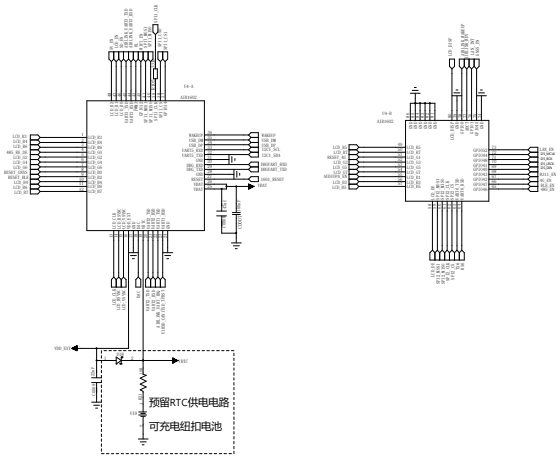
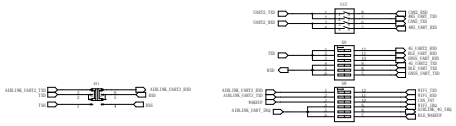
Air1602开发板



信号切换 拨码开关



同一信号可复用为多种功能
通过拨码开关进行通断控制
方便验证不同的功能

COMPANY:	合宙LuatOS		
TITLE:	EVB_Air1601_V1.0		
DRAWN: ZhuPingjun	DATE: 2026-1-21		
CHECKED: laotu	DATE: 2026-1-21		
APPLICATE: laotu	DATE: 2026-1-21		
APPROVED: laotu	DATE: 2026-1-21		
CODE: 7	SIZE: A0	DRAWING NO:	REV:
SCALE:		SHEET: 1 OF 16	

