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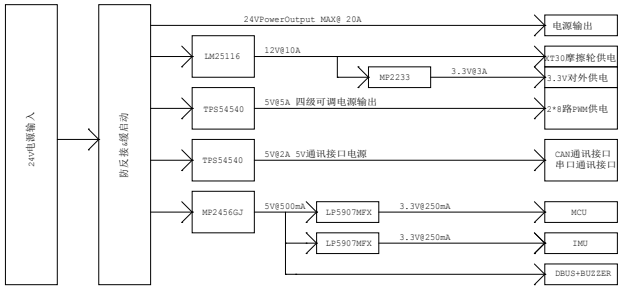

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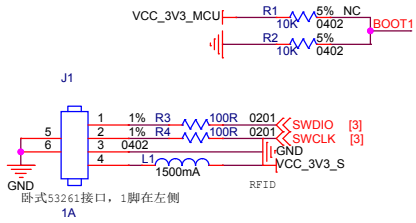

U1A

[9]	TIM2_CH1(PA0)	N3	PA0_WKUP/USART2_CTS/UART4_TX/ETH_MII_CRS/TIM2_CH1_ETR/TIM5_CH1/TIM8_ETR/EVENTOUT/ADC123_IN0/WKUP
[9]	TIM2_CH2(PA1)	N2	PA1/USART2_RTS/UART4_RX/ETH_RMII_REF_CLK/ETH_MII_RX_CLK/TIM5_CH2/TIM2_CH2/EVENTOUT/ADC123_IN2
[9]	TIM2_CH3(PA2)	P2	PA2/USART2_TX/TIM5_CH3/TIM9_CH1/TIM2_CH3/ETH_MDIO/EVENTOUT/ADC123_IN2
[9]	TIM2_CH4(PA3)	R2	PA3/USART2_RX/TIM5_CH4/TIM9_CH2/TIM2_CH4/OTG_HS_ULPI_D0/ETH_MII_COL/EVENTOUT/ADC123_IN3
[9]	DAC_OUT1(PA4)	N4	PA4/SPI1_NSS/SPI3_NSS/USART2_CK/DCMI_HSYNC/OTG_HS_SOF/I2S3_WS/EVENTOUT/ADC12_IN4/DAC_OUT1
[9]	DAC_OUT2(PA5)	P4	PA5/SPI1_SCK/OTG_HS_ULPI_CK/TIM2_CH1_ETR/TIM8_CHIN/EVENTOUT/ADC12_IN5/DAC2_OUT
[6]	BUTTON_AD(PA6)	P3	PA6/SPI1_MISO/TIM8_BKIN/TIM13_CH1/DCMI_PIXCLK/TIM3_CH1/TIM1_BKIN/EVENTOUT/ADC12_IN6
[6]	OLED_MOSI(PA7)	R3	PA7/SPI1_MOSI/TIM8_CH1N/TIM14_CH1/TIM3_CH2/ETH_MII_RX_DV/TIM1_CH1N/RMII_CRS_DV/EVENTOUT/ADC12_IN7
[9]	TIM1_CH1(PA8)	F15	PA8/MCO1/USART1_CK/TIM1_CH1/I2C3_SCL/OTG_FS_SOF/EVENTOUT
[9]	TIM1_CH2(PA9)	E15	PA9/USART1_TX/TIM1_CH2/I2C3_SMBA/DCMI_D0/EVENTOUT/OTG_FS_VBUS
[6]	USB_FS_ID(PA10)	D15	PA10/USART1_RX/TIM1_CH3/OTG_FS_ID/DCMI_D1/EVENTOUT
[6]	USB_FS_DM(PA11)	C15	PA11/USART1_CTS/CAN1_RX/TIM1_CH4/OTG_FS_DM/EVENTOUT
[6]	USB_FS_DP(PA12)	B15	PA12/USART1_RTS/CAN1_TX/TIM1_ETR/OTG_FS_DP/EVENTOUT
[3]	SWDIO	A15	PA13(JTMS-SWDIO)/JTMS-SWDIO/EVENTOUT
[3]	SWCLK	A14	PA14(JTCK-SWCLK)/JTCK-SWCLK/EVENTOUT
		A13	PA15(JTDI)/JTDI/SPI3_NSS/I2S3_WS/TIM2_CH1_ETR/SPI1_NSS/EVENTOUT
		R5	
[9]	ADC1_IN8(PB0)	R4	PB0/TIM3_CH3/TIM8_CH2N/OTG_HS_ULPI_D1/ETH_MII_RXD2/TIM1_CH2N/EVENTOUT/ADC12_IN8
