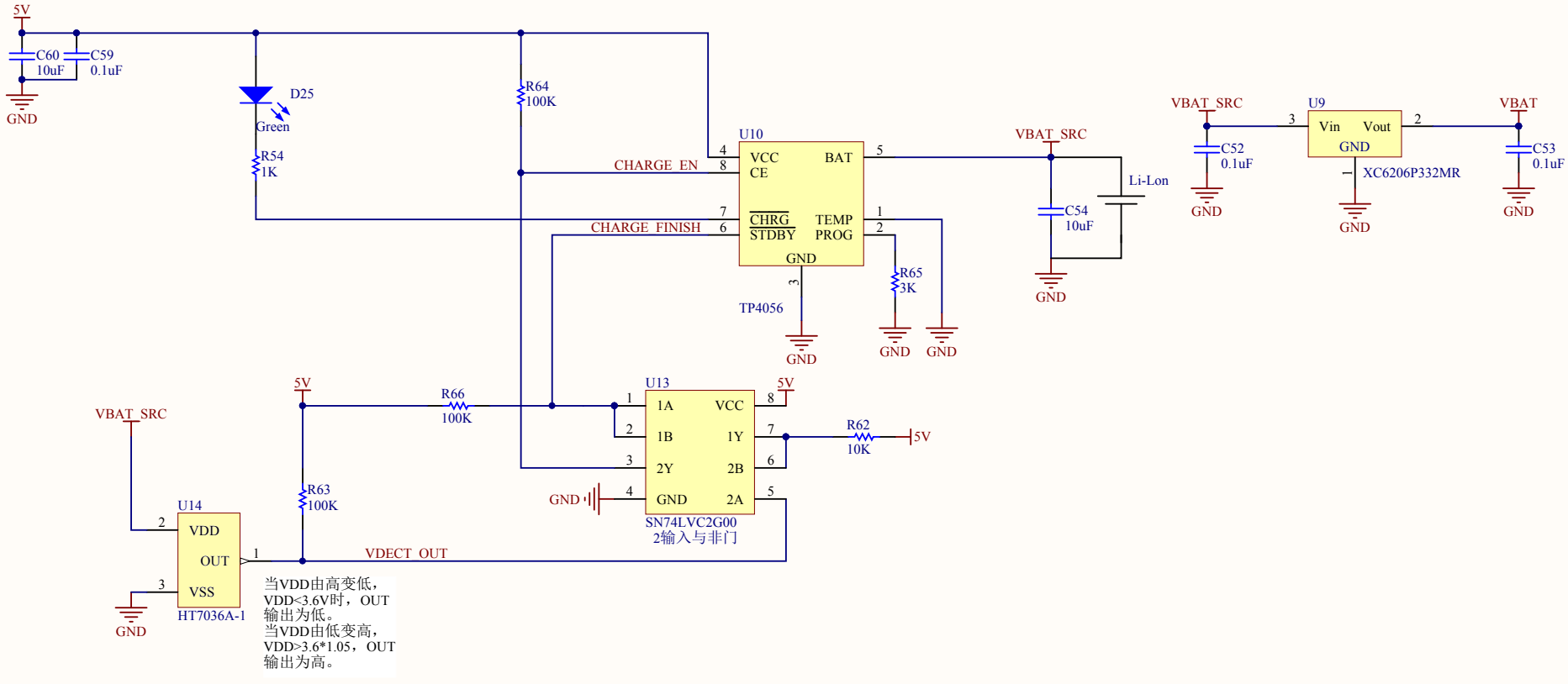

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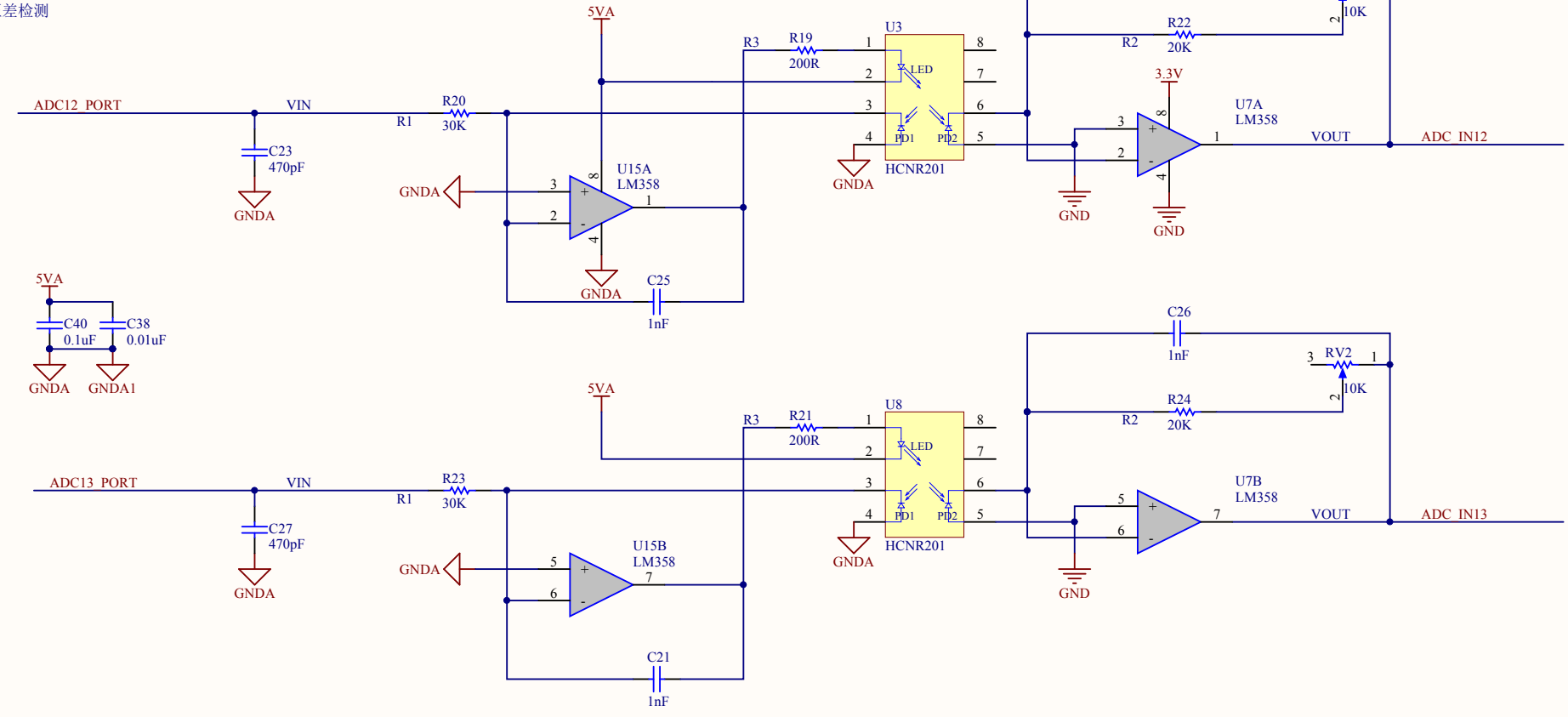
参数确定实例
假设确定Vcc=5V，输入在0-4V之间，输出等于输入，采用LMV321运放芯片以及下面电路，下面给出参数确定的过程。
* 确定IFmax：HCNR200/201的手册上推荐器件工作的25mA左右；
* 确定R3：R3=5V/25mA=200；
* 确定R1：；
* 确定R2：R2=R1=30K。

VOUT/VIN = R2/R1.