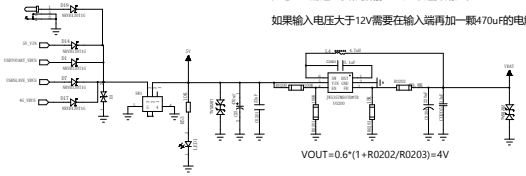
DC-DC 方案

下图是DCDC开关电源的参考设计，采用的是杰华特公司的JW5357开关电源芯片

它的最大输出电流在3A，同时输入电压范围4.5V~18V

注意C47的选型要根据输入电压来选择耐压值。

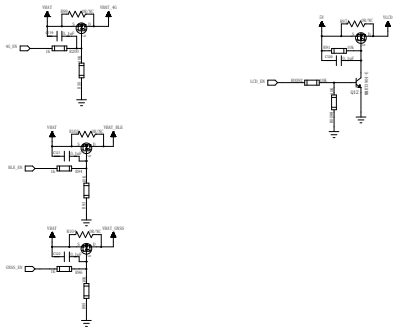
如果输入电压大于12V需要在输入端再加一颗470uf的电解电容



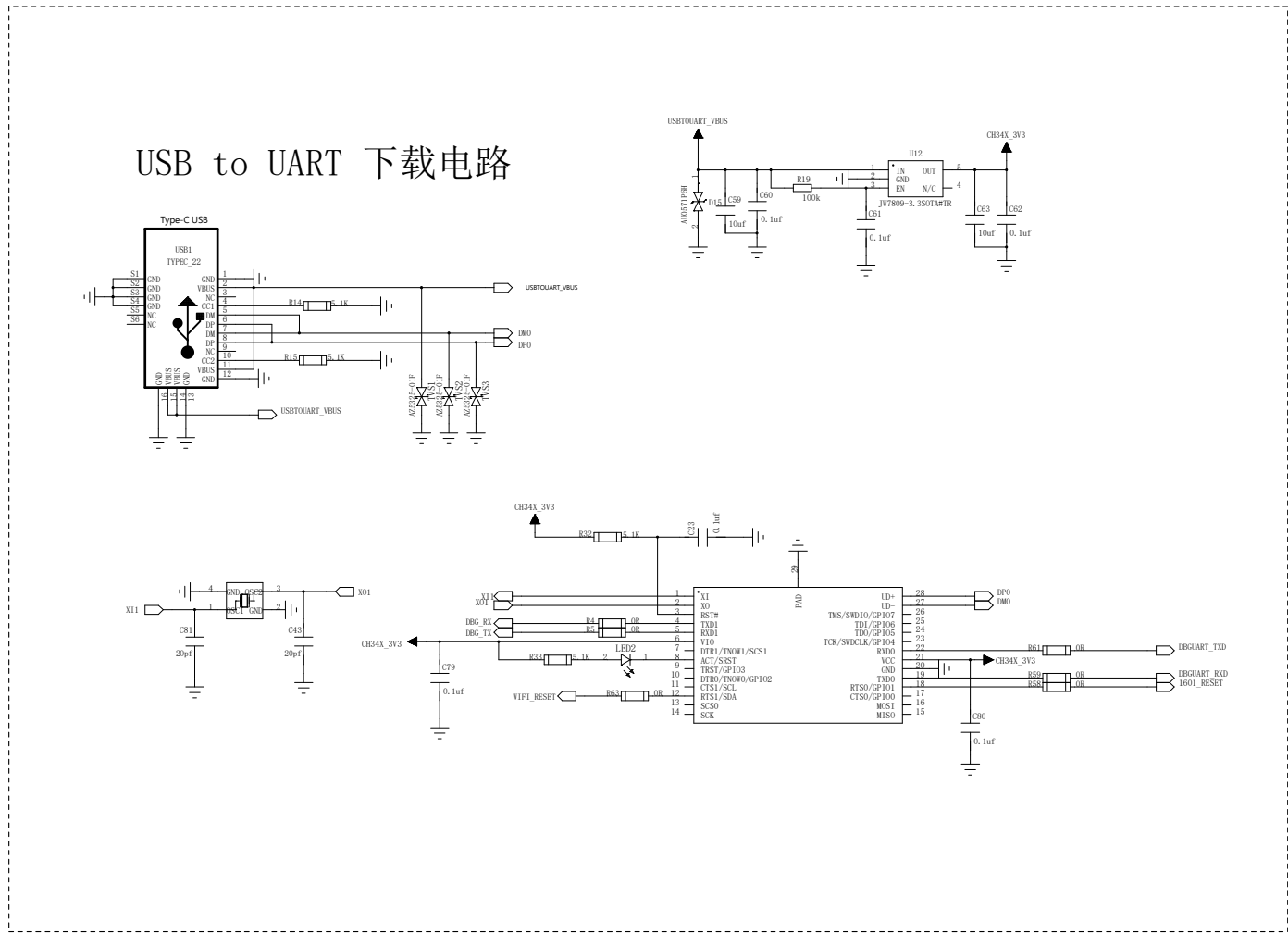
Air1601的VBAT供电范围3.3V-4.35V

Air1601内置3.3V LDO为芯片供电

此LDO即为PIN16：VDD_EXT



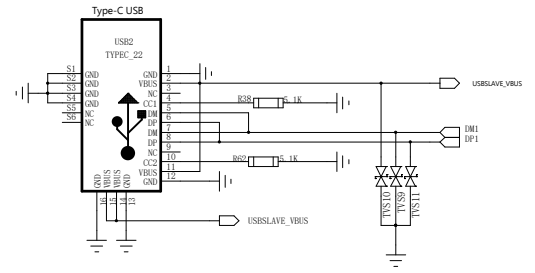
DRAWN: ZhaPingJun	DATE: 2026-1-21	合宙LuatOS	
CHECKED: laolu	DATE: 2026-1-21	TITLE: EVB_Air1601_V1.0	
APPLICATION:	DATE: 2026-1-21	CODE: 7	SIZE: A0
APPROVED: laolu	DATE: 2026-1-21	DRAWING NO: 20260210	REV: 1
		SCALE:	SHEET 2 OF 16



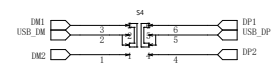
REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

		COMPANY: 合宙LuatOS			
		TITLE: EVB_Air1601_V1.0			
DRAWN: ZhuPingjun	DATED: 2026-1-21				
CHECKED: laolu	DATED: 2026-1-21	CODE: 7	SIZE: A0	DRAWING NO: 20260210	REV: 1
QUALITY CONTROL: laolu	DATED: 2026-1-21				
RELEASED: laolu	DATED: 2026-1-21	SCALE:		SHEET: 3 OF 16	

