0V/226.5V/227.0V/227.5V/228.0V/228.5V/229.0V/229.5V/230.0V/230.5V/231.0V/231.5V/232.0V/232.5V/233.0V/233.5V/234.0V/234.5V/235.0V/235.5V/236.0V/236.5V/237.0V/237.5V/238.0V/238.5V/239.0V/239.5V/240.0V/240.5V/241.0V/241.5V/242.0V/242.5V/243.0V/243.5V/244.0V/244.5V/245.0V/245.5V/246.0V/246.5V/247.0V/247.5V/248.0V/248.5V/249.0V/249.5V/250.0V/250.5V/251.0V/251.5V/252.0V/252.5V/253.0V/253.5V/254.0V/254.5V/255.0V/255.5V/256.0V/256.5V/257.0V/257.5V/258.0V/258.5V/259.0V/259.5V/260.0V/260.5V/261.0V/261.5V/262.0V/262.5V/263.0V/263.5V/264.0V/264.5V/265.0V/265.5V/266.0V/266.5V/267.0V/267.5V/268.0V/268.5V/269.0V/269.5V/270.0V/270.5V/271.0V/271.5V/272.0V/272.5V/273.0V/273.5V/274.0V/274.5V/275.0V/275.5V/276.0V/276.5V/277.0V/277.5V/278.0V/278.5V/279.0V/279.5V/280.0V/280.5V/281.0V/281.5V/282.0V/282.5V/283.0V/283.5V/284.0V/284.5V/285.0V/285.5V/286.0V/286.5V/287.0V/287.5V/288.0V/288.5V/289.0V/289.5V/290.0V/290.5V/291.0V/291.5V/292.0V/292.5V/293.0V/293.5V/294.0V/294.5V/295.0V/295.5V/296.0V/296.5V/297.0V/297.5V/298.0V/298.5V/299.0V/299.5V/300.0V/300.5V/301.0V/301.5V/302.0

## IO名词解析

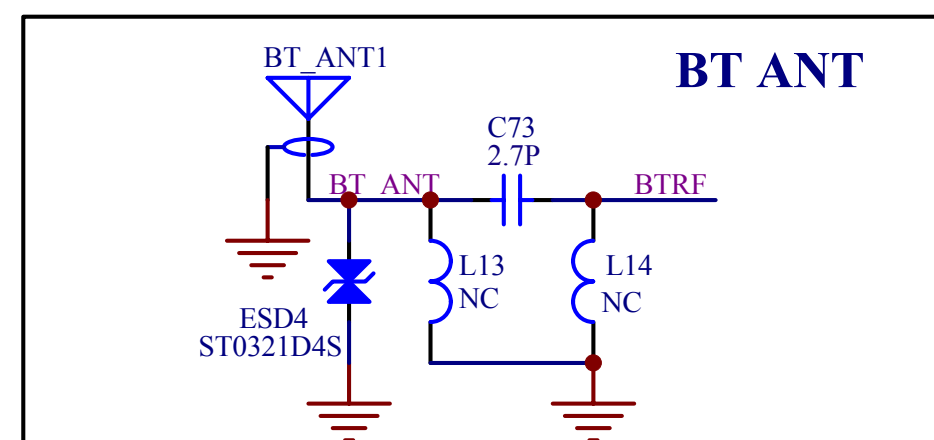
VPWR: 芯片供电输入端;  
APA: 音频处理器 (D类功放);  
AIN\_x: 模拟音频输入 (x为通道);  
ADCx: ADC采样输入检测 (x为通道);  
THx: 内置触摸 (x为通道);  
Update: 串口更新程序;

## AGND走线要求

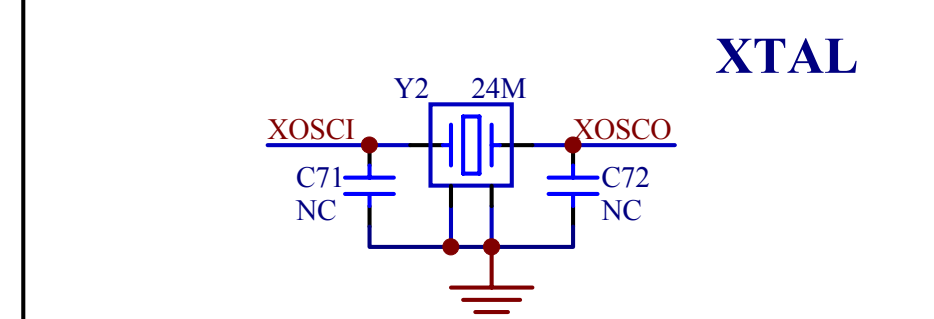
AGND 地走线要求：

- 1、PCB Layout 需要分地（区分 AGND 和 GND）
- 2、AGND 走线顺序：音频设备 AGND→主控 AGND 引脚→功放 Bypass 电容或总电源供电入口 GND 处短接。

