

Design Notes and Revision

Version	Date	Author	Change Notes
V1.0	2024-11-07	ZM	First Release
V1.1	2024-11-20	ZM	1. 缩小尺寸      04. 更正封装尺寸 2. 优化布局 3. 移除基准源

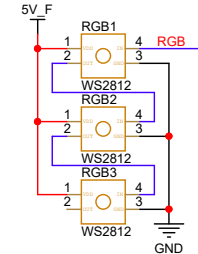
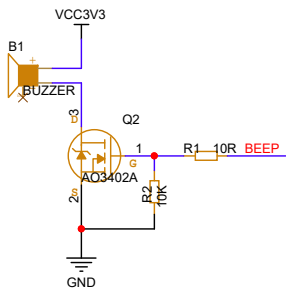
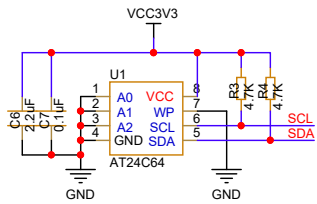
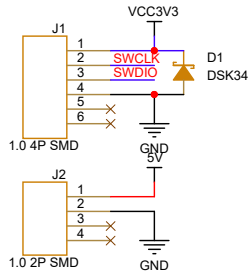
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Date: Tuesday, November 19, 2024Sheet 1 of 3



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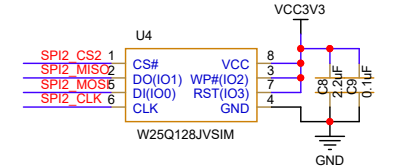
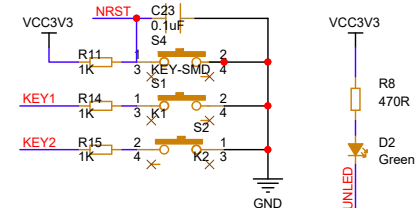
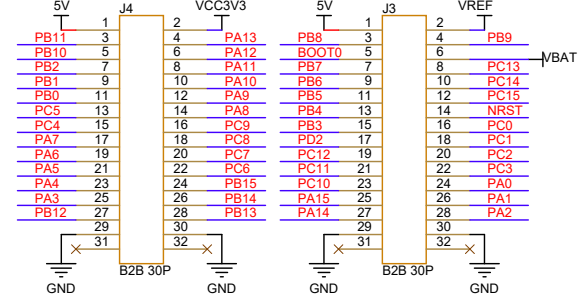
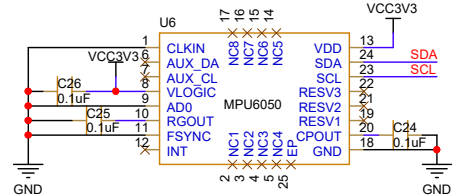
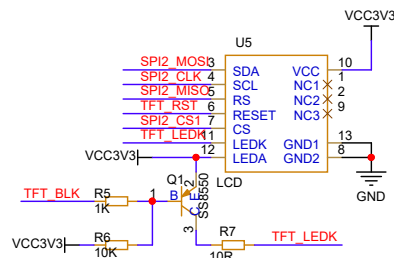
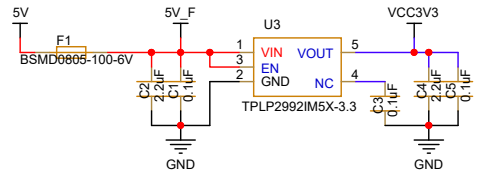
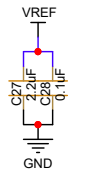
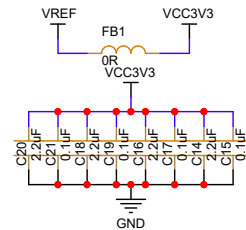
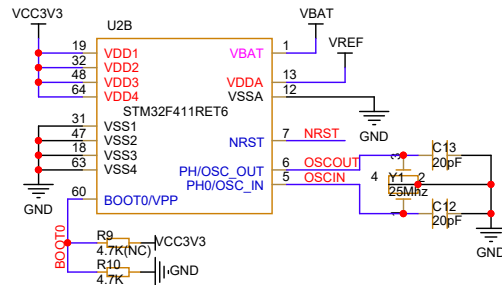
PA0 14 PA0/WKUP1/TIM2\_CH1/TIM2\_ET/TIM5\_CH1/USART2\_CTS/ADC1\_0  
PA1 15 PA1/TIM2\_CH2/TIM5\_CH2/SPI4\_MOSI/I2S4\_SD/USART2\_RTS/ADC1\_1  
PA2 16 PA2/TIM2\_CH3/TIM5\_CH3/TIM9\_CH1/I2S2\_CKIN/USART2\_TX/ADC1\_2  
PA3 17 PA3/TIM2\_CH4/TIM5\_CH4/TIM9\_CH2/I2S2\_MCK/USART2\_RX/ADC1\_3  
PA4 20 PA4/SPI1\_NSS/I2S1\_WS/SPI3\_NSS/I2S3\_WS/USART2\_CK/ADC1\_4  
PA5 21 PA5/TIM2\_CH1/TIM2\_ET/SPI1\_SCK/I2S1\_CK/ADC1\_5  
PA6 22 PA6/TIM1\_BKIN/TIM3\_CH1/SPI1\_MISO/I2S2\_MCK/SDIO\_CMD/ADC1\_6  
PA7 23 PA7/TIM1\_CH1N/TIM3\_CH2/SPI1\_MOSI/I2S1\_SD/ADC1\_7  
PA8 41 PA8/MCO\_1/TIM1\_CH1/I2C3\_SCL/USART1\_CK/USB\_FS\_SOF/SDIO\_D1  
PA9 42 PA9/TIM1\_CH2/I2C3\_SMB/USART1\_TX/USB\_FS\_VBUS/SDIO\_D2/OTG\_FS\_VBUS  
PA10 43 PA10/TIM1\_CH3/SPI5\_MOSI/I2S5\_SD/USART1\_RX/USB\_FS\_ID  
PA11 44 PA11/TIM1\_CH4/SPI4\_MISO/USART1\_CTS/USART6\_TX/USB\_FS\_DM  
PA12 45 PA12/TIM1\_ETR/SPI5\_MISO/USART1\_RTS/USART6\_RX/USB\_FS\_DP  
PA13 46 PA13/JTMS-SWDIO  
PA14 49 PA14/JTCK-SWCLK  
PA15 50 PA15/JTDI/TIM2\_CH1/TIM2\_ETR/SPI1\_NSS/I2S1\_WS/SPI3\_NSS/I2S3\_WS/USART1\_TX

