

F bocam\_FG 132\_Series Reference design\_V1.0.sch

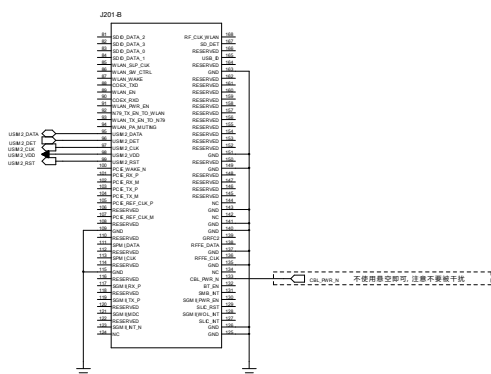
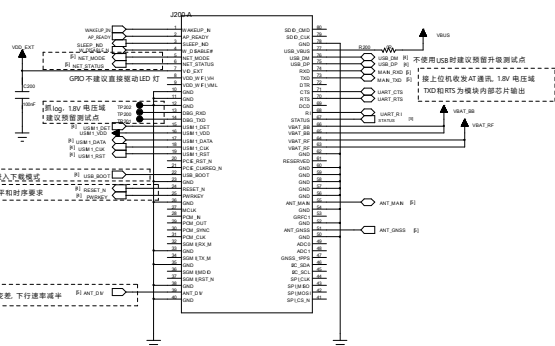
REVISION : V1.0  
DATE : 2023/11/15  
SECRET : CONFIDENTIAL

COMPANY:		
TITLE: 00 COVER		
DESIGNED BY:	Zhang Shun	PROJECT: FG132
CHECKED BY:	JinHao	REV: V1.0
DATED:	2023/11/15	SHEET: 1 OF 5

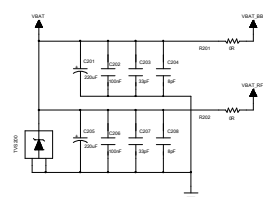
Date	Change Note
2023-11-15	V1.0 Release

Project	Project Name		
Version	V1.0.0		
Author	John Doe	Product	XYZ
Created	2023-11-15	Rev	1.0
Updated	2023-11-15	Revised	1.0.1

## MODULE

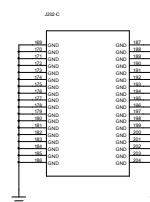


## VBAT



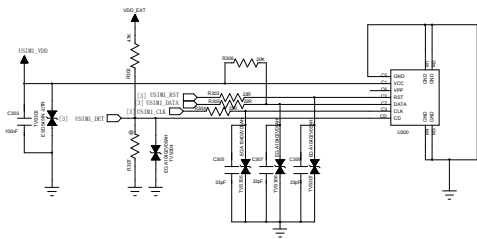
VBAT3.3-4.3V,推荐3.8V  
VBAT供电电源要求至少2.6A的额定电流输出能力  
VBAT要求星型走线到模块  
电容尽可能靠近模块VBAT管脚放置  
VBAT线宽要求3mm以上,或直接铺铜  
VBAT需预留TVS/浪涌管位置,预防ESD和浪涌

GND



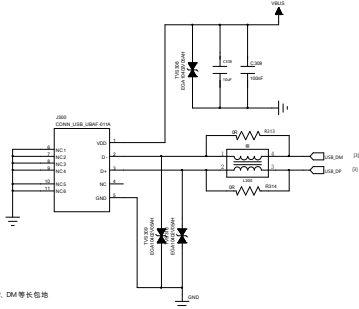
COMPANY:			
TITLE:	02_MODULE		
DESIGNED BY:	Zheng Shui	PROJECT:	FG132
CHECKED BY:	Jh Habo	REV:	V1.0
DATED:	2023/11/15	SHEET:	3 OF 5

SIM 卡接口



SIM卡功能若不使用, 建议关闭热插拔功能  
SIM卡座布局尽量靠近模块, 远离RF天线, DCDC电源, 时钟信号等强干扰源  
SIM卡走线尽量短, USIM\_CLK和USIM\_DATA信号包地 隔离, 避免干扰  
SIM\_DATA线需外部上拉, SIM卡信号要求接TVS, 避免静电和 电荷积累  
SIM卡座必须按照能看书要求对焊片下方PCB做净空, 避免引脚位置焊片刺破锡面与铜皮短路

