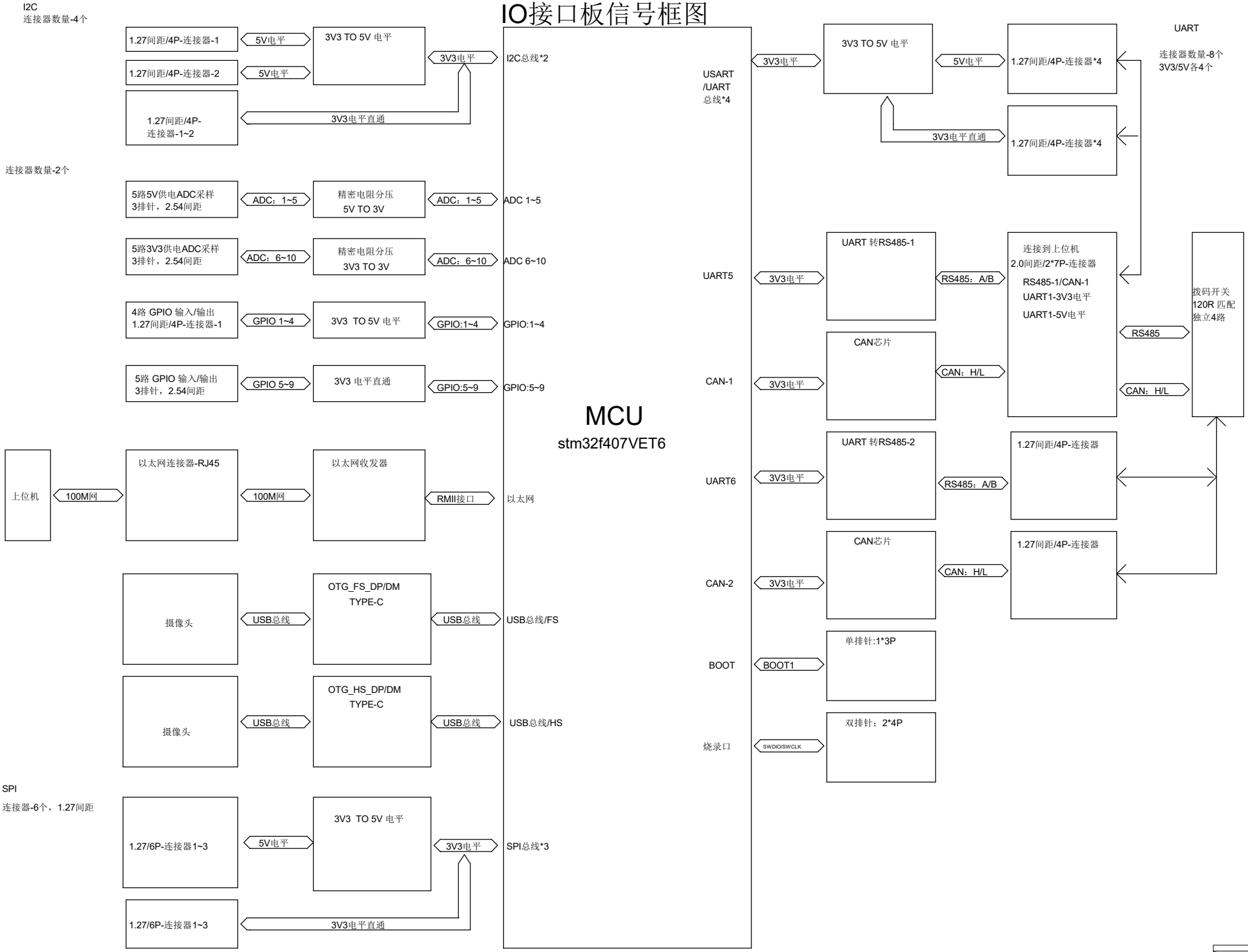
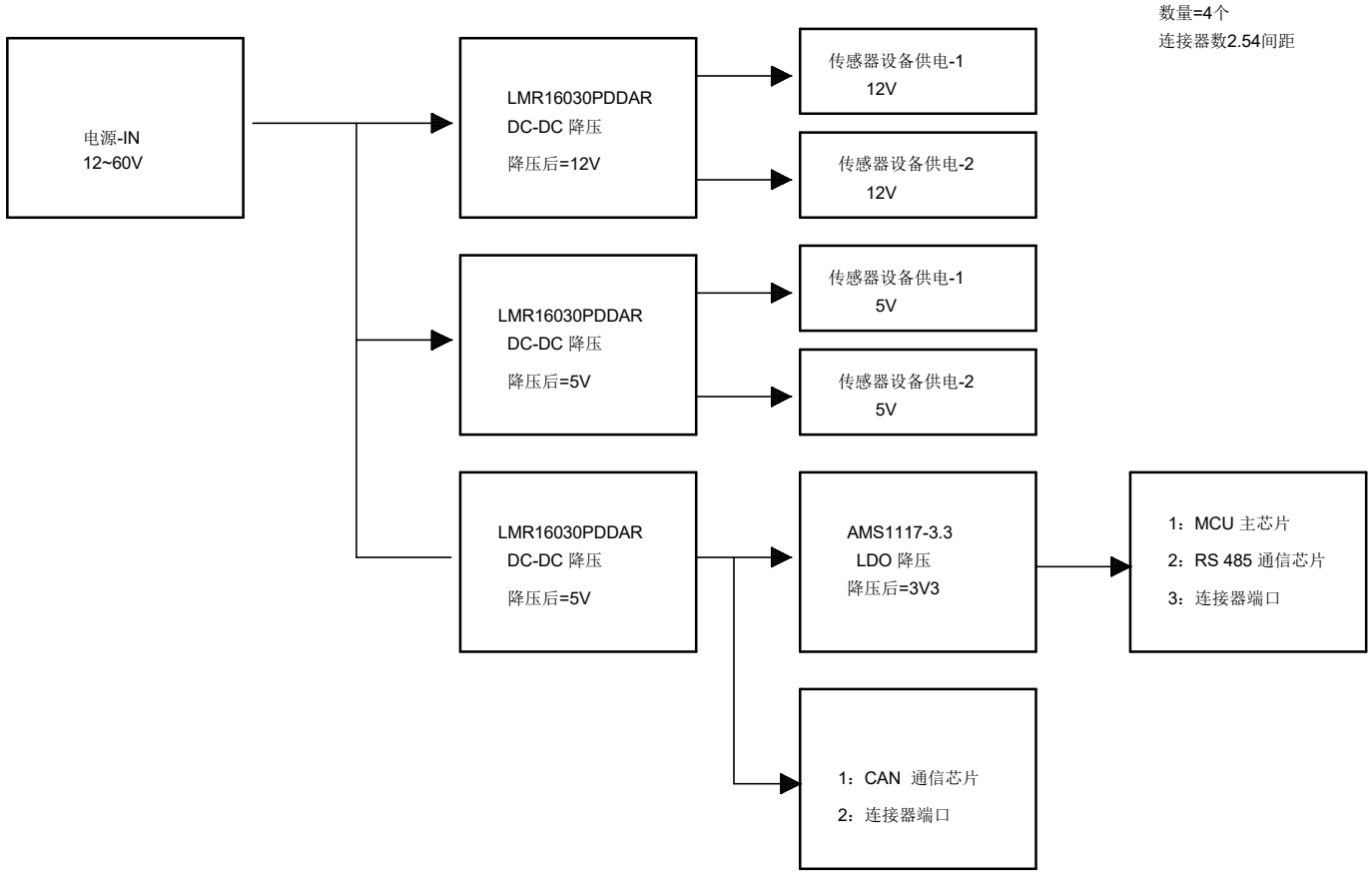
IO接口板信号框图