压差检测



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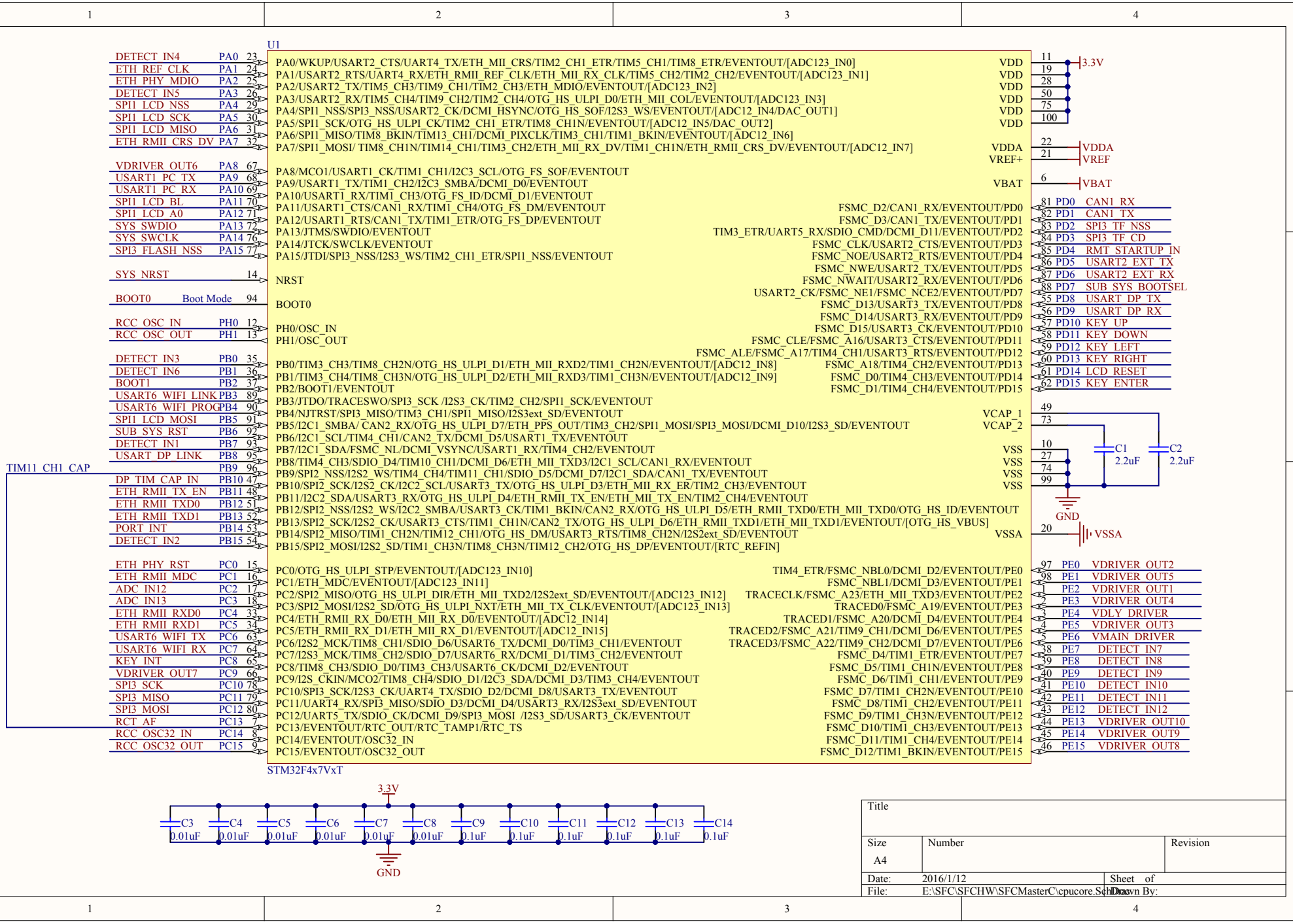
U1
DETECT_IN4 PA0 23
ETH_REF_CLK PA1 24
ETH_PHY_MDIO PA2 25
DETECT_IN5 PA3 26
SPI1_LCD_NSS PA4 29
SPI1_LCD_SCK PA5 30
SPI1_LCD_MISO PA6 31
ETH_RMII_CRS_DV PA7 32
VDRIVER_OUT6 PA8 67
USART1_PC_TX PA9 68
USART1_PC_RX PA10 69
SPI1_LCD_BL PA11 70
SPI1_LCD_A0 PA12 71
SYS_SWDIO PA13 72
SYS_SWCLK PA14 76
SPI3_FLASH_NSS PA15 77
SYS_NRST 14
BOOT0 Boot Mode 94
RCC_OSC_IN PH0 12
RCC_OSC_OUT PH1 13
DETECT_IN3 PB0 35
DETECT_IN6 PB1 36
BOOT1 PB2 37
USART6_WIFI_LINK PB3 89
USART6_WIFI_PROG PB4 90
SPI1_LCD_MOSI PB5 91
SUB_SYS_RST PB6 92
DETECT_IN1 PB7 93
USART_DP_LINK PB8 95
PB9 96
TIM11_CH1_CAP
DP_TIM_CAP_IN PB10 47
ETH_RMII_TX_EN PB11 48
ETH_RMII_TXD0 PB12 51
ETH_RMII_TXD1 PB13 52
PORT_INT PB14 53
DETECT_IN2 PB15 54
ETH_PHY_RST PC0 15
ETH_RMII_MDC PC1 16
ADC_IN12 PC2 17
ADC_IN13 PC3 18
ETH_RMII_RXD0 PC4 33
ETH_RMII_RXD1 PC5 34
USART6_WIFI_TX PC6 63
USART6_WIFI_RX PC7 64
KEY_INT PC8 65
VDRIVER_OUT7 PC9 66
SPI3_SCK PC10 78
SPI3_MISO PC11 79
SPI3_MOSI PC12 80
RCT_AF PC13 7
RCC_OSC32_IN PC14 8
RCC_OSC32_OUT PC15 9
PA0/WKUP/USART2_CTS/UART4_TX/ETH_MII_CRS/TIM2_CH1_ETR/TIM5_CH1/TIM8_ETR/EVENTOUT/[ADC123_IN0]
PA1/USART2_RTS/UART4_RX/ETH_RMII_REF_CLK/ETH_MII_RX_CLK/TIM5_CH2/TIM2_CH2/EVENTOUT/[ADC123_IN1]
PA2/USART2_TX/TIM5_CH3/TIM9_CH1/TIM2_CH3/ETH_MDIO/EVENTOUT/[ADC123_IN2]
PA3/USART2_RX/TIM5_CH4/TIM9_CH2/TIM2_CH4/OTG_HS_ULPI_D0/ETH_MII_COL/EVENTOUT/[ADC123_IN3]
PA4/SPI1_NSS/SPI3_NSS/USART2_CK/DCMI_HSYNC/OTG_HS_SOF/I2S3_WS/EVENTOUT/[ADC12_IN4/DAC_OUT1]
PA5/SPI1_SCK/OTG_HS_ULPI_CK/TIM2_CH1_ETR/TIM8_CH1N/EVENTOUT/[ADC12_IN5/DAC_OUT2]
PA6/SPI1_MISO/TIM8_BKIN/TIM13_CH1/DCMI_PIXCLK/TIM3_CH1/TIM1_BKIN/EVENTOUT/[ADC12_IN6]