[9]	ADC1_IN9(PB1)	M6	PB1/TIM3_CH4/TIM8_CH3N/OTG_HS_ULPI_D2/ETH_MII_RXD3/OTG_HS_INTN/TIM1_CH3N/EVENTOUT/ADC12_IN9
[9]	KEY(PB2)	A10	PB2/PB2_BOOT1/EVENTOUT
[6]	OLED_SCLK(PB3)	A9	PB3/JTDO/TRACESWO/JTDO/TRACESWO/SPI3_SCK/I2S3_CK/TIM2_CH2/SPI1_SCK/EVENTOUT
		A6	PB4/NJTRST/NJTRST/SPI3_MISO/TIM3_CH1/SPI1_MISO/I2S3ext_SD/EVENTOUT
[7]	Heat_PWM(PB5)	B6	PB5/I2C1_SMBA/CAN2_RX/OTG_HS_ULPI_D7/ETH_PPS_OUT/TIM3_CH2/SPI1_MOSI/SPI3_MOSI/DCMI_D10/I2S3_SD/EVENTOUT
		B5	PB6/I2C1_SCL/TIM4_CH1/CAN2_TX/DCMI_D5/USART1_TX/EVENTOUT
[9]	USART1_RX(PB7)	A5	PB7/I2C1_SDA/FSMC_NL/DCMI_VSYNC/USART1_RX/TIM4_CH2/EVENTOUT
[7]	IMU_INT(PB8)	B4	PB8/TIM4_CH3/SDIO_D4/TIM10_CH1/DCMI_D6/ETH_MII_TXD3/I2C1_SCL/CAN1_RX/EVENTOUT
[6]	OLED_DC(PB9)	R12	PB9/SPI2_NSS/I2S2_WS/TIM4_CH4/TIM11_CH1/SDIO_D5/DCMI_D7/I2C1_SDA/CAN1_TX/EVENTOUT
[6]	OLED_RST(PB10)	R13	PB10/SPI2_SCK/I2S2_CK/I2C2_SCL/USART3_TX/OTG_HS_ULPI_D3/ETH_MII_RX_ER/TIM2_CH3/EVENTOUT
		P12	PB11/I2C2_SDA/USART3_RX/OTG_HS_ULPI_D4/ETH_RMII_TX_EN/ETH_MII_TX_EN/TIM2_CH4/EVENTOUT
[8]	CAN2_RX(PB12)	P13	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
[8]	CAN2_TX(PB13)	R14	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
[10]	SNYCHOR(PB14)	R15	PB14/SPI2_MISO/TIM1_CH2N/TIM12_CH1/OTG_HS_DM/USART3_RTS/TIM8_CH2N/I2S2ext_SD/EVENTOUT
[10]	SNYCHOR(PB15)		PB15/SPI2_MOSI/I2S2_SD/TIM1_CH3N/TIM8_CH3N/TIM12_CH2/OTG_HS_DP/EVENTOUT
		M2	
[9]	ADC1_IN10(PC0)	M3	PC0/OTG_HS_ULPI_STP/EVENTOUT/ADC123_IN10
[9]	ADC1_IN11(PC1)	M4	PC1/ETH_MDC/EVENTOUT/ADC123_IN11
[9]	ADC1_IN12(PC2)	M5	PC2/SPI2_MISO/OTG_HS_ULPI_DIR/TH_MII_TXD2/I2S2ext_SD/EVENTOUT/ADC123_IN12
[9]	ADC1_IN13(PC3)	N5	PC3/SPI2_MOSI/I2S2_SD/OTG_HS_ULPI_NXT/ETH_MII_TX_CLK/EVENTOUT/ADC123_IN13
[9]	ADC1_IN14(PC4)	P5	PC4/ETH_RMII_RX_D0/ETH_MII_RX_D0/EVENTOUT/ADC12_IN14
[9]	ADC1_IN15(PC5)	H15	PC5/ETH_RMII_RX_D1/ETH_MII_RX_D1/EVENTOUT/ADC12_IN15