I2C
连接器数量-4个
1.27间距/4P-连接器-1
1.27间距/4P-连接器-2
1.27间距/4P-
连接器-1~2
5V电平
5V电平
3V3 TO 5V 电平
3V3电平
3V3电平直通
I2C总线*2
连接器数量-2个
5路5V供电ADC采样
3排针，2.54间距
ADC：1~5
精密电阻分压
5V TO 3V
ADC：1~5
ADC 1~5
5路3V3供电ADC采样
3排针，2.54间距
ADC：6~10
精密电阻分压
3V3 TO 3V
ADC：6~10
ADC 6~10
4路 GPIO 输入/输出
1.27间距/4P-连接器-1
GPIO 1~4
3V3 TO 5V 电平
GPIO:1~4
GPIO:1~4
5路 GPIO 输入/输出
3排针，2.54间距
GPIO 5~9
3V3 电平直通
GPIO:5~9
GPIO:5~9
上位机
100M网
以太网连接器-RJ45
100M网
以太网收发器
RMII接口
以太网
摄像头
USB总线
OTG_FS_DP/DM
TYPE-C
USB总线
USB总线/FS
摄像头
USB总线
OTG_HS_DP/DM
TYPE-C
USB总线
USB总线/HS
SPI
连接器-6个，1.27间距
1.27/6P-连接器1~3
5V电平
3V3 TO 5V 电平
3V3电平
SPI总线*3
1.27/6P-连接器1~3
3V3电平直通
MCU
stm32f407VET6
USART
/UART
总线*4
UART5
CAN-1
UART6
CAN-2
BOOT
烧录口
3V3电平
3V3 TO 5V 电平
5V电平
1.27间距/4P-连接器*4
3V3电平直通
1.27间距/4P-连接器*4
UART
连接器数量-8个
3V3/5V各4个
UART 转RS485-1
RS485：A/B
连接到上位机
2.0间距/2*7P-连接器
RS485-1/CAN-1
UART1-3V3电平
UART1-5V电平
RS485
CAN：H/L
拨码开关
120R 匹配
独立4路
CAN芯片
CAN：H/L
UART 转RS485-2
RS485：A/B
1.27间距/4P-连接器
CAN芯片
CAN：H/L
1.27间距/4P-连接器
单排针:1*3P
BOOT1
双排针：2*4P
SWDIO/SWCLK

电源分配



数量=4个
连接器数2.54间距

Title	02_POWER TREE	
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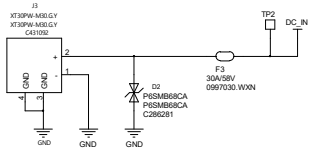
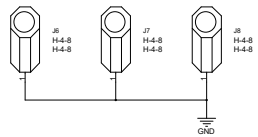
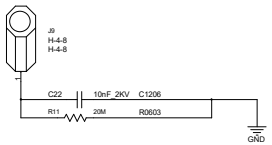
1：DC_IN来自电源板，12~60V IN