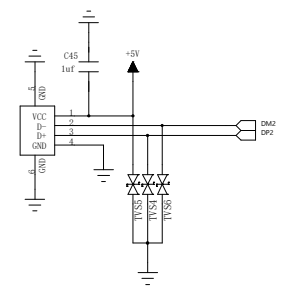
USB Slave

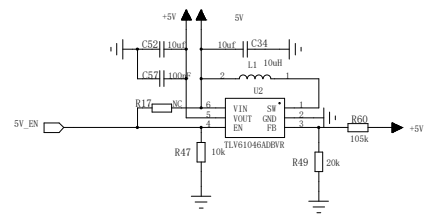


UVC vs USB切换



USB HOST 之 UVC

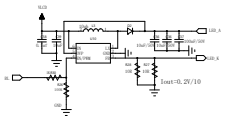


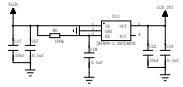


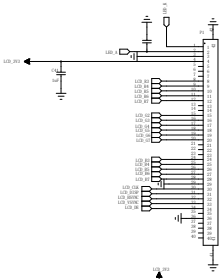
UVC摄像头

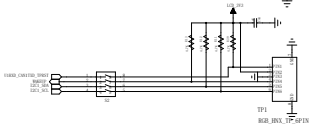
		COMPANY: 合宙LuatOS				
		TITLE: EVB_Air1601_V1.0				
DRAWN: ZhuPingjun	DATED: 2026-1-21	CODE: 7	SIZE: A0	DRAWING NO: 20260210		REV: 1
CHECKED: laolu	DATED: 2026-1-21					
QUALITY CONTROL: laolu	DATED: 2026-1-21					
RELEASED: laolu	DATED: 2026-1-21	SCALE:			SHEET: 4 OF 16	

LCD接口



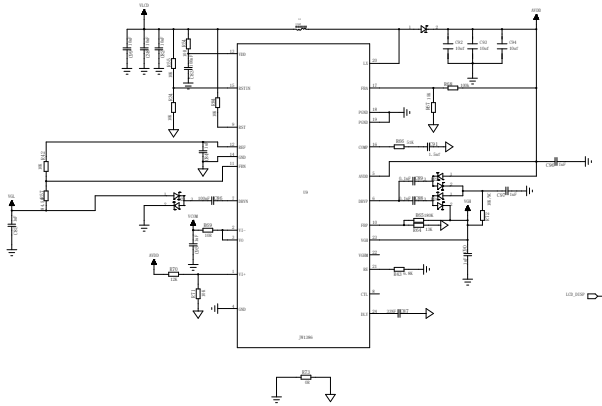


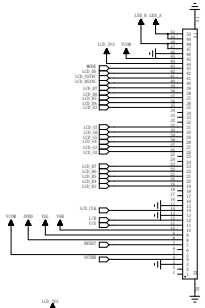




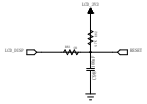
合宙会提供已调试好的LCD模组列表给大家选择

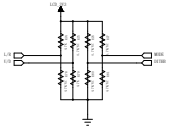
也欢迎大家推荐LCD模组供我们调试验证





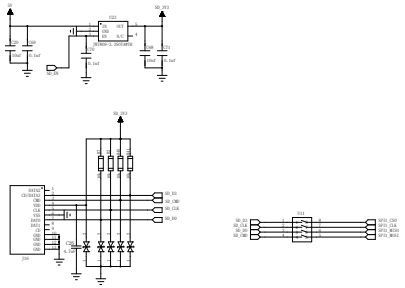
50P 输出上接





COMPANY:	合宙LuatOS		
TITLE:	EVB_Air1601_V1.0		
DRAWN: ZhaPingJun	DATE: 2026-1-21		
CHECKED: laolu	DATE: 2026-1-21		
APPLIED: laolu	DATE: 2026-1-21		
APPROVED: laolu	DATE: 2026-1-21		
CODE: 7	SIZE: A0	DRAWING NO: 20260210	REV: 1
SCALE:		SHEET: 8 OF 16	

