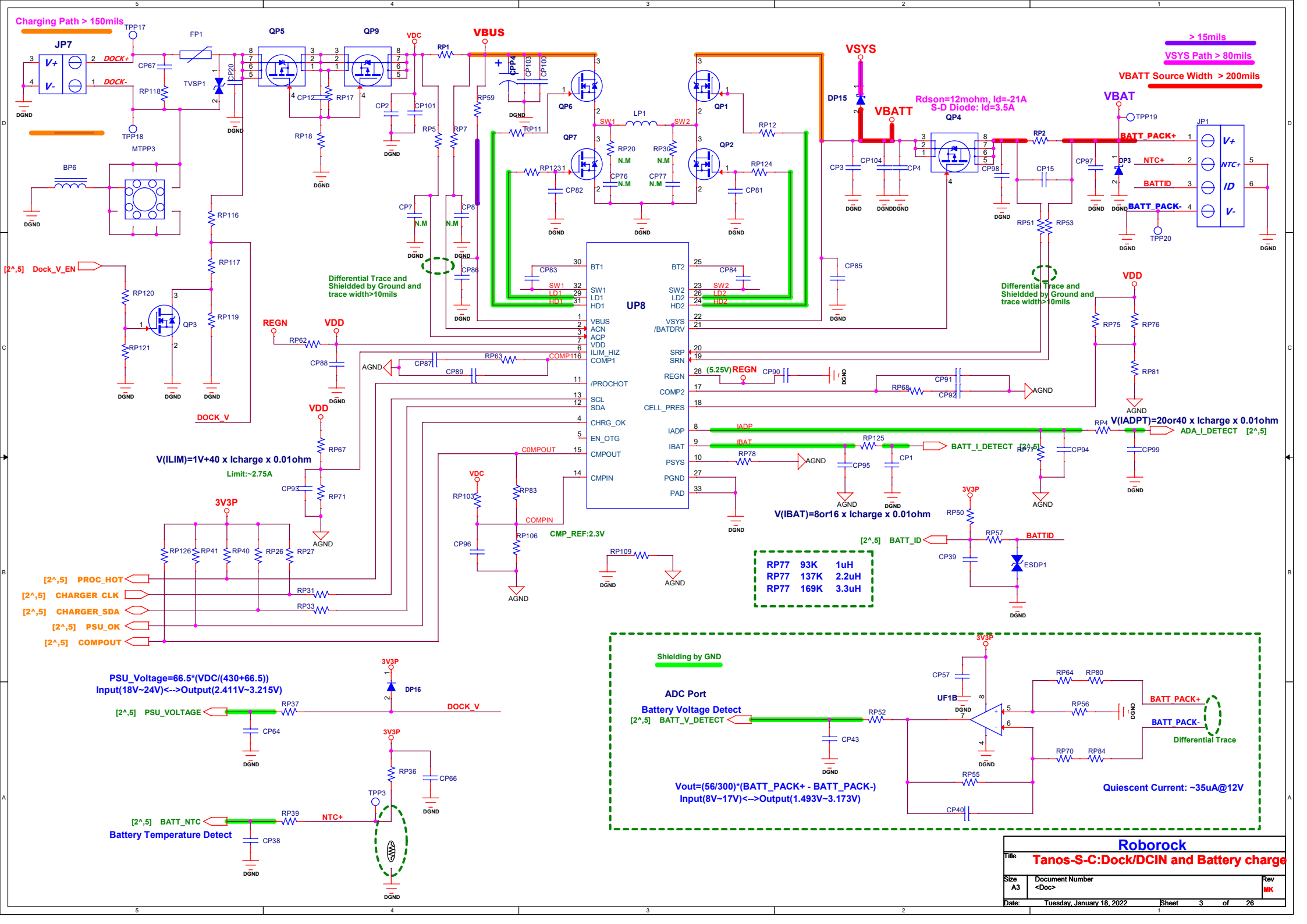
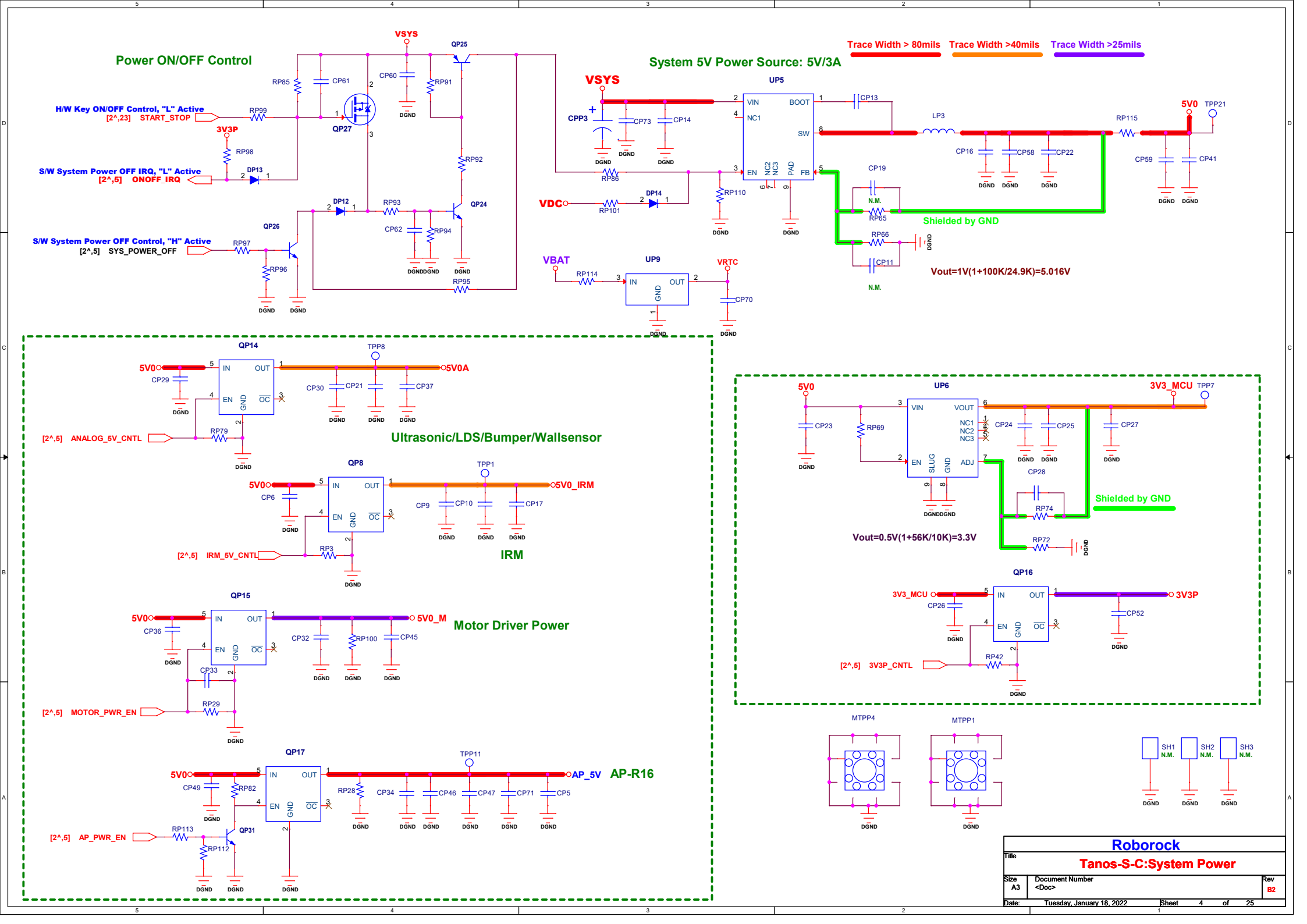