2：电源端子采用XT30PW-M公头



螺丝安装孔



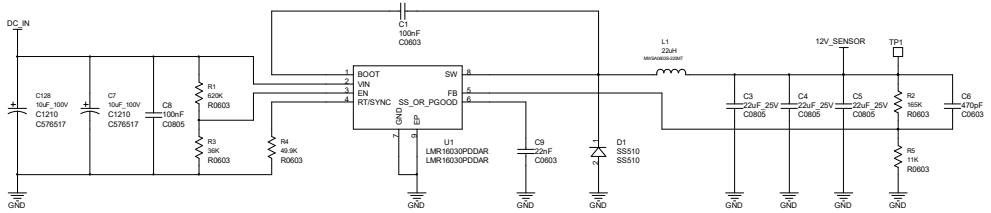


1：DC_IN TO 12V

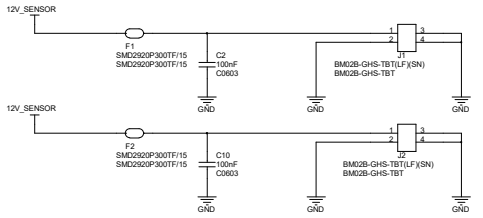
2：最大电流3A

3：12V传感器电源。

4：计算公式



2路12V传感器电源

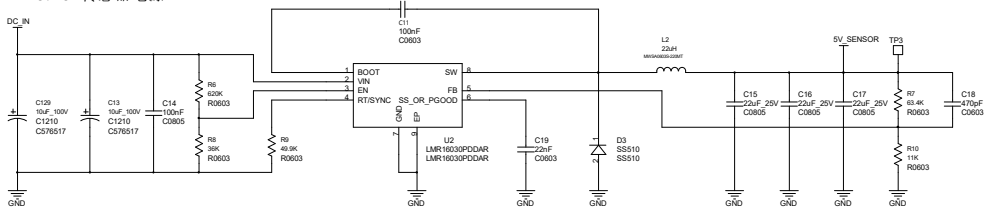


1：DC_IN TO 12V

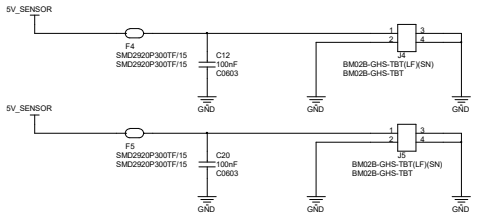
2：最大电流3A

3：5V传感器电源。

4：计算公式



2路5V传感器电源

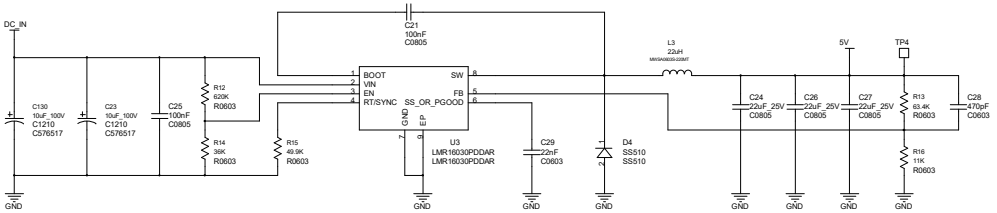


1：12V TO 5V

2：最大电流3A

3：5V系统电源。。

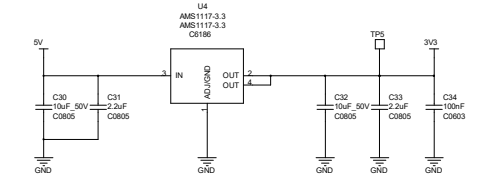
3：计算公式



1：5V TO 3.3V

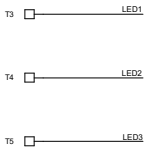
2：最大电流1A

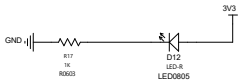
3：3V3系统电源。。



LED灯工作指示

页间连接符





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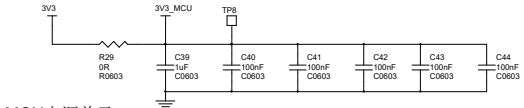
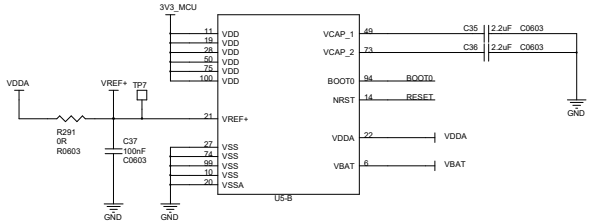
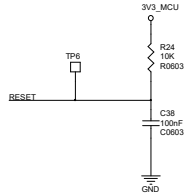
MCU电源退耦