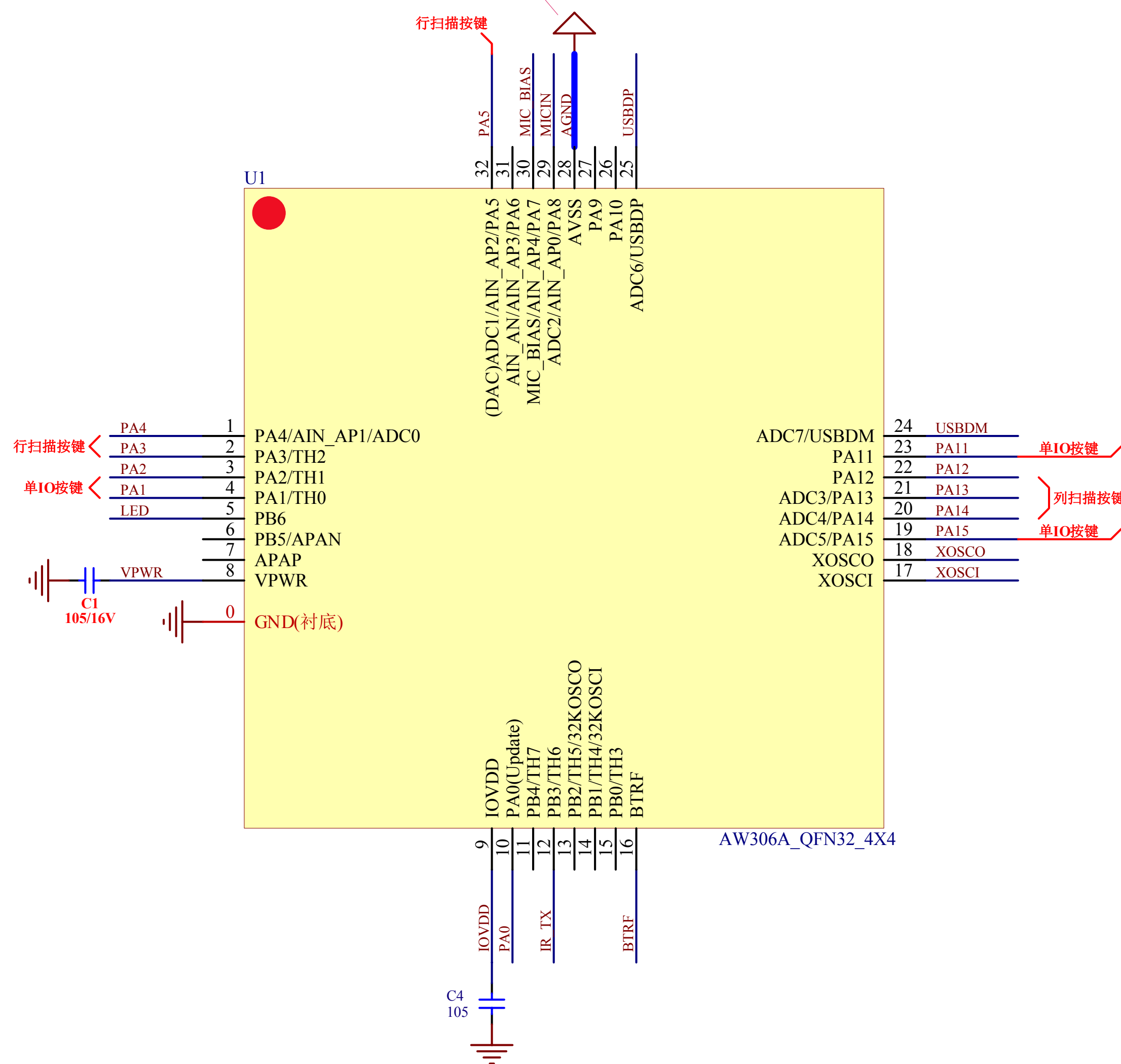
即 MIC/PA/UX/A 等音频模拟地，单独大面积走线至主控 AGND 引脚，再从主控 AGND 引脚，单点走线到功放 Bypass 电容或总电源供电入口 GND 处短接；若板空间受限，可尝试 AGND 在控制板底地短接（注意验证音频设备是否有响声）。



- 1、ESD管严禁省略，请选用以下推荐型号（0402封装）：  
ST0321D4S、RST9361MA、ESD2D005LA
- 2、 $\Pi$ 型匹配网络参数，以实际样机调试结果为准。
- 3、优选倒F天线。