		G15	PC6/I2S2_MCK/TIM8_CH1/SDIO_D6/USART6_TX/DCMI_D0/TIM3_CH1/EVENTOUT
		G14	PC7/I2S3_MCK/TIM8_CH2/SDIO_D7/USART6_RX/DCMI_D1/TIM3_CH2/EVENTOUT
[6]	SDIO_D0(PC8)	F14	PC8/TIM8_CH3/SDIO_D0/TIM3_CH3/USART6_CK/DCMI_D2/EVENTOUT
[6]	SDIO_D1(PC9)	B14	PC9/I2S_CKIN/MCO2/TIM8_CH4/SDIO_D1//I2C3_SDA/DCMI_D3/TIM3_CH4/EVENTOUT
[6]	SDIO_D2(PC10)	B13	PC10/SPI3_SCK/I2S3_CK/UART4_TX/SDIO_D2/DCMI_D8/USART3_TX/EVENTOUT
[6]	SDIO_D3(PC11)	A12	PC11/UART4_RX/SPI3_MISO/SDIO_D3/DCMI_D4/USART3_RX/I2S3ext_SD/EVENTOUT
[6]	SDIO_CK(PC12)	D1	PC12/UART5_TX/SDIO_CK/DCMI_D9/SPI3_MOSI/I2S3_SD/USART3_CK/EVENTOUT
		E1	PC13/EVENTOUT/RTC_AF1
		F1	PC14-OSC32_IN(PC14)/EVENTOUT/OSC32_IN
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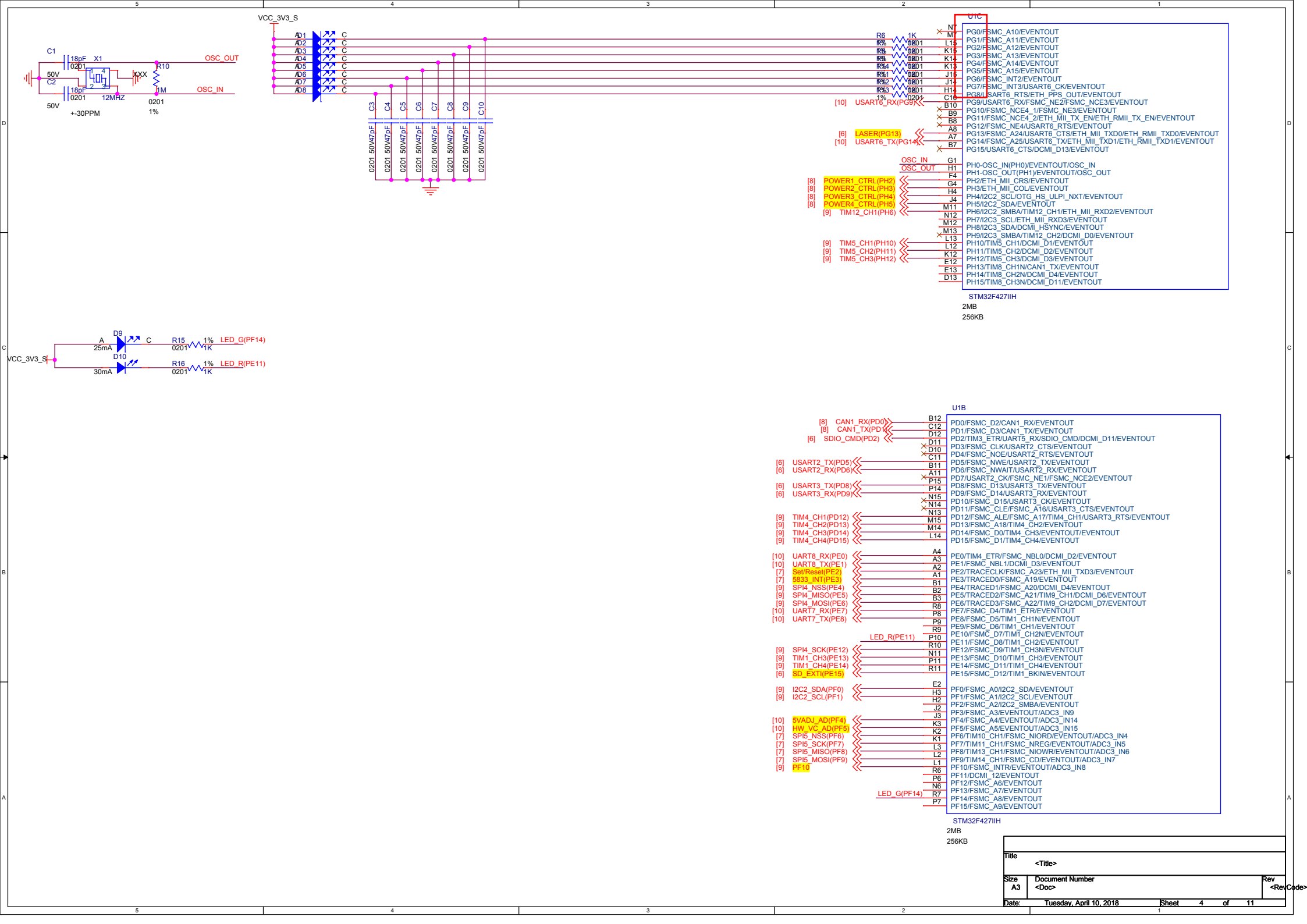
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PH3/ETH_MII_COL/EVENTOUT
PH4/I2C2_SCL/OTG_HS_ULPI_NXT/EVENTOUT
PH5/I2C2_SDA/EVENTOUT
PH6/I2C2_SMBA/TIM12_CH1/ETH_MII_RXD2/EVENTOUT
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PE4/TRACED1/FSMC_A20/DCMI_D4/EVENTOUT
PE5/TRACED2/FSMC_A21/TIM9_CH1/DCMI_D6/EVENTOUT
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PE7/FSMC_D4/TIM1_ETR/EVENTOUT
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PE9/FSMC_D6/TIM1_CH1/EVENTOUT
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PE12/FSMC_D9/TIM1_CH3N/EVENTOUT
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PF3/FSMC_A3/EVENTOUT/ADC3_IN9
PF4/FSMC_A4/EVENTOUT/ADC3_IN14
PF5/FSMC_A5/EVENTOUT/ADC3_IN15
PF6/TIM10_CH1/FSMC_NIORD/EVENTOUT/ADC3_IN4
PF7/TIM11_CH1/FSMC_NREG/EVENTOUT/ADC3_IN5
PF8/TIM13_CH1/FSMC_NIOWR/EVENTOUT/ADC3_IN6
PF9/TIM14_CH1/FSMC_CD/EVENTOUT/ADC3_IN7
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[7] Set/Reset(PE2)
[7] 5833_INT(PE3)
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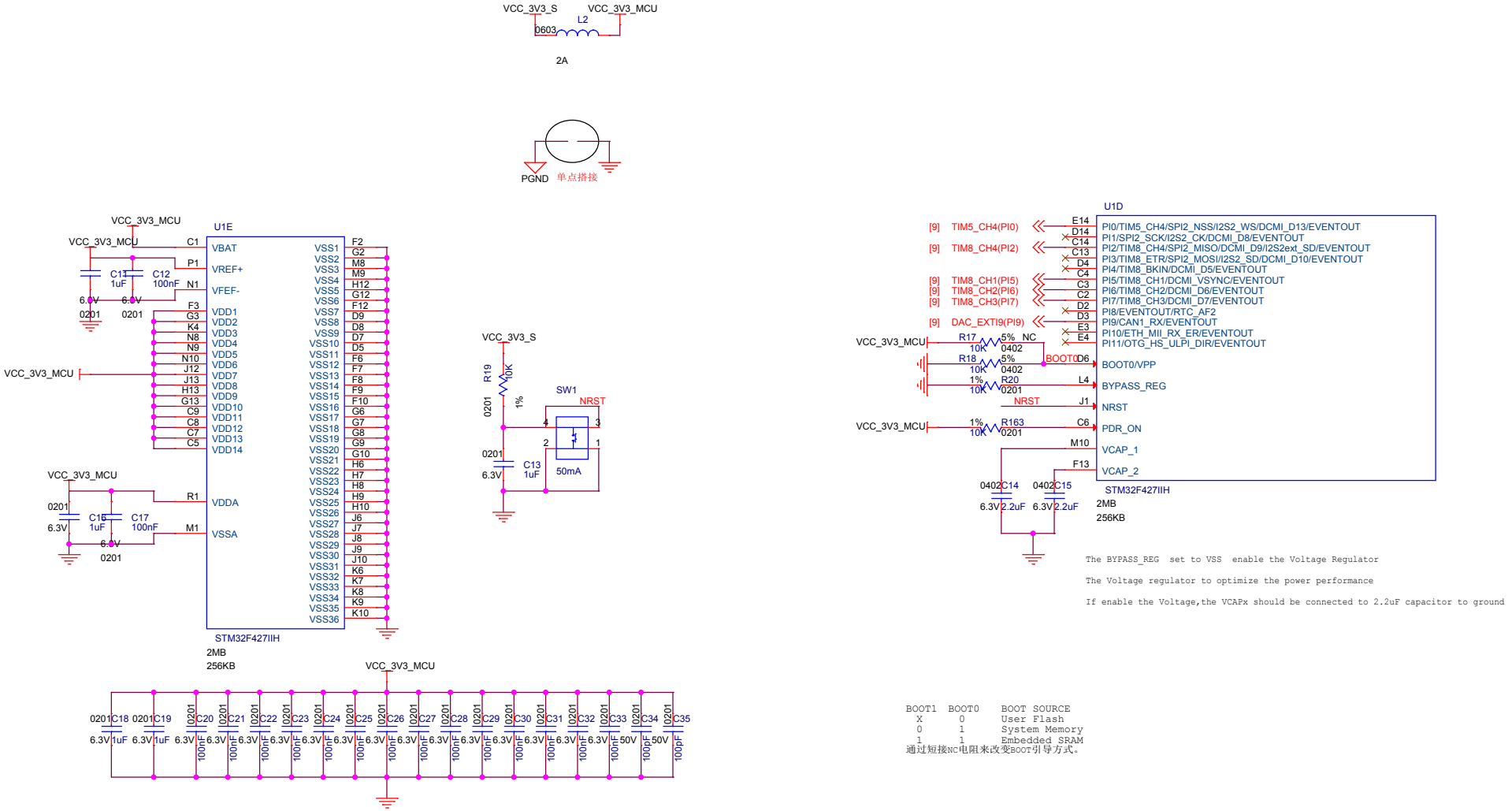