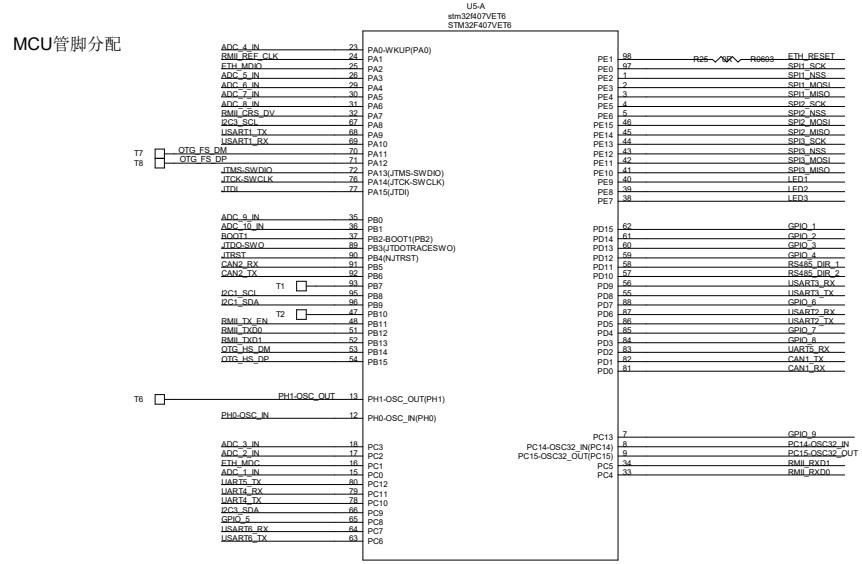


MCU电源单元





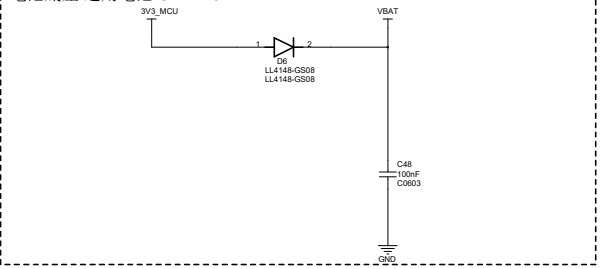
MCU管脚分配



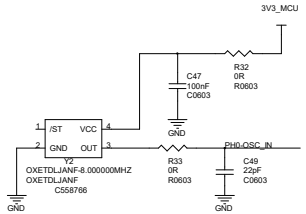
拨码开关

拨码开关打在断开位置

电池底座 适用电池:CR1220



有源晶振：频率8MHz。



页间连接符

以太网总线

[10]	ETH_RESET	ETH_RESET
[10]	RMII_REF_CLK	RMII_REF_CLK
[10]	RMII_CRS_DV	RMII_CRS_DV
[10]	RMII_RXD1	RMII_RXD1
[10]	RMII_RXD0	RMII_RXD0
[10]	RMII_TX_EN	RMII_TX_EN
[10]	RMII_TXD1	RMII_TXD1
[10]	RMII_TXD0	RMII_TXD0
[10]	ETH_MDC	ETH_MDC
[10]	ETH_MDIO	ETH_MDIO

4路串口

[8]	USART1_TX	USART1_TX
[8]	USART1_RX	USART1_RX
[8]	USART2_TX	USART2_TX
[8]	USART2_RX	USART2_RX
[8]	USART3_TX	USART3_TX
[8]	USART3_RX	USART3_RX
[8]	UART4_TX	UART4_TX
[8]	UART4_RX	UART4_RX

GPIO

[6]	GPIO_1	GPIO_1
[6]	GPIO_2	GPIO_2
[6]	GPIO_3	GPIO_3
[6]	GPIO_4	GPIO_4
[6]	GPIO_5	GPIO_5
[6]	GPIO_6	GPIO_6
[6]	GPIO_7	GPIO_7
[6]	GPIO_8	GPIO_8
[6]	GPIO_9	GPIO_9

5路-5V ADC IN 采样输入

[9]	ADC_1_IN	ADC_1_IN
[9]	ADC_2_IN	ADC_2_IN
[9]	ADC_3_IN	ADC_3_IN
[9]	ADC_4_IN	ADC_4_IN
[9]	ADC_5_IN	ADC_5_IN

2路USB总线

[11]	OTG_FS_DP	OTG_FS_DP
[11]	OTG_FS_DM	OTG_FS_DM
[11]	OTG_HS_DP	OTG_HS_DP
[11]	OTG_HS_DM	OTG_HS_DM

LED

[3]	LED1	LED1
[3]	LED2	LED2
[3]	LED3	LED3

5路-3V3 ADC IN 采样输入

[9]	ADC_6_IN	ADC_6_IN
[9]	ADC_7_IN	ADC_7_IN
[9]	ADC_8_IN	ADC_8_IN
[9]	ADC_9_IN	ADC_9_IN
[9]	ADC_10_IN	ADC_10_IN

2路IIC总线

[6]	I2C1_SCL	I2C1_SCL
[6]	I2C1_SDA	I2C1_SDA
[6]	I2C3_SCL	I2C3_SCL
[6]	I2C3_SDA	I2C3_SDA

2路CAN总线

[5]	CAN1_TX	CAN1_TX
[5]	CAN1_RX	CAN1_RX
[5]	CAN2_TX	CAN2_TX
[5]	CAN2_RX	CAN2_RX

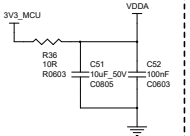
2路串口分配给RS485总线

[5]	UART5_TX	UART5_TX
[5]	UART5_RX	UART5_RX
[5]	RS485_DIR_1	RS485_DIR_1
[5]	USART6_TX	USART6_TX
[5]	USART6_RX	USART6_RX
[5]	RS485_DIR_2	RS485_DIR_2

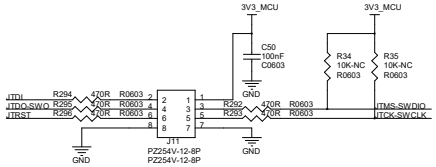
3路SPI总线（通用IO定义为SPI接口）

[7]	SPI1_SCK	SPI1_SCK
[7]	SPI1_NSS	SPI1_NSS
[7]	SPI1_MOSI	SPI1_MOSI
[7]	SPI1_MISO	SPI1_MISO
[7]	SPI2_SCK	SPI2_SCK
[7]	SPI2_NSS	SPI2_NSS
[7]	SPI2_MOSI	SPI2_MOSI
[7]	SPI2_MISO	SPI2_MISO
[7]	SPI3_SCK	SPI3_SCK
[7]	SPI3_NSS	SPI3_NSS
[7]	SPI3_MOSI	SPI3_MOSI
[7]	SPI3_MISO	SPI3_MISO