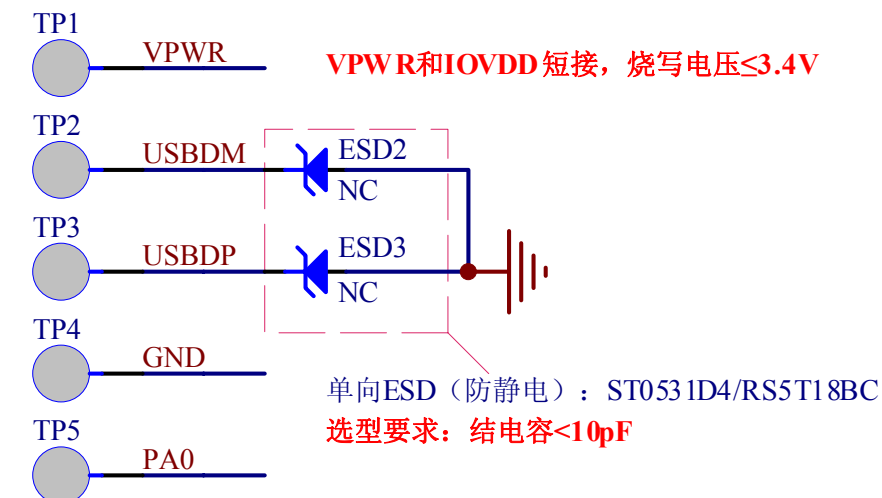
晶振选型规格：  
1、负载电容: 12PF。  
2、频偏偏差:  $\pm 10\text{PPM}$ 以内