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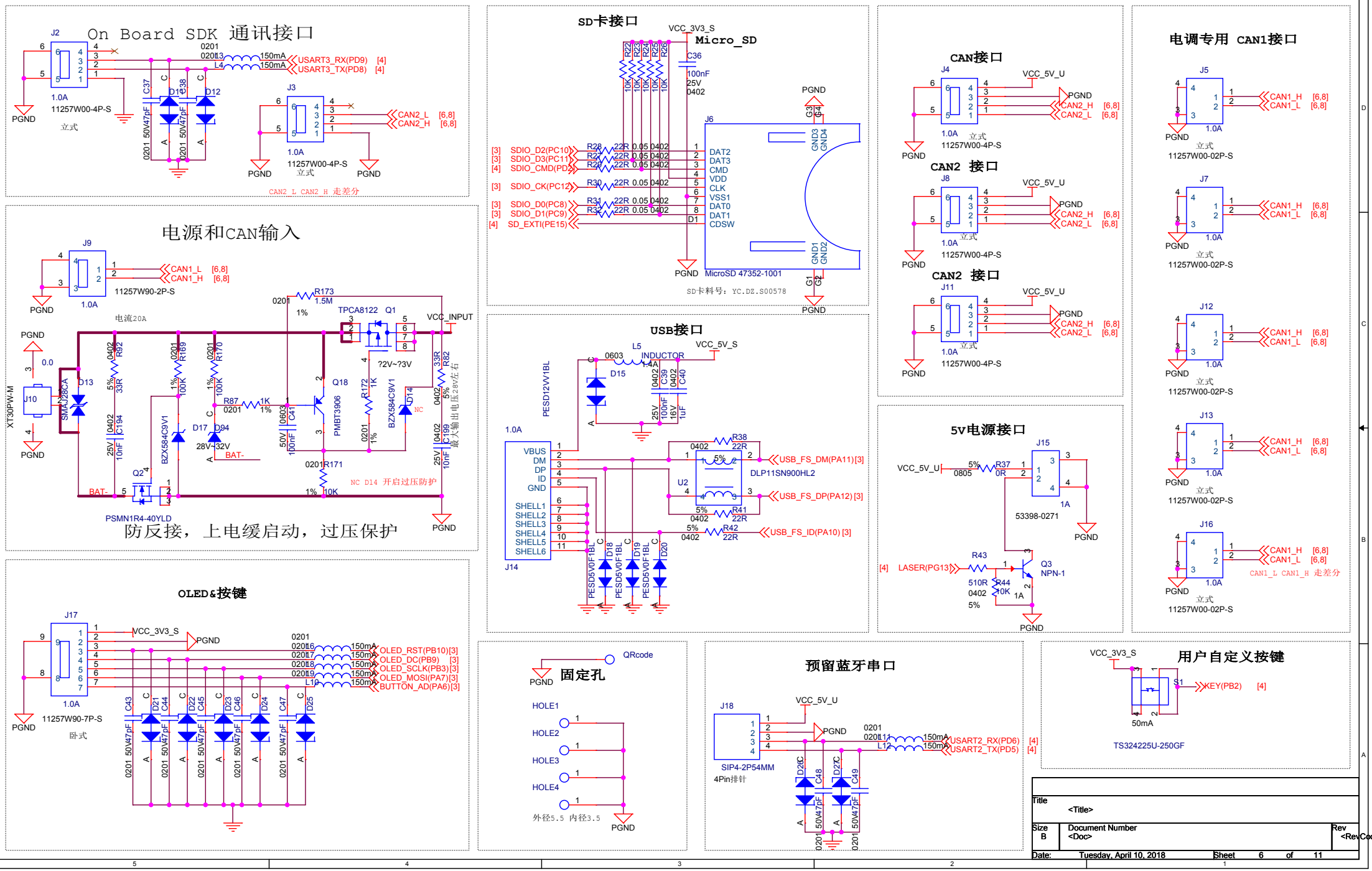