PA7/SPI1_MOSI/ TIM8_CH1N/TIM14_CH1/TIM3_CH2/ETH_MII_RX_DV/TIM1_CH1N/ETH_RMII_CRS_DV/EVENTOUT/[ADC12_IN7]
PA8/MCO1/USART1_CK/TIM1_CH1/I2C3_SCL/OTG_FS_SOF/EVENTOUT
PA9/USART1_TX/TIM1_CH2/I2C3_SMBA/DCMI_D0/EVENTOUT
PA10/USART1_RX/TIM1_CH3/OTG_FS_ID/DCMI_D1/EVENTOUT
PA11/USART1_CTS/CAN1_RX/TIM1_CH4/OTG_FS_DM/EVENTOUT
PA12/USART1_RTS/CAN1_TX/TIM1_ETR/OTG_FS_DP/EVENTOUT
PA13/JTMS/SWDIO/EVENTOUT
PA14/JTCK/SWCLK/EVENTOUT
PA15/JTDI/SPI3_NSS/I2S3_WS/TIM2_CH1_ETR/SPI1_NSS/EVENTOUT
NRST
BOOT0
PH0/OSC_IN
PH1/OSC_OUT
PB0/TIM3_CH3/TIM8_CH2N/OTG_HS_ULPI_D1/ETH_MII_RXD2/TIM1_CH2N/EVENTOUT/[ADC12_IN8]
PB1/TIM3_CH4/TIM8_CH3N/OTG_HS_ULPI_D2/ETH_MII_RXD3/TIM1_CH3N/EVENTOUT/[ADC12_IN9]
PB2/BOOT1/EVENTOUT
PB3/JTDO/TRACESWO/SPI3_SCK /I2S3_CK/TIM2_CH2/SPI1_SCK/EVENTOUT
PB4/NJTRST/SPI3_MISO/TIM3_CH1/SPI1_MISO/I2S3ext_SD/EVENTOUT
PB5/I2C1_SMBA/ CAN2_RX/OTG_HS_ULPI_D7/ETH_PPS_OUT/TIM3_CH2/SPI1_MOSI/SPI3_MOSI/DCMI_D10/I2S3_SD/EVENTOUT
PB6/I2C1_SCL/TIM4_CH1/CAN2_TX/DCMI_D5/USART1_TX/EVENTOUT
PB7/I2C1_SDA/FSMC_NL/DCMI_VSYNC/USART1_RX/TIM4_CH2/EVENTOUT
PB8/TIM4_CH3/SDIO_D4/TIM10_CH1/DCMI_D6/ETH_MII_TXD3/I2C1_SCL/CAN1_RX/EVENTOUT
PB9/SPI2_NSS/I2S2_WS/TIM4_CH4/TIM11_CH1/SDIO_D5/DCMI_D7/I2C1_SDA/CAN1_TX/EVENTOUT
PB10/SPI2_SCK/I2S2_CK/I2C2_SCL/USART3_TX/OTG_HS_ULPI_D3/ETH_MII_RX_ER/TIM2_CH3/EVENTOUT
PB11/I2C2_SDA/USART3_RX/OTG_HS_ULPI_D4/ETH_RMII_TX_EN/ETH_MII_TX_EN/TIM2_CH4/EVENTOUT
PB12/SPI2_NSS/I2S2_WS/I2C2_SMBA/USART3_CK/TIM1_BKIN/CAN2_RX/OTG_HS_ULPI_D5/ETH_RMII_TXD0/ETH_MII_TXD0/OTG_HS_ID/EVENTOUT
PB13/SPI2_SCK/I2S2_CK/USART3_CTS/TIM1_CH1N/CAN2_TX/OTG_HS_ULPI_D6/ETH_RMII_TXD1/ETH_MII_TXD1/EVENTOUT/[OTG_HS_VBUS]
PB14/SPI2_MISO/TIM1_CH2N/TIM12_CH1/OTG_HS_DM/USART3_RTS/TIM8_CH2N/I2S2ext_SD/EVENTOUT
PB15/SPI2_MOSI/I2S2_SD/TIM1_CH3N/TIM8_CH3N/TIM12_CH2/OTG_HS_DP/EVENTOUT/[RTC_REFIN]