VDDA电源

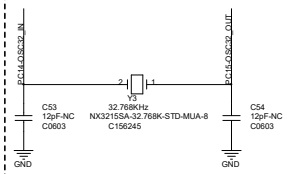


DEBUG



保留RTC系统时间记录

无源晶振：32.768kHz。



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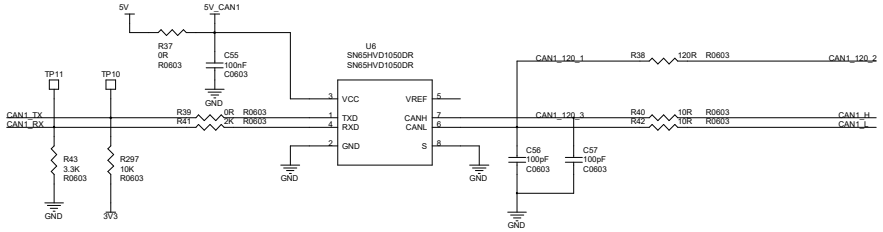
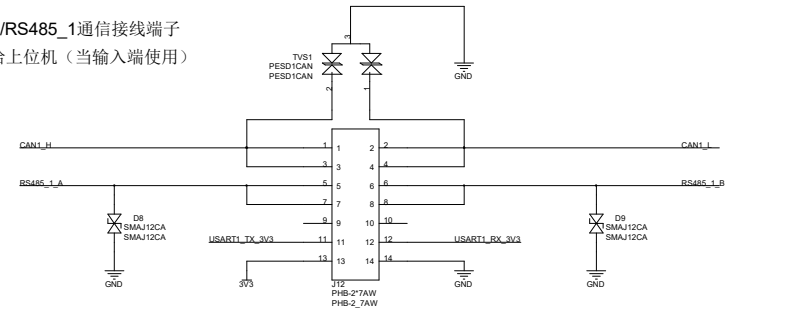
CAN1通信

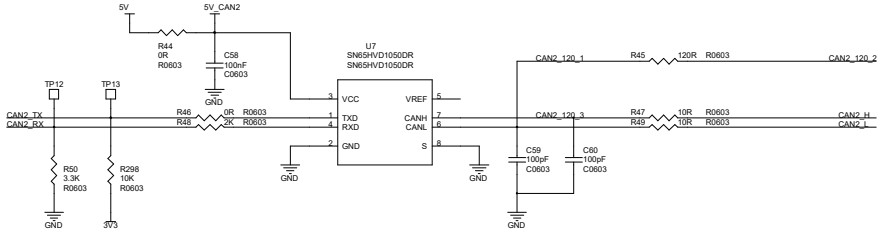


CAN1/RS485_1通信接线端子

分配给上位机（当输入端使用）

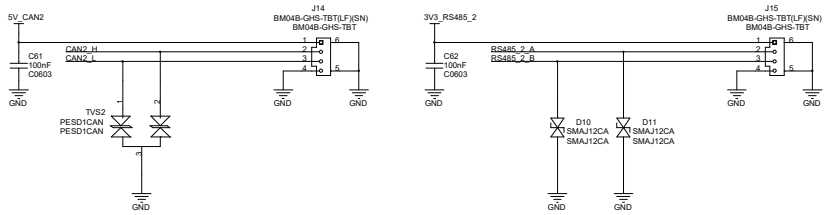


CAN2通信

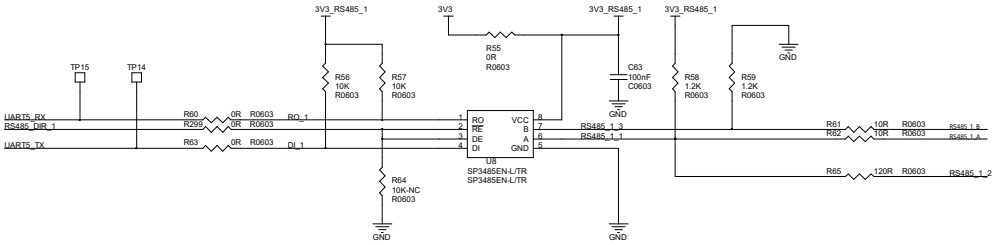


CAN2/RS485_2通信接线端子

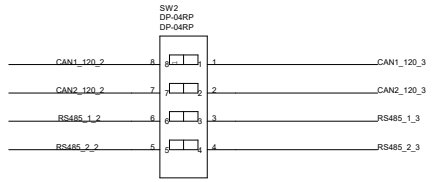
分配给外设（当输出端使用）



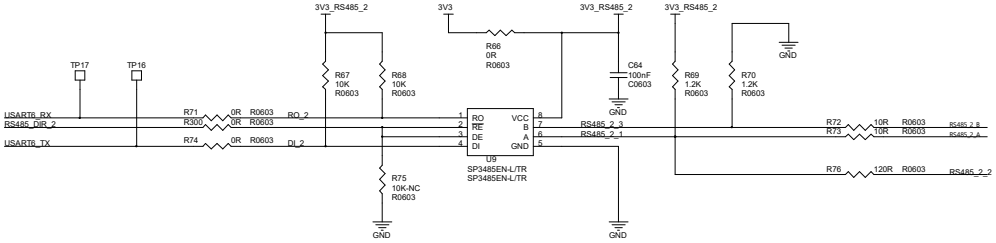
RS485_1通信



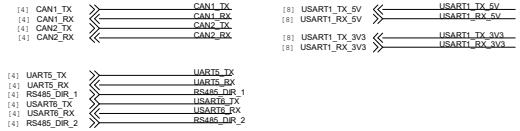
CAN/RS485通信(匹配电阻)