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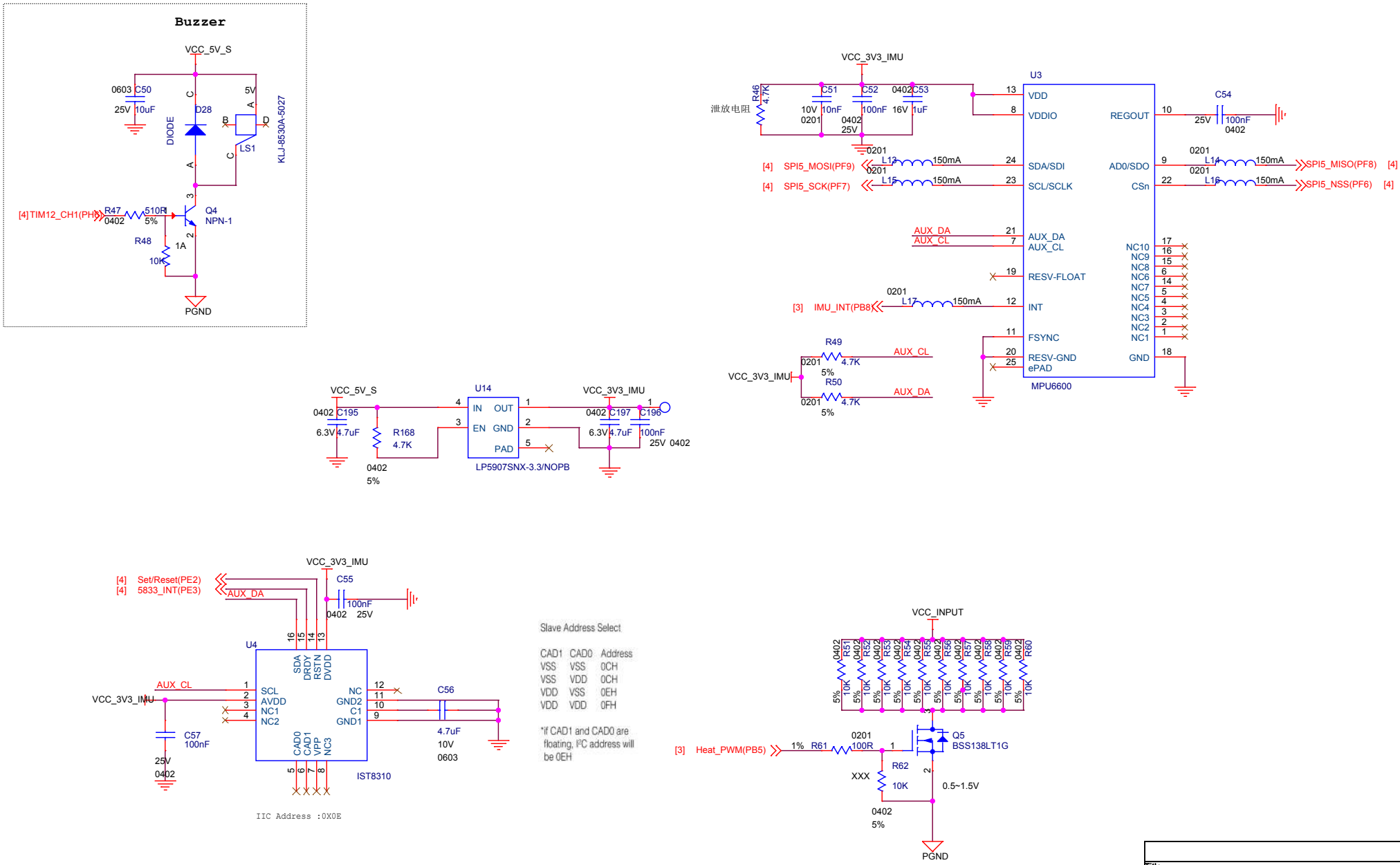