PC0/OTG_HS_ULPI_STP/EVENTOUT/[ADC123_IN10]
PC1/ETH_MDC/EVENTOUT/[ADC123_IN11]
PC2/SPI2_MISO/OTG_HS_ULPI_DIR/ETH_MII_TXD2/I2S2ext_SD/EVENTOUT/[ADC123_IN12]
PC3/SPI2_MOSI/I2S2_SD/OTG_HS_ULPI_NXT/ETH_MII_TX_CLK/EVENTOUT/[ADC123_IN13]
PC4/ETH_RMII_RX_D0/ETH_MII_RX_D0/EVENTOUT/[ADC12_IN14]
PC5/ETH_RMII_RX_D1/ETH_MII_RX_D1/EVENTOUT/[ADC12_IN15]
PC6/I2S2_MCK/TIM8_CH1/SDIO_D6/USART6_TX/DCMI_D0/TIM3_CH1/EVENTOUT
PC7/I2S3_MCK/TIM8_CH2/SDIO_D7/USART6_RX/DCMI_D1/TIM3_CH2/EVENTOUT
PC8/TIM8_CH3/SDIO_D0/TIM3_CH3/USART6_CK/DCMI_D2/EVENTOUT
PC9/I2S_CKIN/MCO2/TIM8_CH4/SDIO_D1/I2C3_SDA/DCMI_D3/TIM3_CH4/EVENTOUT
PC10/SPI3_SCK/I2S3_CK/UART4_TX/SDIO_D2/DCMI_D8/USART3_TX/EVENTOUT
PC11/UART4_RX/SPI3_MISO/SDIO_D3/DCMI_D4/USART3_RX/I2S3ext_SD/EVENTOUT
PC12/UART5_TX/SDIO_CK/DCMI_D9/SPI3_MOSI /I2S3_SD/USART3_CK/EVENTOUT
PC13/EVENTOUT/RTC_OUT/RTC_TAMP1/RTC_TS
PC14/EVENTOUT/OSC32_IN
PC15/EVENTOUT/OSC32_OUT
VDD 11 19 28 50 75 100
3.3V
VDDA 22
VREF+ 21
VBAT 6
VSS 10 27 74 99
VCAP_1 49
VCAP_2 73
C1 2.2uF
C2 2.2uF
GND
VSSA 20
FSMC_D2/CAN1_RX/EVENTOUT/PD0
FSMC_D3/CAN1_TX/EVENTOUT/PD1
TIM3_ETR/UART5_RX/SDIO_CMD/DCMI_D11/EVENTOUT/PD2
FSMC_CLK/USART2_CTS/EVENTOUT/PD3
FSMC_NOE/USART2_RTS/EVENTOUT/PD4
FSMC_NWE/USART2_TX/EVENTOUT/PD5
FSMC_NWAIT/USART2_RX/EVENTOUT/PD6
USART2_CK/FSMC_NE1/FSMC_NCE2/EVENTOUT/PD7
FSMC_D13/USART3_TX/EVENTOUT/PD8
FSMC_D14/USART3_RX/EVENTOUT/PD9
FSMC_D15/USART3_CK/EVENTOUT/PD10
FSMC_CLE/FSMC_A16/USART3_CTS/EVENTOUT/PD11
FSMC_ALE/FSMC_A17/TIM4_CH1/USART3_RTS/EVENTOUT/PD12
FSMC_A18/TIM4_CH2/EVENTOUT/PD13
FSMC_D0/TIM4_CH3/EVENTOUT/PD14
FSMC_D1/TIM4_CH4/EVENTOUT/PD15
81 PD0 CAN1_RX
82 PD1 CAN1_TX
83 PD2 SPI3_TF_NSS
84 PD3 SPI3_TF_CD
85 PD4 RMT_STARTUP_IN
86 PD5 USART2_EXT_TX
87 PD6 USART2_EXT_RX
88 PD7 SUB_SYS_BOOTSEL
55 PD8 USART_DP_TX
56 PD9 USART_DP_RX