RS485_2通信



页间连接符



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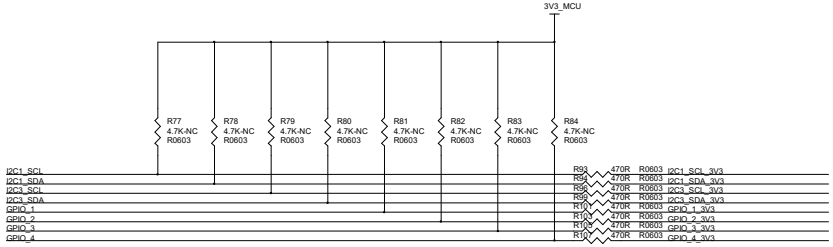
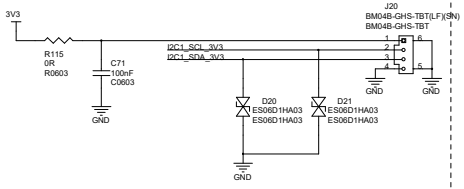
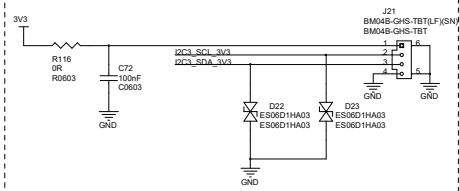
I2C 3V3 TO 5V 电平转换电路



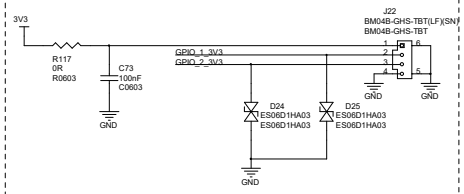
I2C1-3V3 电平-接口1



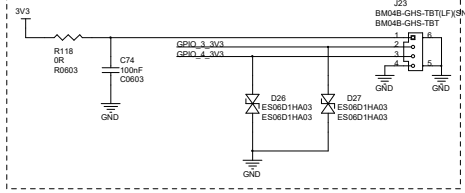
I2C3-3V3 电平-接口2



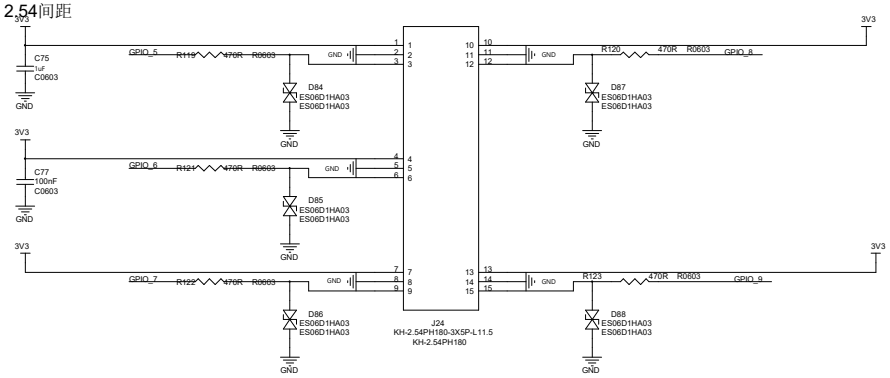
GPIO-3V3电平-接口1



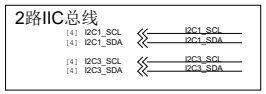
GPIO-3V3电平-接口2

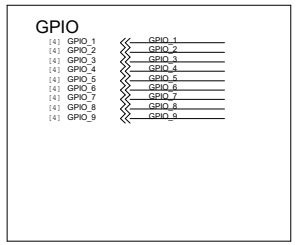


GPIO-3V3电平,3排针接口，2.54间距



页间连接符





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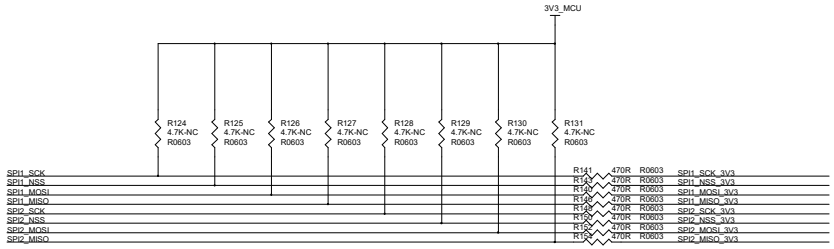
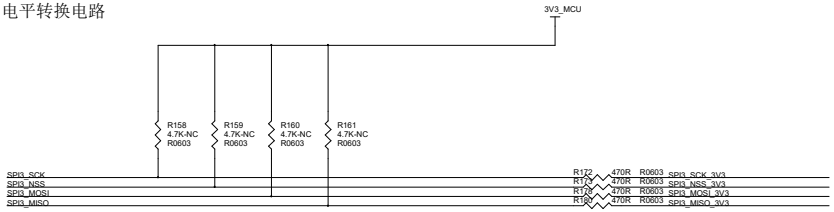
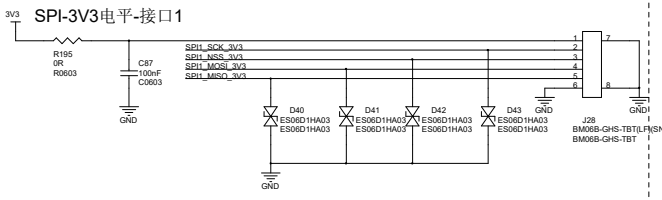
SPI 3V3 TO 5V 电平转换电路