Charging Path > 150mils
> 15mils
VSYS Path > 80mils
VBATT Source Width > 200mils
VBUS
VSYS
VBATT
VBAT
VDC
Rdson=12mohm, Id=-21A
S-D Diode: Id=3.5A
JP7
JP1
UP8
QP1
QP2
QP3
QP4
QP5
QP6
QP7
QP9
Differential Trace and Shieldded by Ground and trace width>10mils
V(ILIM)=1V+40 x Icharge x 0.01ohm
Limit:~2.75A
V(IADPT)=20or40 x Icharge x 0.01ohm
V(IBAT)=8or16 x Icharge x 0.01ohm
CMP_REF:2.3V
RP77 93K 1uH
RP77 137K 2.2uH
RP77 169K 3.3uH
PSU_Voltage=66.5*(VDC/(430+66.5))
Input(18V~24V)<-->Output(2.411V~3.215V)
Battery Temperature Detect
Shielding by GND
ADC Port
Battery Voltage Detect
Vout=(56/300)*(BATT_PACK+ - BATT_PACK-)
Input(8V~17V)<-->Output(1.493V~3.173V)
Quiescent Current: ~35uA@12V
Roborock
Tanos-S-C:Dock/DCIN and Battery charge
Size A3
Document Number <Doc>
Rev MK
Date: Tuesday, January 18, 2022
Sheet 3 of 26



Roborock

Title: Tanos-S-C:System Power

Size	Document Number	Rev
A3	<Doc>	B2

Date: Tuesday, January 18, 2022 Sheet 4 of 25

The device exits Standby mode when an external reset (NRST pin), an IWDG reset, a rising edge on the WKUP pin, or an RTC alarm occurs.