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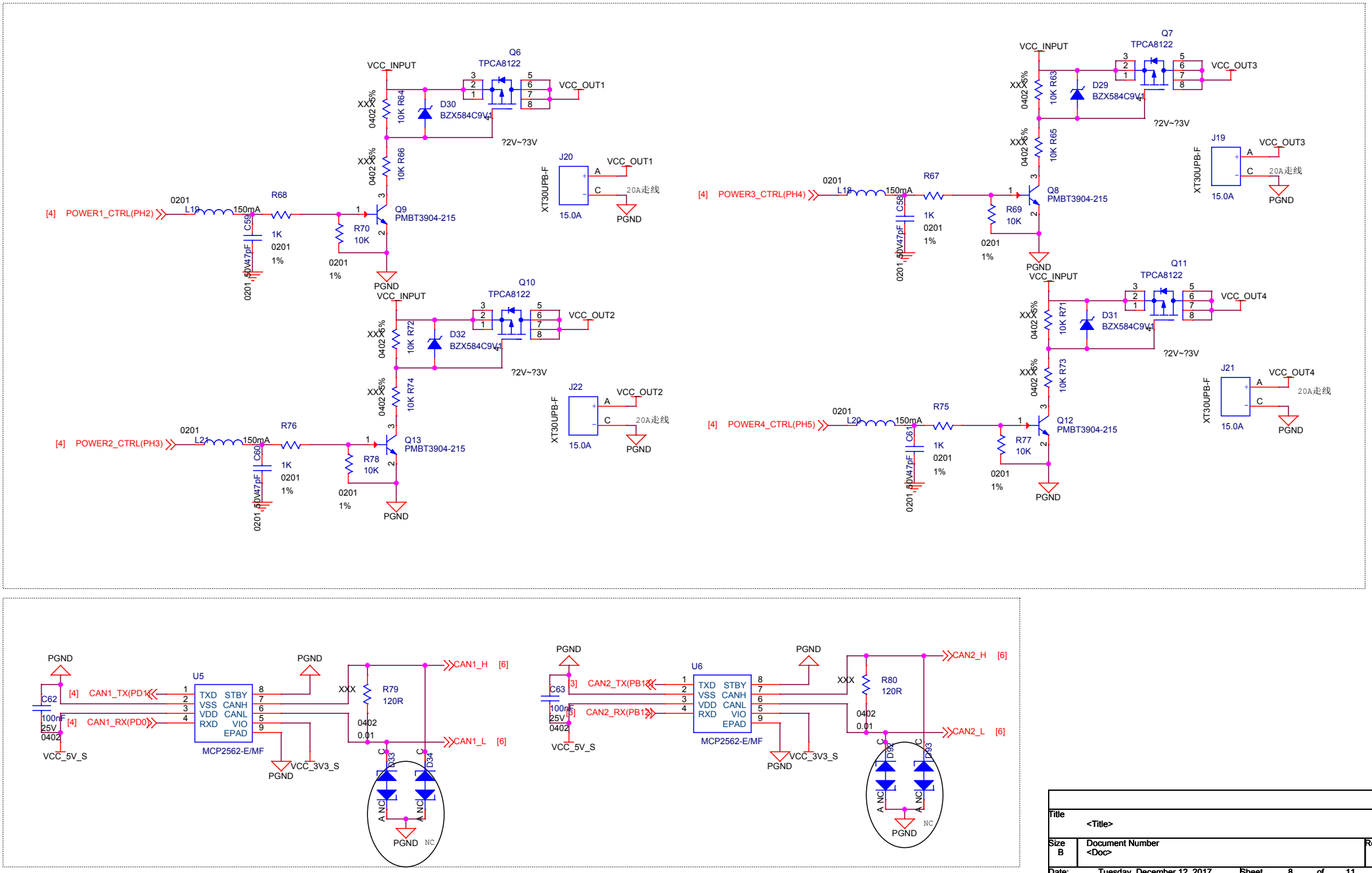

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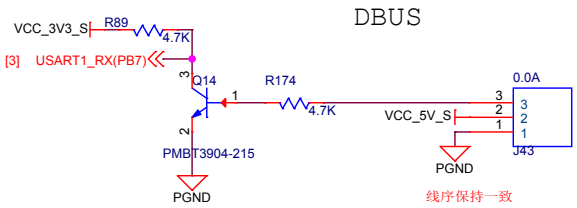