57 PD10 KEY_UP
58 PD11 KEY_DOWN
59 PD12 KEY_LEFT
60 PD13 KEY_RIGHT
61 PD14 LCD_RESET
62 PD15 KEY_ENTER
TIM4_ETR/FSMC_NBL0/DCMI_D2/EVENTOUT/PE0
FSMC_NBL1/DCMI_D3/EVENTOUT/PE1
TRACECLK/FSMC_A23/ETH_MII_TXD3/EVENTOUT/PE2
TRACED0/FSMC_A19/EVENTOUT/PE3
TRACED1/FSMC_A20/DCMI_D4/EVENTOUT/PE4
TRACED2/FSMC_A21/TIM9_CH1/DCMI_D6/EVENTOUT/PE5
TRACED3/FSMC_A22/TIM9_CH2/DCMI_D7/EVENTOUT/PE6
FSMC_D4/TIM1_ETR/EVENTOUT/PE7
FSMC_D5/TIM1_CH1N/EVENTOUT/PE8
FSMC_D6/TIM1_CH1/EVENTOUT/PE9
FSMC_D7/TIM1_CH2N/EVENTOUT/PE10
FSMC_D8/TIM1_CH2/EVENTOUT/PE11
FSMC_D9/TIM1_CH3N/EVENTOUT/PE12
FSMC_D10/TIM1_CH3/EVENTOUT/PE13
FSMC_D11/TIM1_CH4/EVENTOUT/PE14
FSMC_D12/TIM1_BKIN/EVENTOUT/PE15
97 PE0 VDRIVER_OUT2
98 PE1 VDRIVER_OUT5
1 PE2 VDRIVER_OUT1
2 PE3 VDRIVER_OUT4
3 PE4 VDLY_DRIVER
4 PE5 VDRIVER_OUT3
5 PE6 VMAIN_DRIVER
38 PE7 DETECT_IN7
39 PE8 DETECT_IN8
40 PE9 DETECT_IN9
41 PE10 DETECT_IN10
42 PE11 DETECT_IN11
43 PE12 DETECT_IN12
44 PE13 VDRIVER_OUT10
45 PE14 VDRIVER_OUT9
46 PE15 VDRIVER_OUT8
STM32F4x7VxT
3.3V
C3 0.01uF
C4 0.01uF
C5 0.01uF
C6 0.01uF
C7 0.01uF
C8 0.01uF
C9 0.1uF
C10 0.1uF
C11 0.1uF
C12 0.1uF
C13 0.1uF
C14 0.1uF
GND
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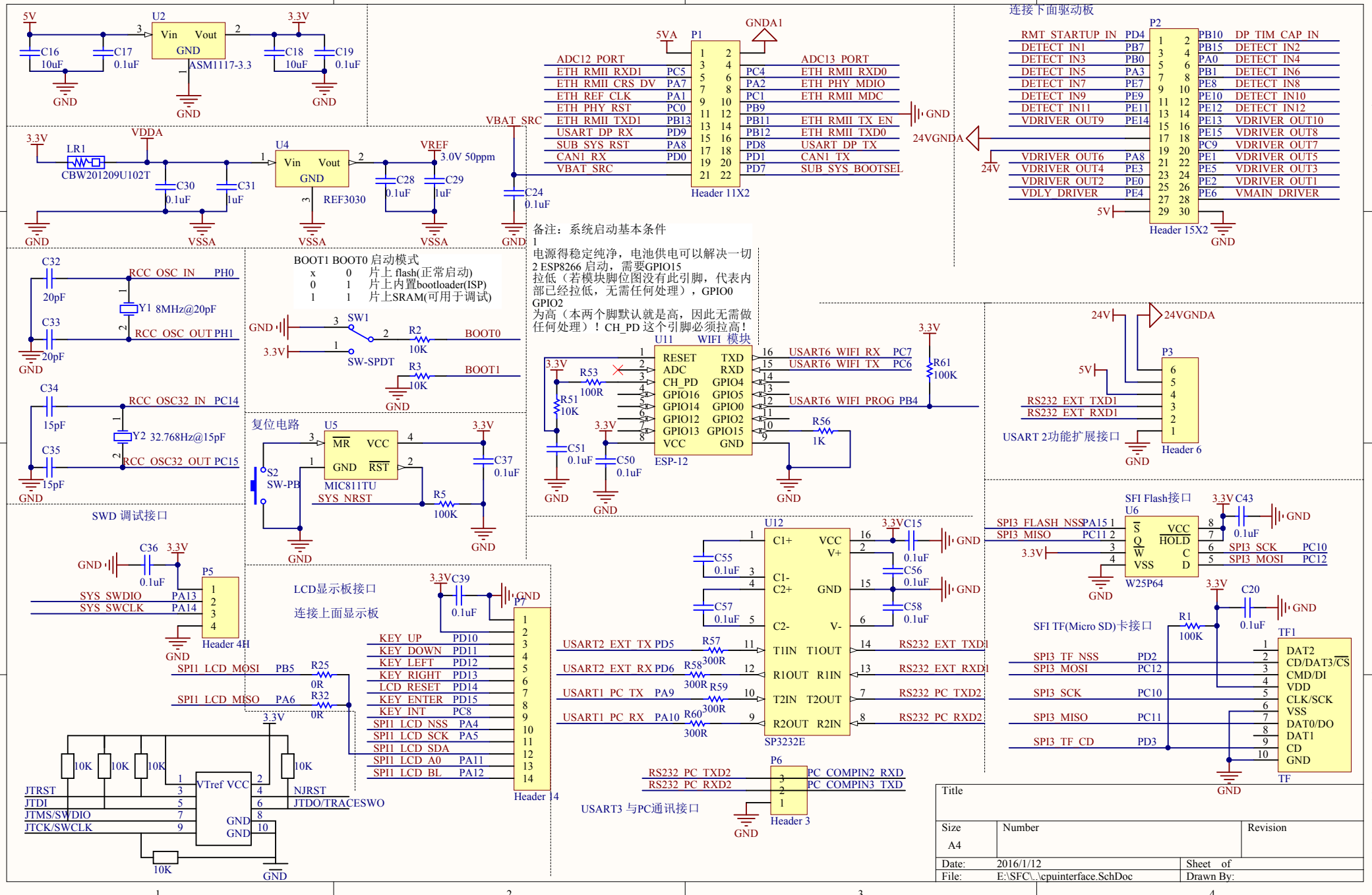
5V
U2
Vin Vout
GND
ASM1117-3.3
3.3V
C16 10uF
C17 0.1uF
C18 10uF
C19 0.1uF
GND
VBAT_SRC
3.3V
VDDA
LR1
CBW201209U102T
U4
Vin Vout
GND
REF3030
VREF
3.0V 50ppm
C30 0.1uF
C31 1uF
C28 0.1uF
C29 1uF
C24 0.1uF
VSSA
GNDA1
5VA
P1
Header 11X2
ADC12_PORT
ETH_RMII_RXD1 PC5
ETH_RMII_CRS_DV PA7
ETH_REF_CLK PA1
ETH_PHY_RST PC0
ETH_RMII_TXD1 PB13
USART_DP_RX PD9
SUB_SYS_RST PA8
CAN1_RX PD0
VBAT_SRC
ADC13_PORT
PC4 ETH_RMII_RXD0
PA2 ETH_PHY_MDIO
PC1 ETH_RMII_MDC
PB9
PB11 ETH_RMII_TX_EN
PB12 ETH_RMII_TXD0
PD8 USART_DP_TX
PD1 CAN1_TX
PD7 SUB_SYS_BOOTSEL
连接下面驱动板