SPI接口SD卡



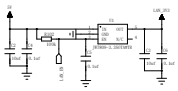
REVISION RECORD			
LTR	ECO NO.	APPROVED	DATE

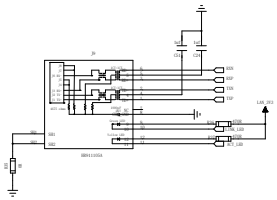
DRAWN: ZhaPingJun	DATE: 2026-1-21		
CHECKED: laolu	DATE: 2026-1-21		
APPLICATION:	DATE: 2026-1-21		
RELEASED: laolu	DATE: 2026-1-21		

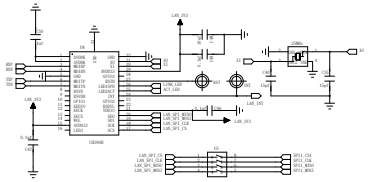
COMPANY: 合宙LuatOS			
TITLE: EVB_Air1601_V1.0			
CODE: 7	SIZE: A0	DRAWING NO: 20260210	REV: 1
SCALE:		SHEET: 6 OF 16	

REVISION RECORD			
LTR	ECO NO.	APPROVED	DATE

SPI接口CH390H 以太网

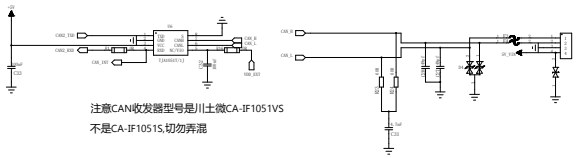






DRAWN: ZhaPingJun	DATE: 2026-1-21	合宙LuatOS
CHECKED: laolu	DATE: 2026-1-21	EVB_Air1601_V1.0
APPLICATION: laolu	DATE: 2026-1-21	CODE: 7 / SIZE: A0 / DRAWING NO: / REV:
RELEASED: laolu	DATE: 2026-1-21	SCALE: / SHEET: 7 OF 16

CAN接口



注意CAN收发器型号是川土微CA-IF1051VS

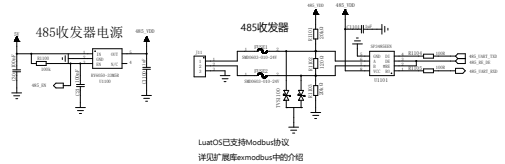
不是CA-IF1051S,切勿弄混

1,CMCC,共模扼流圈,推荐型号共模扼流线圈ACT45B-101-2P;

2,TVSS1200,推荐型号PESD1CAN；

DRAWN: ZhaPingJun	DATE: 2026-1-21	COMPANY: 合宙LuatOS	
CHECKED: laolu	DATE: 2026-1-21	TITLE: EVB_Air1601_V1.0	
APPLICATION:	DATE:	CODE: 7	SIZE: A0
APPROVED: laolu	DATE: 2026-1-21	DRAWING NO:	REV:
		SCALE:	SHEET: 8 OF 16

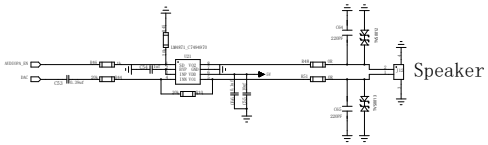
UART TO 485



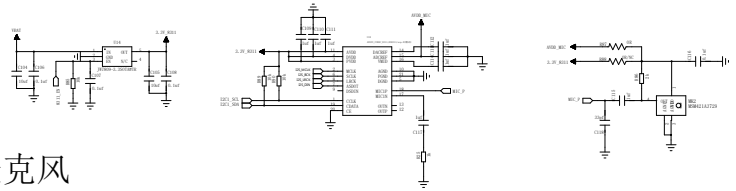
REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

DRAWN: ZhuPingJun	DATE: 2026-1-21	COMPANY: 合宙LuatOS	
CHECKED: laolu	DATE: 2026-1-21	TITLE: EVB_Air1601_V1.0	
APPLICATION:	DATE:	CODE: 7	SIZE: A0
APPROVED: laolu	DATE: 2026-1-21	DRAWING NO: 20260210	REV: 1
MFG APPRO: laolu	DATE: 2026-1-21	SHEET: 9 OF 16	