PC0 8 PC0/ADC1\_10  
PC1 9 PC1/ADC1\_11  
PC2 10 PC2/SPI2\_MISO/I2S2ext\_SD/ADC1\_12  
PC3 11 PC3/SPI2\_MOSI/I2S2\_SD/ADC1\_13  
PC4 24 PC4/ADC1\_14  
PC5 25 PC5/ADC1\_15  
PC6 37 PC6/TIM3\_CH1/I2S2\_MCK/USART6\_TX/SDIO\_D6  
PC7 38 PC7/TIM3\_CH2/SPI2\_SCK/I2S2\_CK/I2S3\_MCK/USART6\_RX/SDIO\_D7  
PC8 39 PC8/TIM3\_CH3/USART6\_CK/SDIO\_D0  
PC9 40 PC9/MCO\_2/TIM3\_CH4/I2C3\_SDA/I2S2\_CKIN/SDIO\_D1  
PC10 51 PC10/SPI3\_SCK/I2S3\_CK/SDIO\_D2  
PC11 52 PC11/I2S3ext\_SD/SPI3\_MISO/SDIO\_D3  
PC12 53 PC12/SPI3\_MOSI/I2S3\_SD/SDIO\_CK  
PC13 2 PC13/ANTI\_TAMP/RTCAMP1/RTC\_OUT/RTC\_TS  
PC14 3 PC14/OSC32\_IN  
PC15 4 PC15/OSC32\_OUT

JTDO-SWO/TIM2\_CH2/SPI1\_SCK/I2S1\_CK/SPI3\_SCK/I2S3\_CK/USART1\_RX/I2C2\_SDA/PB3  
JTRST/TIM3\_CH1/SPI1\_MISO/SPI3\_MISO/I2S3ext\_SD/I2C3\_SDA/SDIO\_D0/PB4  
TIM3\_CH2/I2C1\_SMB/USART1\_MOSI/I2S1\_SD/SPI3\_MOSI/I2S3\_SD/SDIO\_D3/PB5  
TIM4\_CH1/I2C1\_SCL/USART1\_TX/PB6  
TIM4\_CH2/I2C1\_SDA/USART1\_RX/SDIO\_D0/PB7  
TIM4\_CH3/TIM10\_CH1/I2C1\_SCL/SPI5\_MOSI/I2S5\_SD/I2C3\_SDA/SDIO\_D4/PB8  
TIM4\_CH4/TIM11\_CH1/I2C1\_SDA/SPI2\_NSS/I2S2\_WS/I2C2\_SDA/SDIO\_D5/PB9  
TIM2\_CH3/I2C2\_SCL/SPI2\_SCK/I2S2\_CK/I2S3\_MCK/SDIO\_D7/PB10  
VCAP\_1  
TIM1\_BKIN/I2C2\_SMB/USART1\_NSS/I2S2\_WS/SPI4\_NSS/I2S4\_WS/SPI3\_SCK/I2S3\_CK/PB12  
TIM1\_CH1N/SPI2\_SCK/I2S2\_CK/SPI4\_SCK/I2S4\_CK/PB13  
TIM1\_CH2N/SPI2\_MISO/I2S2ext\_SD/SDIO\_D6/PB14  
RTC\_50Hz/TIM1\_CH3N/SPI2\_MOSI/I2S2\_SD/SDIO\_CK/RTC\_REFIN/PB15

PD2/TIM3\_ETR/SDIO\_CMD

STM32F411RET6



SPI2\_MOSI PA7  
SPI2\_CLK PA5  
SPI2\_MISO PA6  
SPI2\_CS1 PA4  
SPI2\_CS2 PA12  
TFT\_RST PC4  
TFT\_BLK PA1  
BEEP PA2  
RGB PA0

SWCLK PA14  
SWDIO PA13  
SCL PC14  
SDA PC13  
KEY1 PC0  
KEY2 PA3