P2
Header 15X2
RMT_STARTUP_IN PD4
DETECT_IN1 PB7
DETECT_IN3 PB0
DETECT_IN5 PA3
DETECT_IN7 PE7
DETECT_IN9 PE9
DETECT_IN11 PE11
VDRIVER_OUT9 PE14
VDRIVER_OUT6 PA8
VDRIVER_OUT4 PE3
VDRIVER_OUT2 PE0
VDLY_DRIVER PE4
PB10 DP_TIM_CAP_IN
PB15 DETECT_IN2
PA0 DETECT_IN4
PB1 DETECT_IN6
PE8 DETECT_IN8
PE10 DETECT_IN10
PE12 DETECT_IN12
PE13 VDRIVER_OUT10
PE15 VDRIVER_OUT8
PC9 VDRIVER_OUT7
PE1 VDRIVER_OUT5
PE5 VDRIVER_OUT3
PE2 VDRIVER_OUT1
PE6 VMAIN_DRIVER
24VGNDA
24V
5V
C32 20pF
C33 20pF
Y1 8MHz@20pF
RCC_OSC_IN PH0
RCC_OSC_OUT PH1
C34 15pF
C35 15pF
Y2 32.768Hz@15pF
RCC_OSC32_IN PC14
RCC_OSC32_OUT PC15
BOOT1 BOOT0 启动模式
x 0 片上 flash(正常启动)
0 1 片上内置bootloader(ISP)
1 1 片上SRAM(可用于调试)
SW1
SW-SPDT
R2 10K
R3 10K
BOOT0
BOOT1
备注：系统启动基本条件
1
电源得稳定纯净，电池供电可以解决一切
2 ESP8266 启动，需要GPIO15
拉低（若模块脚位图没有此引脚，代表内部已经拉低，无需任何处理），GPIO0
GPIO2
为高（本两个脚默认就是高，因此无需做任何处理）！CH_PD 这个引脚必须拉高！
U11 WIFI 模块
ESP-12
RESET
ADC
CH_PD
GPIO16
GPIO14
GPIO12
GPIO13
VCC
TXD
RXD
GPIO4
GPIO5
GPIO0
GPIO2
GPIO15
GND
USART6_WIFI_RX PC7
USART6_WIFI_TX PC6
USART6_WIFI_PROG PB4
R53 100R
R51 10K
R61 100K
R56 1K
C51 0.1uF
C50 0.1uF
复位电路
U5
MIC811TU
MR VCC
GND RST
SYS_NRST
S2
SW-PB
R5 100K
C37 0.1uF
P3
Header 6
RS232_EXT_TXD1
RS232_EXT_RXD1
USART 2功能扩展接口
SWD 调试接口
P5
Header 4H
SYS_SWDIO PA13
SYS_SWCLK PA14
C36 0.1uF
LCD显示板接口
连接上面显示板
P7
Header 14
KEY_UP PD10
KEY_DOWN PD11
KEY_LEFT PD12
KEY_RIGHT PD13
LCD_RESET PD14
KEY_ENTER PD15
KEY_INT PC8
SPI1_LCD_NSS PA4
SPI1_LCD_SCK PA5
SPI1_LCD_SDA
SPI1_LCD_A0 PA11
SPI1_LCD_BL PA12
SPI1_LCD_MOSI PB5
SPI1_LCD_MISO PA6
R25 0R
R32 0R
C39 0.1uF
JTRST
JTDI
JTMS/SWDIO
JTCK/SWCLK
VTref VCC
GND
NJRST
JTDO/TRACESWO
10K
U12
SP3232E
C1+ C1- C2+ C2- V+ V- VCC GND T1IN T2IN R1OUT R2OUT T1OUT R1IN T2OUT R2IN
C15 0.1uF
C55 0.1uF
C56 0.1uF
C57 0.1uF
C58 0.1uF
USART2_EXT_TX PD5