音频输出(喇叭)参考电路



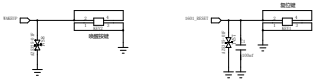
麦克风



DRAWN:	ZhaPingJun	DATE:	2026-1-21
CHECKED:	laolu	DATE:	2026-1-21
APPLICATION:	laolu	DATE:	2026-1-21
RELEASED:	laolu	DATE:	2026-1-21

NAME:	合宙LuatOS		
TITLE:	EVB_Air1601_V1.0		
CODE:	SIZE:	DRAWING NO:	REV:
7	A0	20260210	1
SCALE:		SHEET: 10F 16	

按键

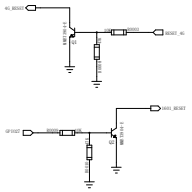


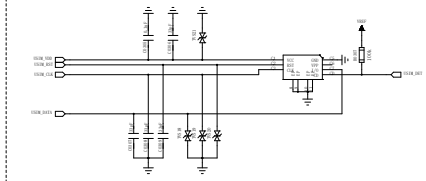
REVISION RECORD			
LTR	ECO NO.	APPROVED	DATE

DRAWN: ZhaPingJun	DATE: 2026-1-21		
CHECKED: laolu	DATE: 2026-1-21		
QUALITY CONTROL: laolu	DATE: 2026-1-21		
RELEASED: laolu	DATE: 2026-1-21		

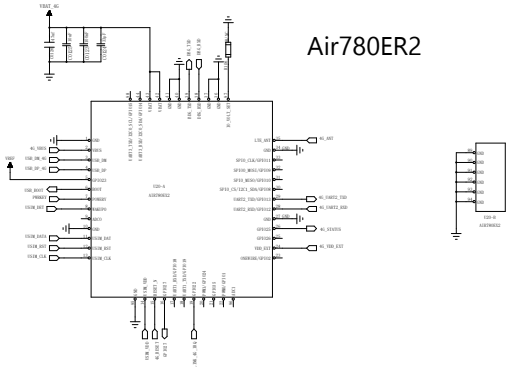
COMPANY: 合宙LuatOS			
TITLE: EVB_Air1601_V1.0			
CODE: 7	SIZE: A0	DRAWING NO: 20260210	REV: 1
SCALE:		SHEET: 13F 16	

互为看门狗

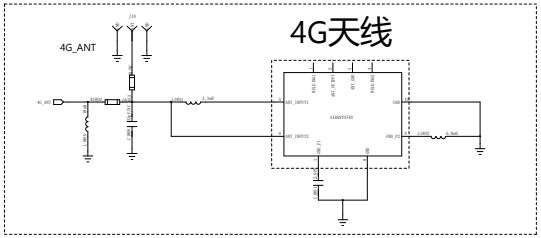




Air780ER2

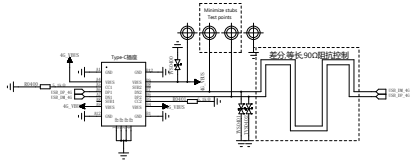


4G天线



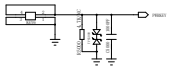
1,本参考设计使用的是合宙贴片式PCB天线:AirANT4073,尺寸40*7*3mm;
2,合宙还有多款尺寸不同、封装各异的贴片式PCB天线可供选择;
3,匹配电路已调试好,PCB封装(含匹配电路)已做成标准封装,欢迎咨询;

USB

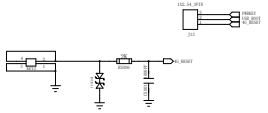


1.USB走线需要严格按照差分线控制，做到平行和等长；
2.USB走线的阻抗需要控制到差分90欧姆；
3.需要尽可能的减少USB走线的stubs，减少信号反射；USB信号的测试点最好直接放在走线上以减少stub
4.在靠近USB连接器或者测试点的地方添加TVS保护管，由于USB的速率较高，需保证选用的TVS保护管的寄生电容小于1pF
5.VBUS作为USB插入检测，必须连接USB电源或者外接电源，否则USB无法被检测到，VBUS的检测电压要大于3.3V