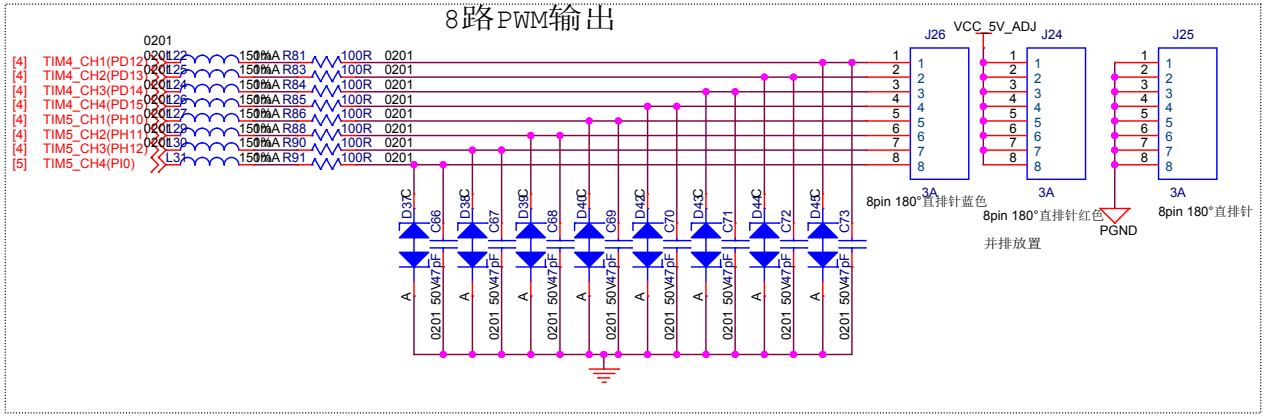

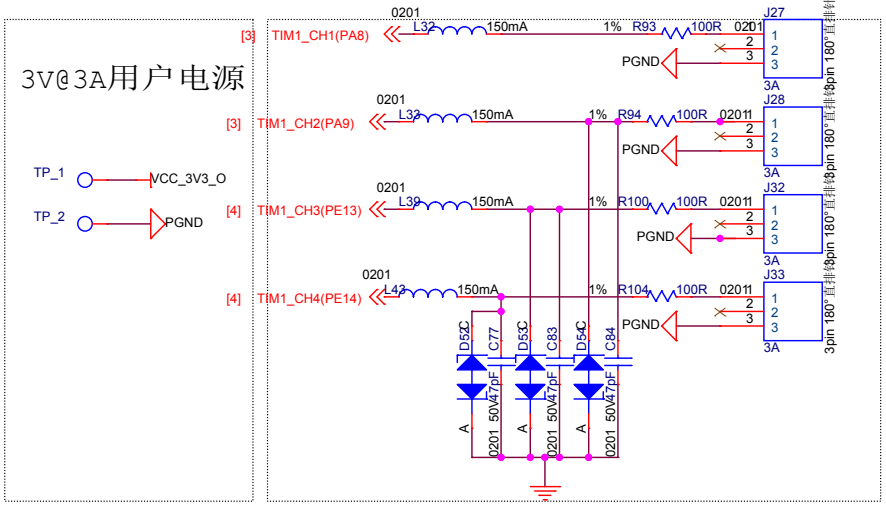

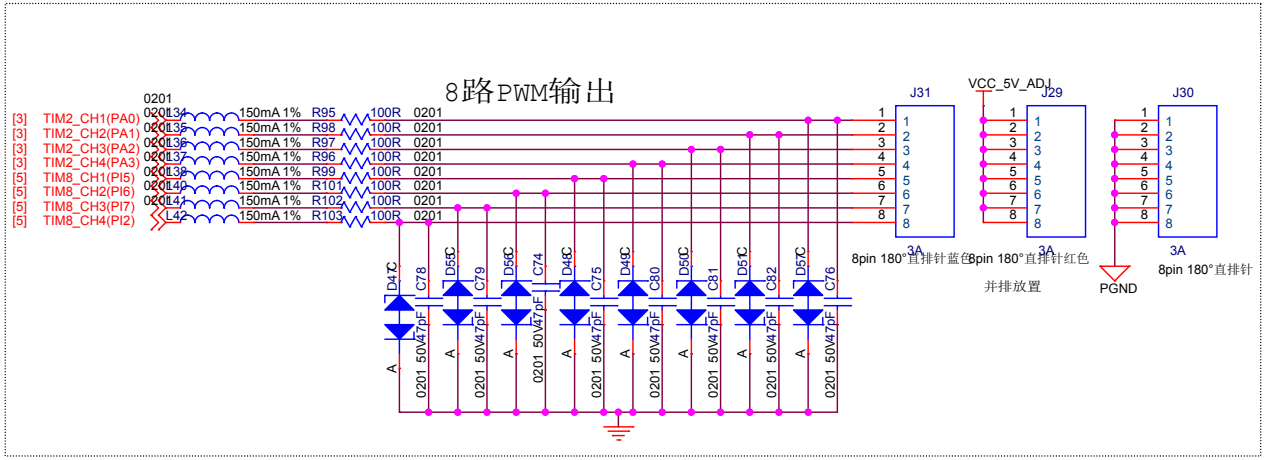

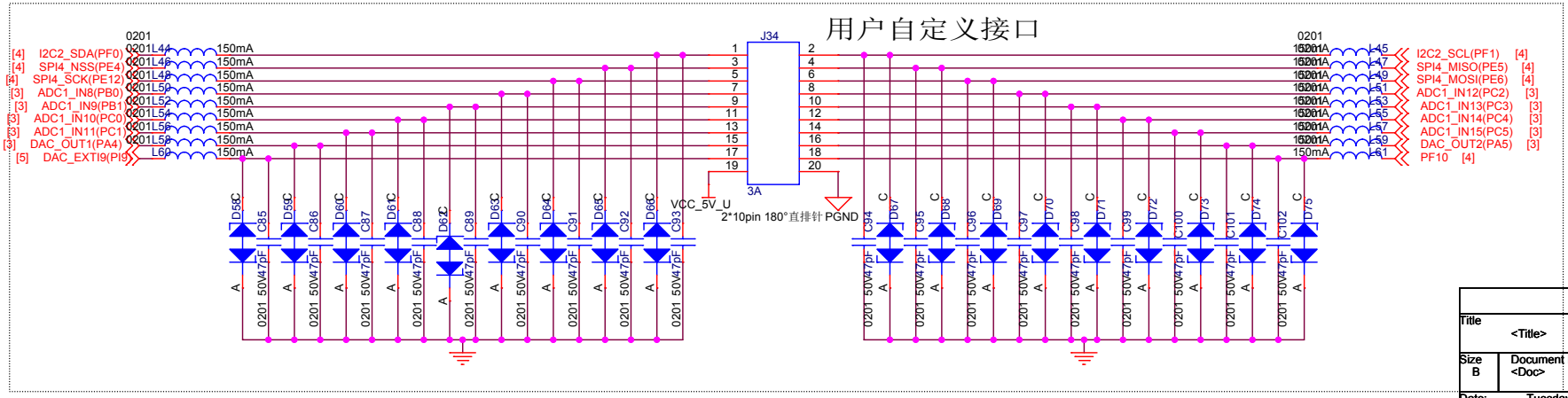

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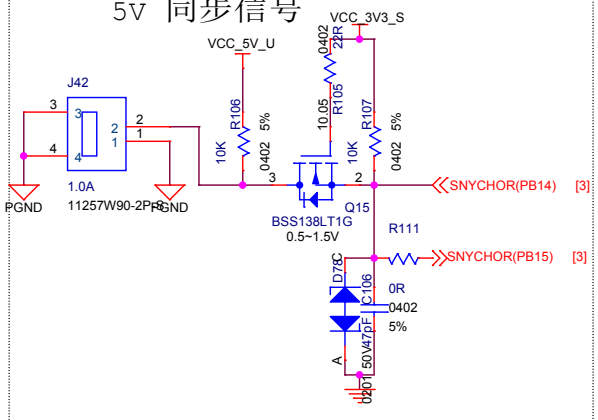

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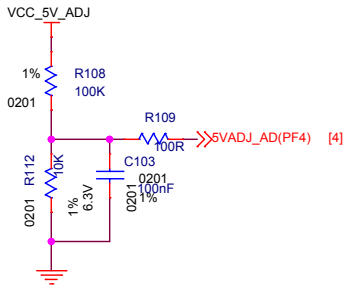

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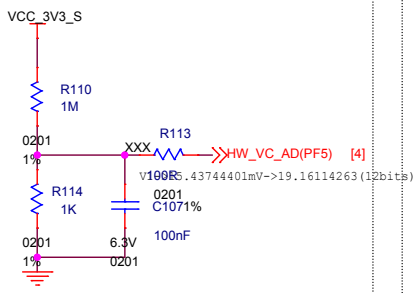

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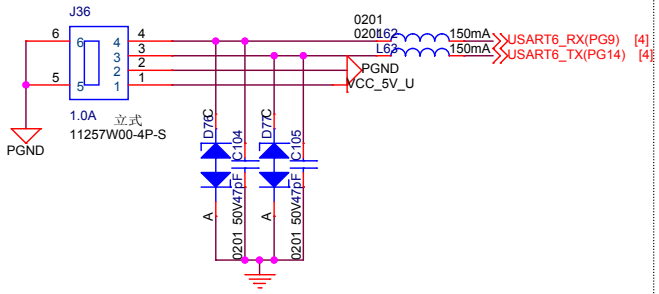
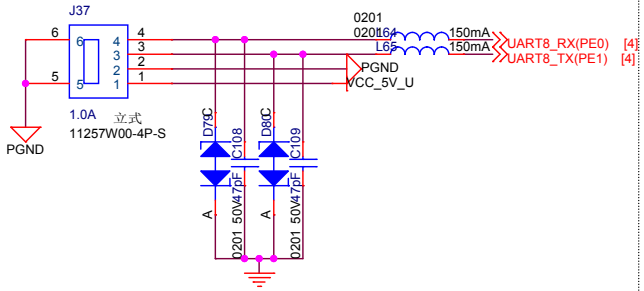
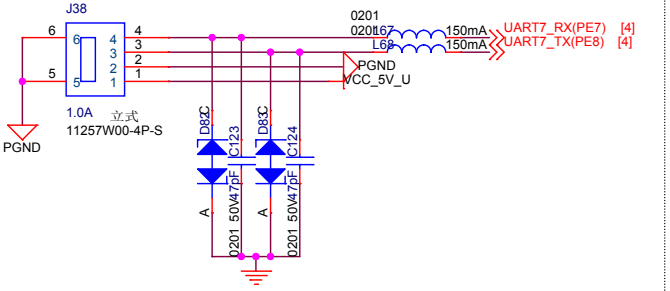