USART2_EXT_RX PD6
USART1_PC_TX PA9
USART1_PC_RX PA10
R57 300R
R58 300R
R59 300R
R60 300R
RS232_EXT_TXD1
RS232_EXT_RXD1
RS232_PC_TXD2
RS232_PC_RXD2
P6
Header 3
PC_COMPIN2_RXD
PC_COMPIN3_TXD
USART3 与PC通讯接口
SFI Flash接口
U6
W25P64
SPI3_FLASH_NSS PA15
SPI3_MISO PC11
SPI3_SCK PC10
SPI3_MOSI PC12
C43 0.1uF
C20 0.1uF
R1 100K
SFI TF(Micro SD)卡接口
TF1
TF
SPI3_TF_NSS PD2
SPI3_MOSI PC12
SPI3_SCK PC10
SPI3_MISO PC11
SPI3_TF_CD PD3
DAT2
CD/DAT3/CS
CMD/DI
VDD
CLK/SCK
VSS
DAT0/DO
DAT1
CD
GND
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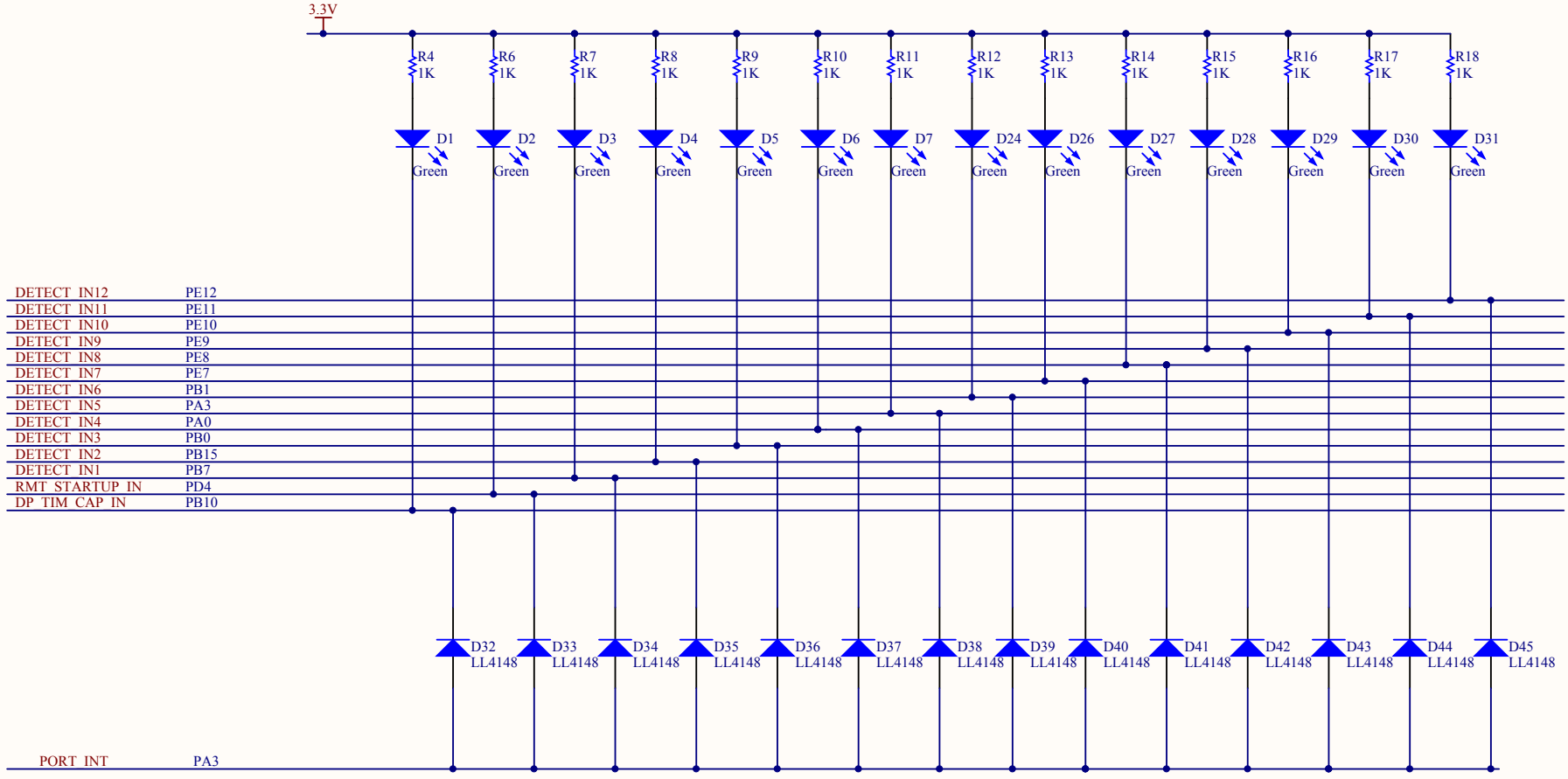

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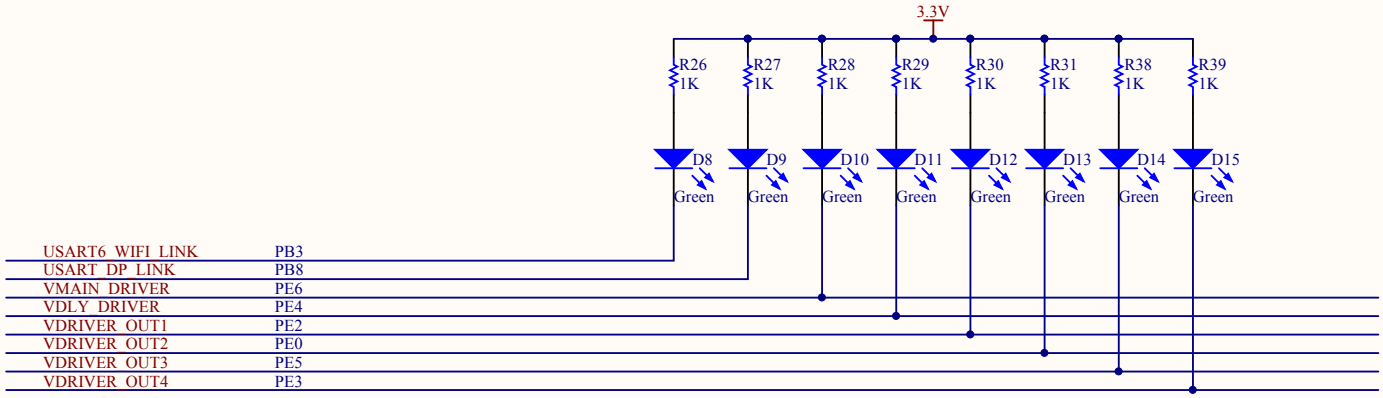

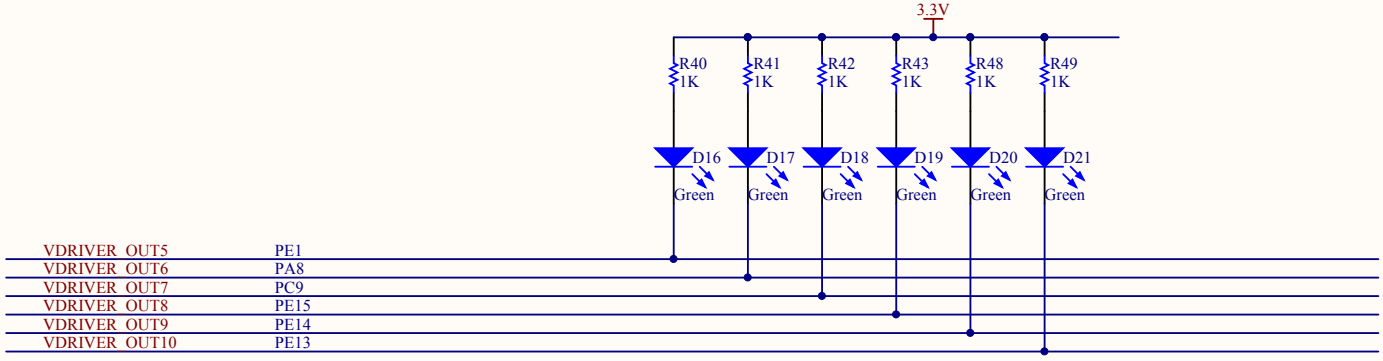

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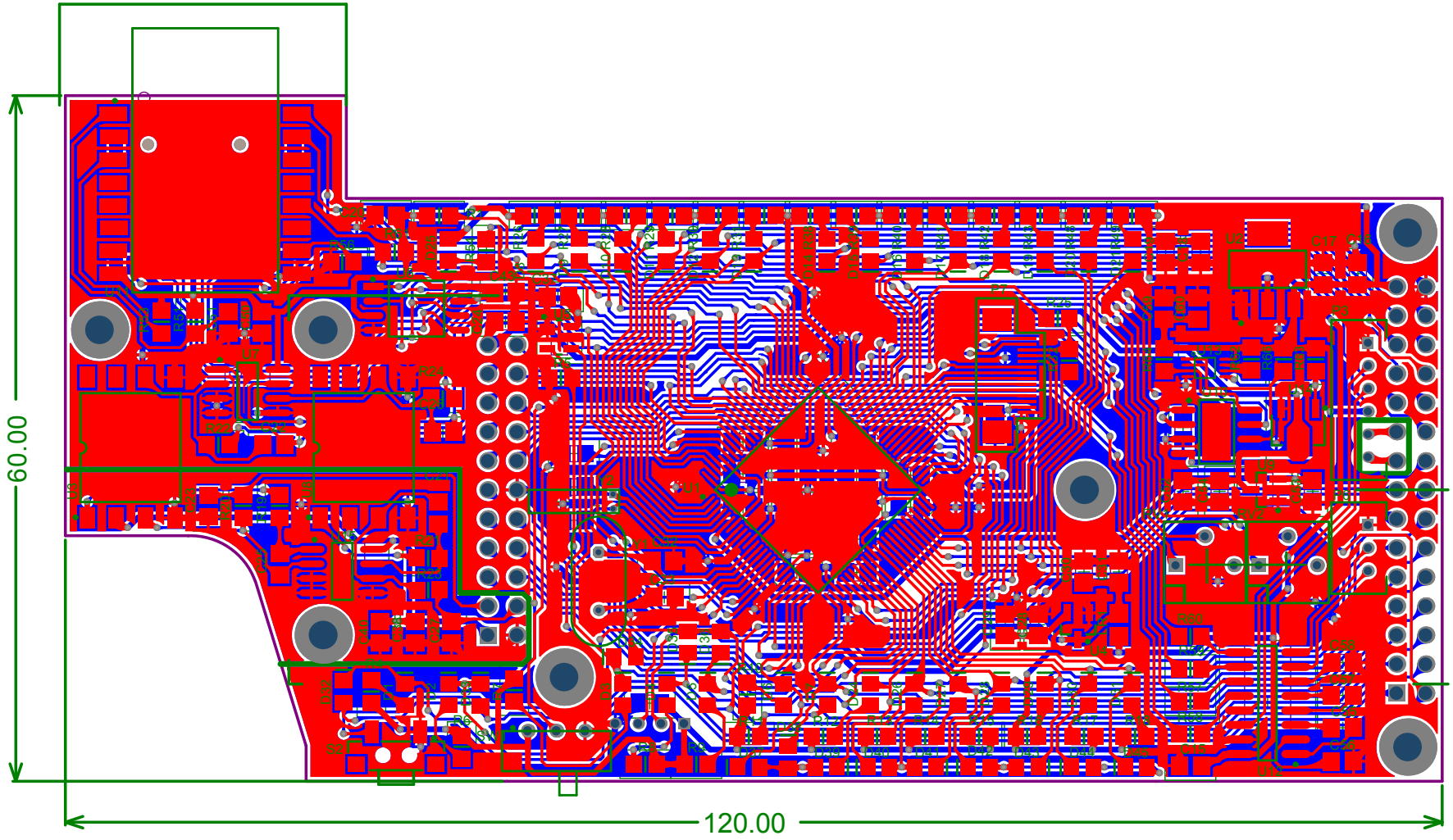
60.00
120.00

Comment	Description	Designator	Footprint	Quantity
2.2uF	Capacitor	C1, C2	CAPC2012M	2
0.01uF	Capacitor	C3, C4, C5, C6, C7, C8, C38	CAPC2012M	7
0.1uF	Capacitor	C9, C10, C11, C12, C13, C14, C15, C17, C19, C20, C24, C28, C30, C36, C37, C39, C40, C43, C50, C51, C52, C53, C55, C56, C57, C58, C59	CAPC2012M	27
10uF	Capacitor	C16, C18, C54, C60	CAPC2012M	4
1nF	Capacitor	C21, C22, C25, C26	CAPC2012M	4
470pF	Capacitor	C23, C27	CAPC2012M	2
1uF	Capacitor	C29, C31	CAPC2012M	2
20pF	Capacitor	C32, C33	CAPC2012M	2
15pF	Capacitor	C34, C35	CAPC2012M	2
Green	Green LED,Output indicate.	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D24, D25, D26, D27, D28, D29, D30, D31	CD2012-0805	29
LL4148	1 Amp General Purpose Rectifier	D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45	CD2012-0805	14
CBW201209U102T	EMI FILTERS,DC Resistance max.0.05~1.5 ohms,10 ~ 1000 ohms at 100MHz Frequency	LR1	INDC2012M	1
Header 11X2	Header, 11-Pin, Dual row	P1	HDR2X11	1