*MCU*

## 烧写场景说明

烧写说明	预留烧写测试点	备注
烧写场景		
USB更新程序	VPWR、USBDM、USBDP、GND	
串口更新程序	VPWR、PA0、GND	

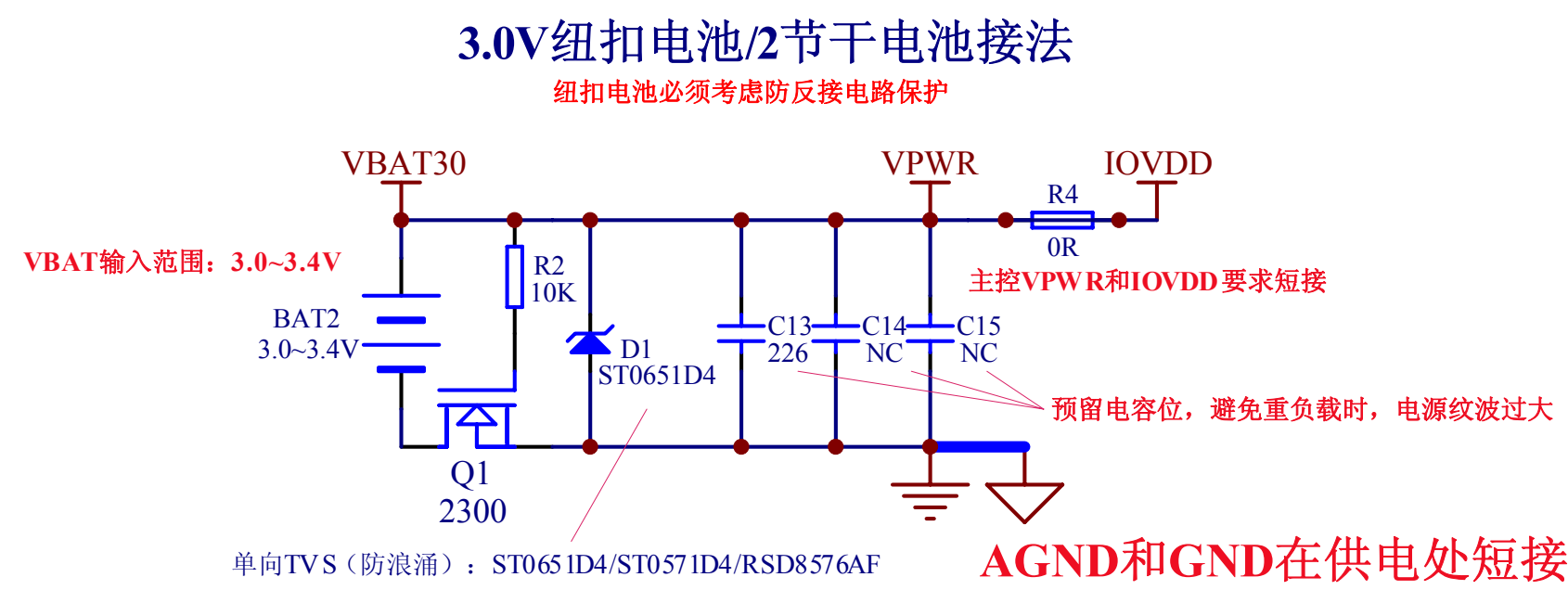


### TEST POINT

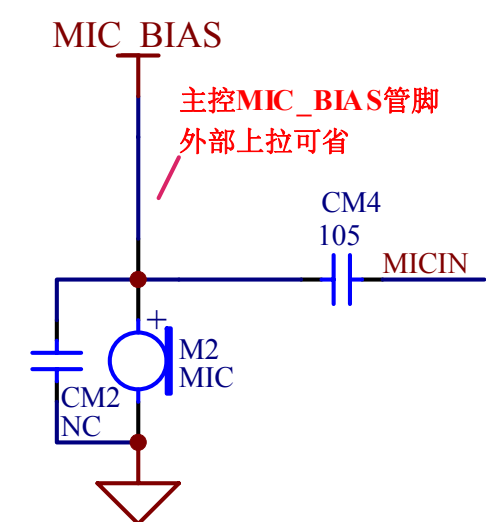
## 供电场景说明

供电说明	输入电压	适用场景
供电至VPWR (和IOVDD短接)	≤3.4V	如3.0V纽扣电池/2节干电池应用

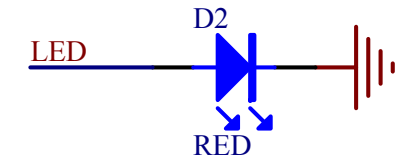
注：电源输入需做好保护，防过压/过流/反接/浪涌/静电等。连接外设时，应避免过载输出。



**POWER**



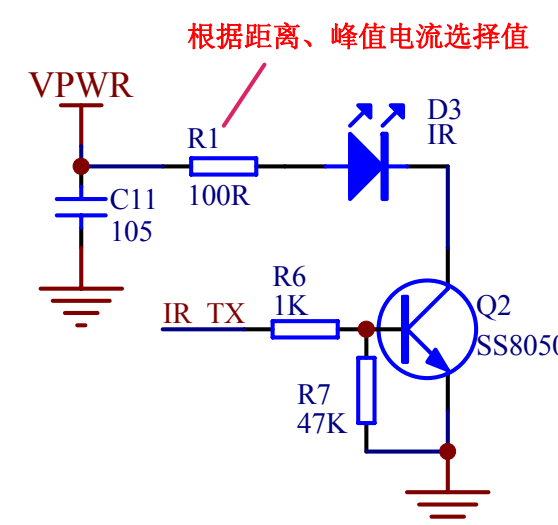
*MIC*



**LED**

## 红外发射说明

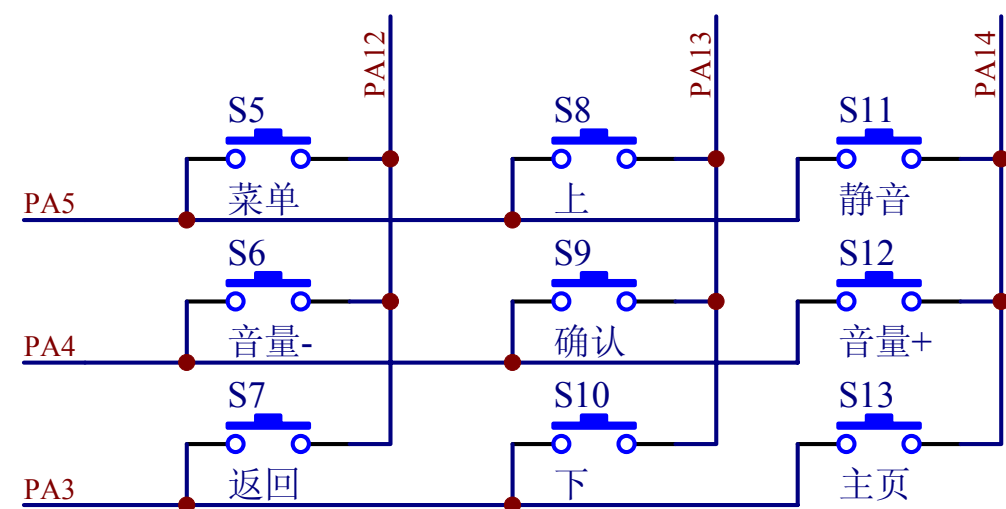
注：芯片无内置红外发射单元，通过软件模拟发射，可灵活选用IO。



*IR\_TX*

## 按键应用说明

- 1、电源、语音按键，若要求唤醒功能，建议单IO控制
- 2、左、右按键，若要求组合按键功能，建议单IO控制



**KEY**