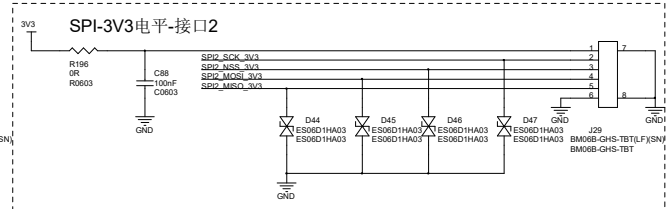
SPI 3V3 TO 5V 电平转换电路



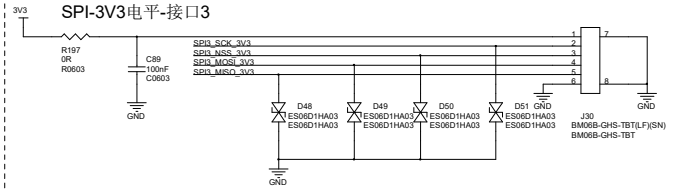
SPI-3V3电平-接口1



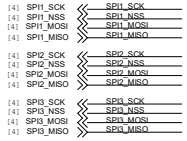
SPI-3V3电平-接口2



SPI-3V3电平-接口3



页间连接符



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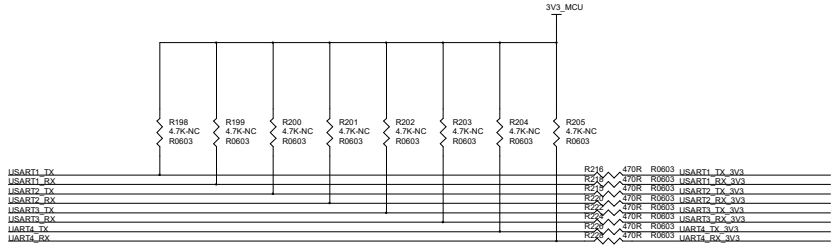
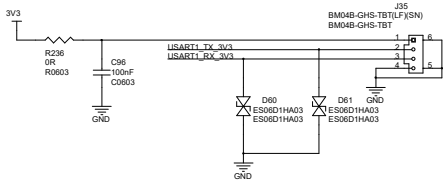
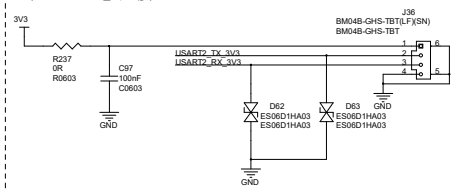
UART 3V3 TO 5V 电平转换电路



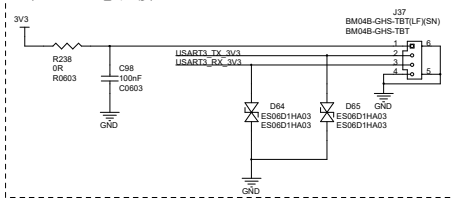
串口-3V3电平-接口1



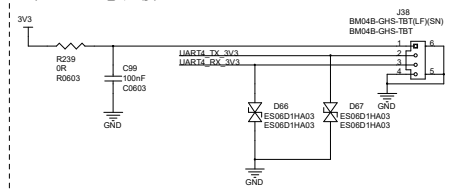
串口-3V3电平-接口2



串口-3V3电平-接口3

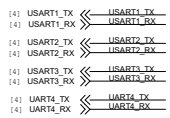


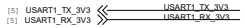
串口-3V3电平-接口4



页间连接符

4路串口





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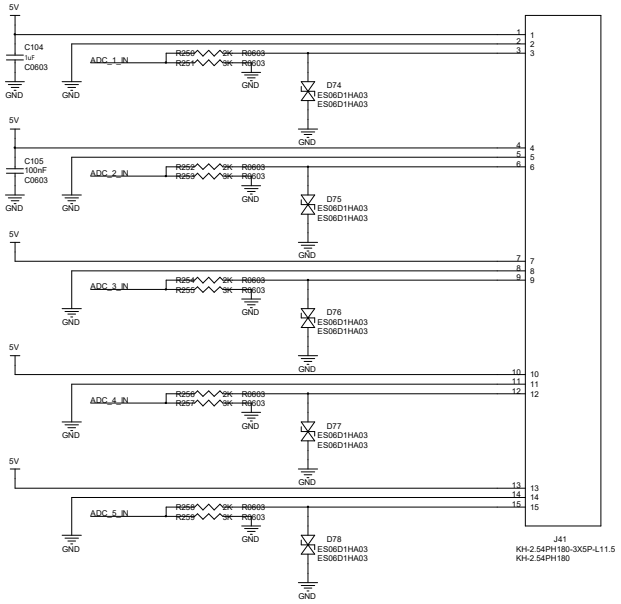
页间连接符

[4] ADC_1_IN — ADC_1_IN
[4] ADC_2_IN — ADC_2_IN
[4] ADC_3_IN — ADC_3_IN
[4] ADC_4_IN — ADC_4_IN
[4] ADC_5_IN — ADC_5_IN

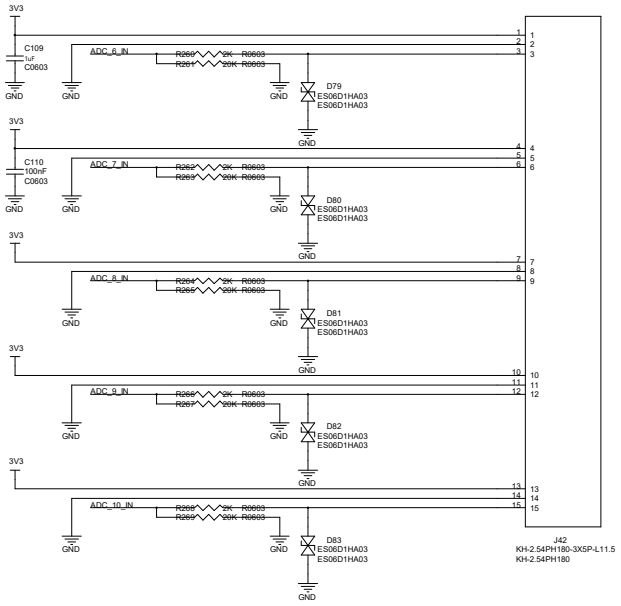
5路-5V ADC IN 采样输入



页间连接符

[4] ADC_6_IN — ADC_6_IN
[4] ADC_7_IN — ADC_7_IN
[4] ADC_8_IN — ADC_8_IN
[4] ADC_9_IN — ADC_9_IN
[4] ADC_10_IN — ADC_10_IN