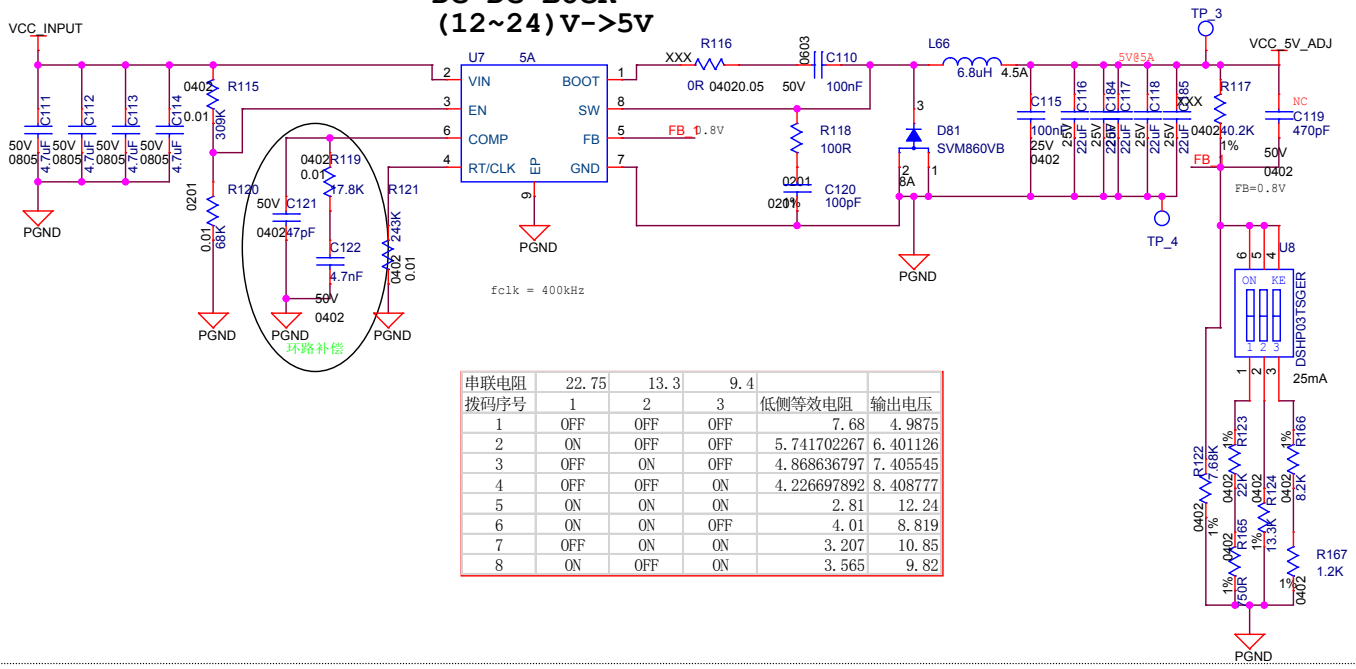




舵机四级可调电源

DC-DC BUCK
(12~24)V->5V

Imax =5A



串联电阻	22.75	13.3	9.4		
拨码序号	1	2	3	低侧等效电阻	输出电压
1	OFF	OFF	OFF	7.68	4.9875
2	ON	OFF	OFF	5.741702267	6.401126
3	OFF	ON	OFF	4.868636797	7.405545
4	OFF	OFF	ON	4.226697892	8.408777
5	ON	ON	ON	2.81	12.24
6	ON	ON	OFF	4.01	8.819
7	OFF	ON	ON	3.207	10.85
8	ON	OFF	ON	3.565	9.82

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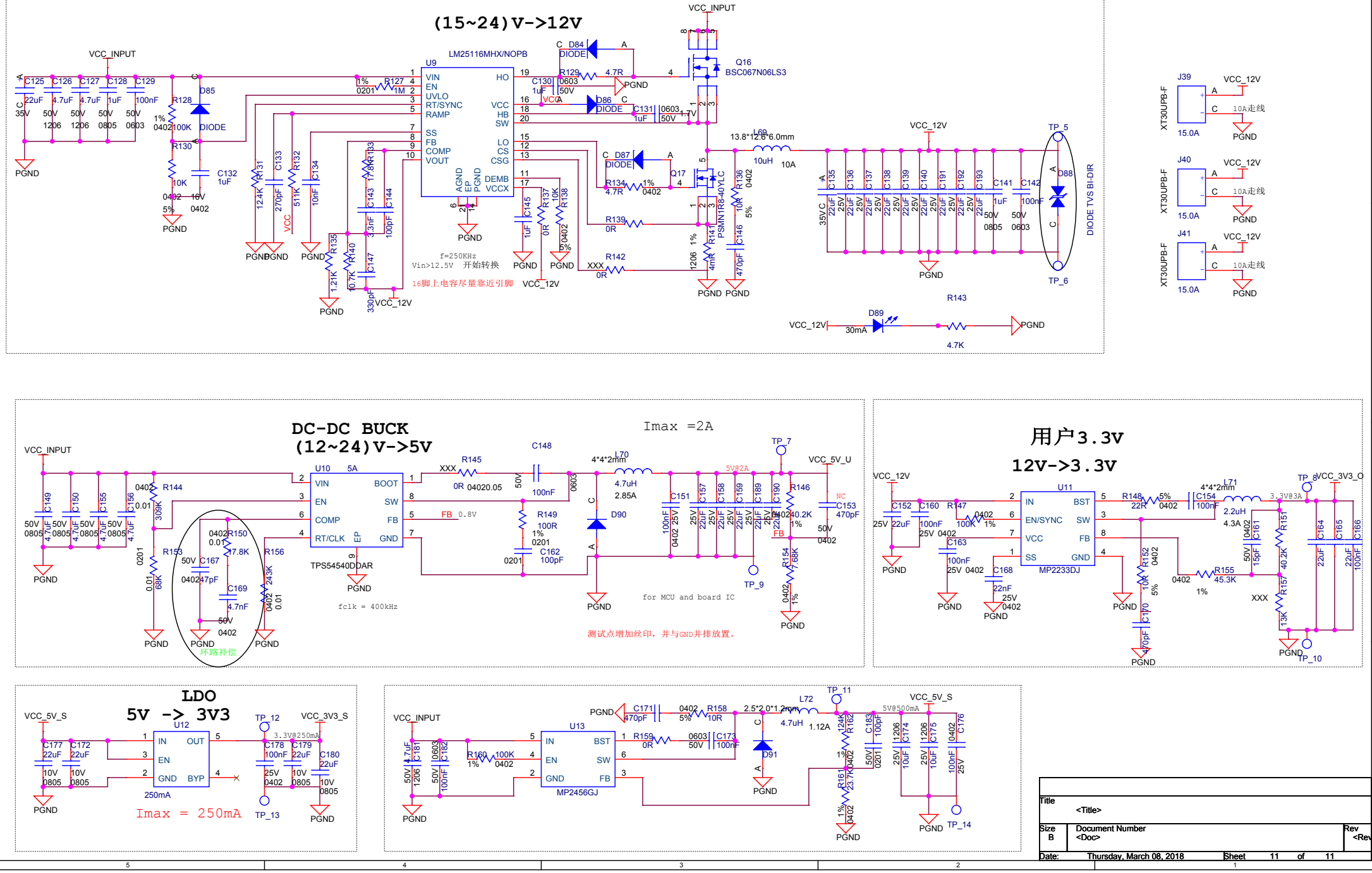
(15~24)V->12V
LM25116MHX/NOPB
U9
VIN
EN
UVLO
RT/SYNC
RAMP
SS
FB
COMP
VOUT
HO
VCC
HB
SW
LO
CS
CSG
DEMB
VCCX
AGND
EP
PGND
f=250KHz
Vin>12.5V 开始转换
16脚上电容尽量靠近引脚
Q16
BSC067N06LS3
Q17
PSMN1R8-40YLC
L69
13.8*12.6*6.0mm
10uH
10A
DIODE TVS BI-DIR
J39
J40
J41
XT30UPB-F
15.0A
10A走线
DC-DC BUCK
(12~24)V->5V
Imax =2A
U10
TPS54540DDAR
fclk = 400kHz
环路补偿
L70
4*4*2mm
4.7uH
2.85A
for MCU and board IC
测试点增加丝印，并与GND并排放置。
用户3.3V
12V->3.3V
U11
MP2233DJ
L71
2.2uH
4.3A
LDO
5V -> 3V3
U12
250mA
Imax = 250mA
U13
MP2456GJ
L72
2.5*2.0*1.2mm
4.7uH
1.12A
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<RevCode>
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