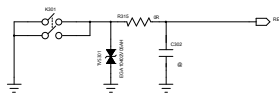
USB 接口



USB信号线端冲电阻方便调试, 走线尽量短, DP, DM等长包地

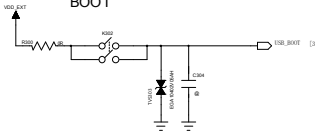
RESET & BOOT Control

RESET



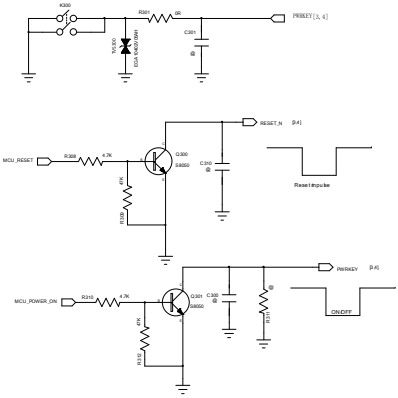
按键控制模块开关机和RESET

BOOT



要求客户预装  
用USB接口加载软件版本时, 拉高BOOT引脚可进入U盘模式

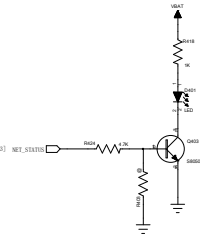
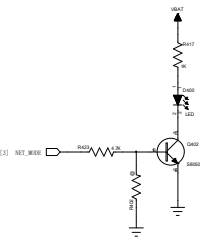
Power ON/OFF&RESET Control



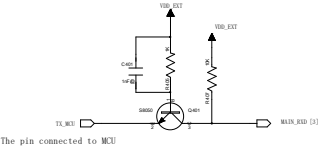
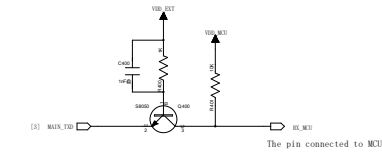
POWER\_ON/RESET电源端分压为5V, 请注意电压域的匹配

COMPANY:		
TITLE:	03.SIM_USB_PWRKEY_RESET_BOOT	
DESIGNED BY:	Zheng Shuai	PROJECT: PG132
CHECKED BY:	JinHabo	REV: V1.0
DATED:	2023/11/15	SHEET: 4 OF 5

LPG

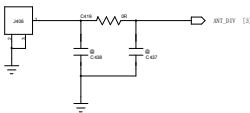
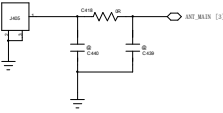
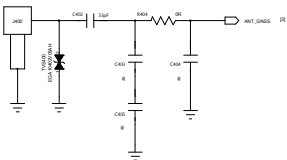


电平转换电路



VCC MCU 是 MCU 的电压域  
电平转换也可使用转接 IC(AW9910Q/AW9910A)  
三极管电平转换电路不适用于波特率超过 400Kbps 的应用  
其他主串口信号的电平转换电路可以参考上电路  
当串口波特率超过 115200 时, 1k 电阻有助于提高波形质量

天线



天线电路预留 a 型焊盘, 便于后期调试  
射频天线单端阻抗要求 50Ω, PCB 必须做好阻抗控制, 阻抗如下:  
依据阻抗计算公式参考, 阻抗控制阻抗的上下偏差是完整, 影响阻抗连续性  
阻抗信号走线阻抗控制(GND 铜皮保持一层: 0.25 或 0.3mm 间距)  
阻抗信号走线阻抗控制, 折角处过渡圆滑  
射频天线走线远离干扰源, 要求服务 5 区域, 避免辐射

COMPANY:	
TITLE: GA_LPG_UART_ANT	
DESIGNED BY: Zheng Shuai	PROJECT: PG 132
CHECKED BY: Jin Haho	REV: V1.0
DATED: 2023/11/15	SHEET: 5 OF 5