5路-3V3 ADC IN 采样输入



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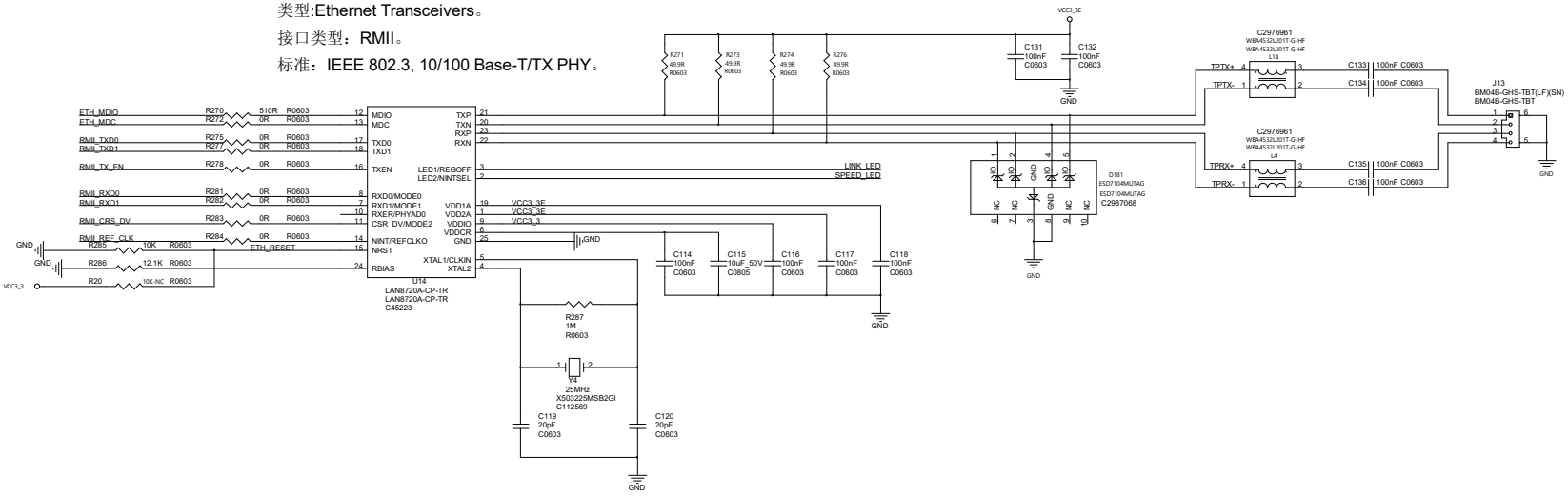
以太网芯片：

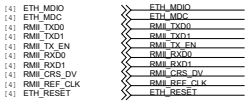
类型:Ethernet Transceivers。

接口类型：RMII。

标准：IEEE 802.3, 10/100 Base-T/TX PHY。



分页符

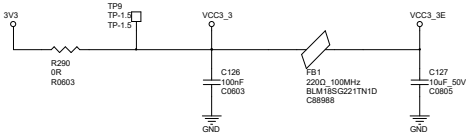


商品目录：磁珠。

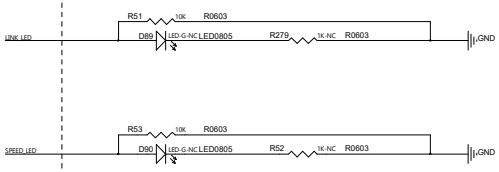
标称阻抗@测试频率：220Ω 100MHz。

直流电阻(RDC)：40mΩ。

额定电流：2.5A。



R51与R53两个电阻空贴会导致PHY芯片初始化不能完成。



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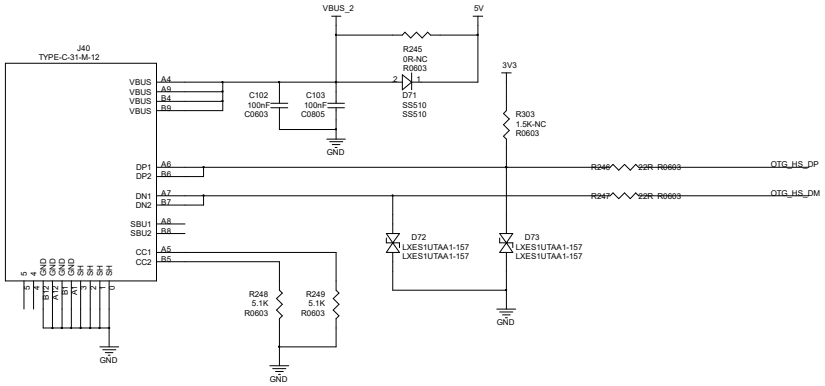
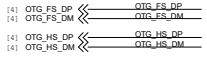
USB接口-1

USB接口-2



页间连接符



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