Header 15X2	Header, 15-Pin, Dual row	P2	HDR2X15	1
Header 6	Header, 6-Pin	P3	HDR1x6-2.0	1
Header 4H	Header, 4-Pin, Right Angle	P5	HDR1X4H-2.0	1
Header 3	Header, 3-Pin	P6	HDR1x3-2.0	1
Header 14	Header, 14-Pin	P7	FPC0.5-14P-A	1
100K	Resistor	R1, R5, R61, R63, R64, R66	RESC2012M	6
10K	Resistor	R2, R3, R51, R62	RESC2012M	4
1K	Resistor	R4, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R26, R27, R28, R29, R30, R31, R38, R39, R40, R41, R42, R43, R48, R49, R54, R56	RESC2012M	30
200R	Resistor	R19, R21	RESC2012M	2
30K	Resistor	R20, R23	RESC2012M	2
20K	Resistor	R22, R24	RESC2012M	2
0R	Resistor	R25, R32	RESC2012M	2
100R	Resistor	R53	RESC2012M	1
300R	Resistor	R57, R58, R59, R60	RESC2012M	4
3K	Resistor	R65	RESC2012M	1
10K	Potentiometer	RV1, RV2	3362	2
SW-PB	Push Button ,2mm(L)x2mm(W)x10mm(H)	S2	PBSMT-6x3x3.5R	1
SW-SPDT	开关	SW1	SW-9x3.5x3.5RS	1
TF		TF1	TF-PUSH	1
STM32F4x7VxT	STM32 ARM-based 32-bit MCU with 64 Kbytes Flash, 100-pin LQFP, Industrial Temperature	U1	LQFP100_L	1
ASM1117-3.3	800mA Low-Dropout Linear Regulator	U2	SOT-223	1
HCNR201	High-Linearity Analog Optocouplers	U3, U8	SO8WL	2
REF3030	1.25V 1.8V 2.048V 2.5V 3.0V 3.3V 4.096V reference voltage	U4	SOT23_M	1
MIC811TU	4-Pin 噚 Voltage Monitors with Manual Reset Input	U5	SOT-143_N	1
W25P64	32 Mbit, Low Voltage, Serial Flash Memory With 50MHz SPI Bus Interface	U6	SOIC8_W	1
LM358	双运放	U7, U15	NSO8_N	2
XC6206P332MR	250mA Low ESR Dropout Linear Regulator	U9	SOT-23_M	1
TP4056	锂电池充电管理	U10	NSO8_TP4056	1
ESP-12	SOC Wifi Mode	U11	ESP-12	1
SP3232E	+3.0V+5V Powered, Multi-Channel RS-232 Driver/Receiver	U12	NSO16_M	1
SN74LVC2G00	Dual 2-input positive-NAND gate	U13	PDSO-G8	1
HT7036A-1		U14	SOT89M	1
8MHz@20pF	Crystal Oscillator	Y1	HC-49U	1
32.768Hz@15pF	Crystal Oscillator	Y2	HC-RTC-L	1