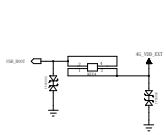
按键开机



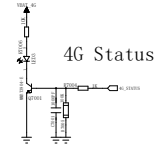
RESET_N 复位

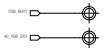


USB下载使能



4G Status

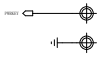




USB_BOOT 在开机过程中拉高可以进入USB下载模式
建议预留测试点



DGB_UART，也常备称作为UART0，用作底层日志的抓取
波特率921600bps，不可更改
不可作为通用UART使用



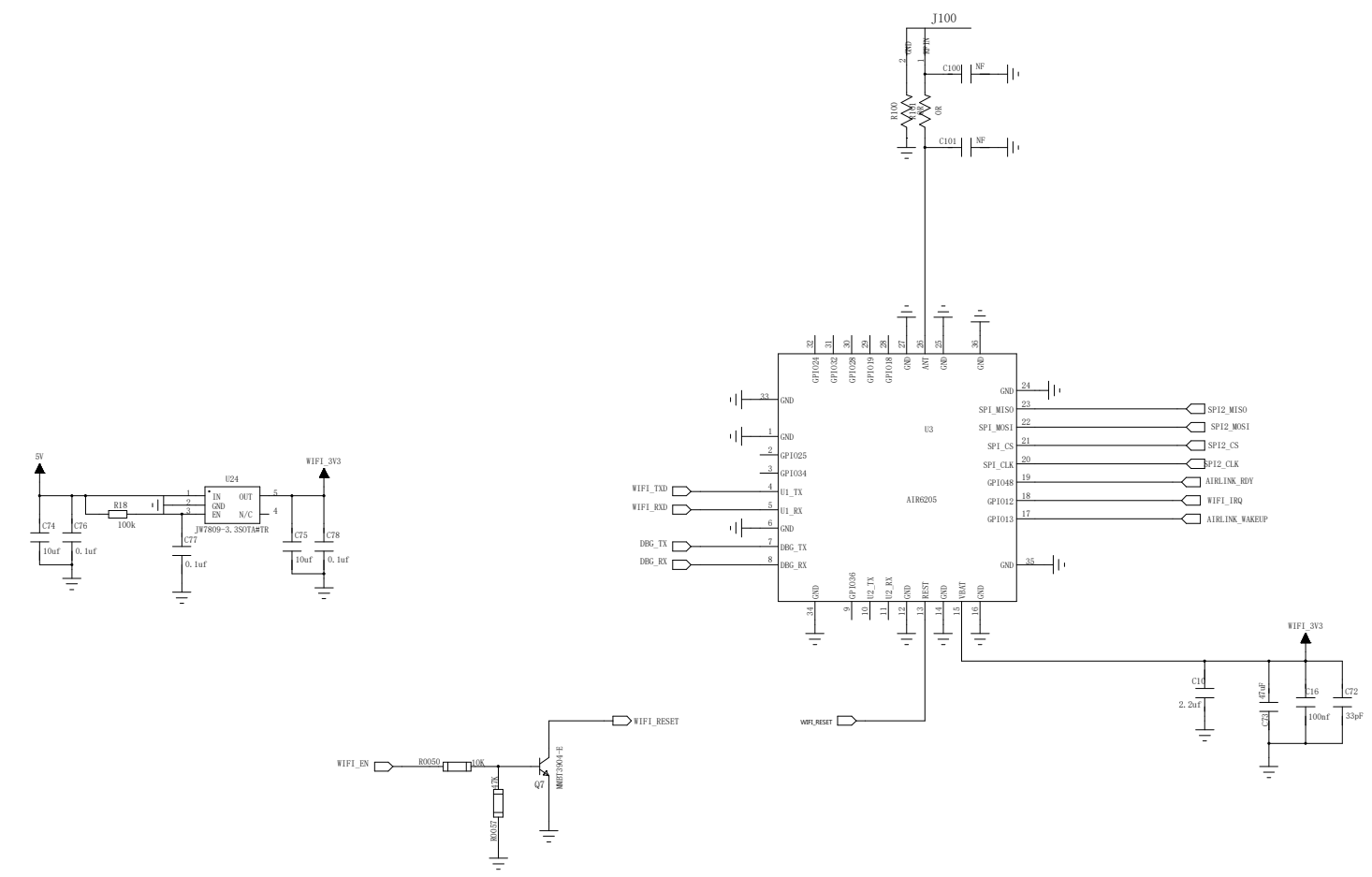
开机键测试点，设计批量升级夹具时会用到



VBAT供电测试点，设计批量升级夹具时会用到

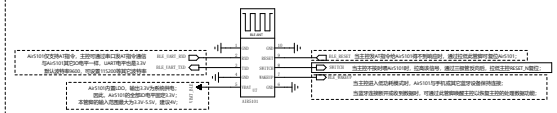
DRAWN: ZhaPingJun	DATE: 2026-1-21	合宙LuatOS	
CHECKED: laolu	DATE: 2026-1-21	TITLE: EVB_Air1601_V1.0	
APPLICATE: laolu	DATE: 2026-1-21	CODE: 7	SIZE: A0
APPROVED: laolu	DATE: 2026-1-21	DRAWING NO: 20260210	REV: 1
		SCALE:	SHEET: 12F 16

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



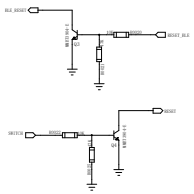
		COMPANY: 合宙LuatOS			
DRAWN: ZhuPingjun	DATED: 2026-1-21	TITLE: EVB_Air1601_V1.0			
CHECKED: laolu	DATED: 2026-1-21	CODE: 7	SIZE: A0	DRAWING NO: 20260210	REV: 1
QUALITY CONTROL: laolu	DATED: 2026-1-21				
RELEASED: laolu	DATED: 2026-1-21	SCALE:		SHEET: 13 OF 16	

BLE 5.2模组Air5101



更多资料

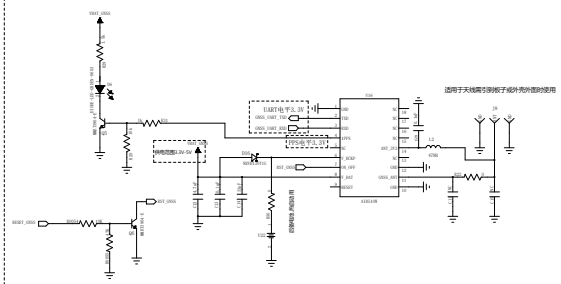
https://docs.openluat.com/air5101/product/shouce/



DRAWN:	ZhaPingJun	DATE:	2026-1-21
CHECKED:	laolu	DATE:	2026-1-21
APPLIED CHECKED:	laolu	DATE:	2026-1-21
RELEASED:	laolu	DATE:	2026-1-21

COMPANY:	合宙LuatOS		
TITLE:	EVB_Air1601_V1.0		
CODE:	SIZE:	DRAWING NO:	REV:
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SCALE:		SHEET: 14F 16	

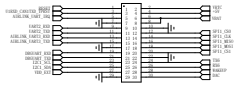
Air510W有源天线参考设计



DRAWN: ZhaPingJun	DATE: 2026-1-21	PROJECT: 合宙LuatOS	
CHECKED: laolu	DATE: 2026-1-21	TITLE: EVB_Air1601_V1.0	
APPLICATION:	DATE: 2026-1-21	CODE: 7	SIZE: A0
RELEASED: laolu	DATE: 2026-1-21	DRAWING NO: 20260210	REV: 1
		SCALE:	SHEET: 1 OF 16

REVISION RECORD			
LTR	ECO NO.	APPROVED	DATE

插针



螺丝孔



方便外设及信号电平测试

DRAWN: ZhaPingJun	DATE: 2026-1-21	COMPANY: 合宙LuatOS	
CHECKED: laolu	DATE: 2026-1-21	TITLE: EVB_Air1601_V1.0	
APPLIED CHECKED: laolu	DATE: 2026-1-21	CODE: 7	SIZE: A0
RELEASED: laolu	DATE: 2026-1-21	DRAWING NO: 20260210	REV: 1
		SCALE:	SHEET: 16F 16