UC1A

TIM5 [2^,17] FAN_PWM_CNTL
[2^,21] WALL_SENSOR
[2^,19] SWEEP_I_FB
[2^,21] RF_CLLIFF_DET
[2^,3] BATT_I_DETECT
[2^,3] BATT_V_DETECT
[2^,21] RB_CLLIFF_DET
[2^,24] PUMP_ON
[2^,4] MOTOR_PWR_EN
[2^,6] AP_INT_MCU
Gyro-INT

MIXED_ADC
USART1_TX
USART1_RX
TMS
TCK
TDI

PA0-WKUP/TIM5_CH1/ADC123_IN0
PA1/TIM2_CH2/ADC123_IN1/TIM5_CH2
PA2/USART2_TX/ADC123_IN2 /TIM9_CH1/TIM2_CH3
PA3/USART2_RX/TIM5_CH4/ADC123_IN3 /TIM2_CH4/TIM9_CH2
PA4/DAC_OUT1/ADC12_IN4
PA5/SPI1_SCK/DAC_OUT2/ADC12_IN5
PA6/SPI1_MISO/TIM8_BKIN/ADC12_IN6/TIM3_CH1/TIM13_CH1
PA7/SPI1_MOSI/TIM8_CH1N/ADC12_IN7/TIM3_CH2/TIM14_CH1
PA8/USART1_CK/TIM1_CH1/MCO
PA9/USART1_TX
PA10/USART1_RX
PA11/USART1_CTS/USBDM /CAN_RX
PA12/USART1_RTS /USBDP/CAN_TX
PA13/JTMS-SWDIO
PA14/JTCK-SWCLK
PA15/JTDI

NRST — nMCU_RST
OSC_OUT — RC4, RC5, YC1, CC1, CC2
OSC_IN
NC
BOOT0

Wheel Motor PWM Control
TIM3
[2^,15] LEFT_M_PHASE
[2^,16] RIGHT_M_PHASE
BOOT1
TDO
TRST
TIM2_CH2
[2^,23] STATUS_LED_1
[2^,23] DOCK_BACK
[2^,15] LEFT_M_FG
[2^,3] CHARGER_CLK
[2^,3] CHARGER_SDA
[2^,4] AP_PWR_EN
[2^,22] IRM_MID2
[2^,23] STATUS_LED_2

PB0/ADC12_IN8/TIM3_CH3/TIM8_CH2N
PB1/ADC12_IN9/TIM3_CH4/TIM8_CH3N
PB2/BOOT1
PB3/SPI3_SCK / I2S3_CK/
PB4/SPI3_MISO
PB5/I2C1_SMBA / SPI3_MOSI /
PB6/I2C1_SCL/TIM4_CH1
PB7/I2C1_SDA/FSMC_NADV
PB8/TIM4_CH3/SDIO_D4/TIM10_CH1
PB9/TIM4_CH4/SDIO_D5/TIM11_CH1
PB10/I2C2_SCL / USART3_TX/TIM2_CH3
PB11/I2C2_SDA / USART3_RX/TIM2_CH4
PB12/SPI2_NSS/I2S2_WS/2C2_SMBA/USART3_CK/TIM1_BKIN
PB13/SPI2_SCK/I2S2_CK/USART3_CTS/TIM1_CH1N
PB14/SPI2_MISO/TIM1_CH2N/USART3_RTS/TIM12_CH1
PB15/SPI2_MOSI /I2S2_SD/TIM1_CH3N

TIM4
PD15/TIM4_CH4 — CLIFF_IR_PWM [2^,21]
PD14/TIM4_CH3 — SWEEP_PHASE [2^,19]
PD13/TIM4_CH2 — BRUSH_PHASE [2^,18]
PD12/TIM4_CH1/USART3_RTS — Wall_SENSOR_IR_PWM [2^,21]
PD11/FSMC_A16/USART3_CTS — ADC_SELECT0
PD10/FSMC_D15/USART3_CK — ADC_SELECT1
PD9/FSMC_D14/USART3_RX — BUMPER1 [2^,24]
PD8/FSMC_D13/USART3_TX — BUMPER0 [2^,24]
PD7/FSMC_NE1 / FSMC_NCE2/USART2_CK — ONOFF_IRQ [2^,4]
PD6/FSMC_NWAIT/USART2_RX — MCU-RX_AP-TX [2^,6]
PD5/FSMC_NWE/USART2_TX — MCU-TX_AP-RX [2^,6]
PD4/FSMC_NOE/USART2_RTS — MCU-RT_AP-CT [2^,6]
PD3/FSMC_CLK/USART2_CTS — MCU-CT_AP-RT [2^,6]
PD2/TIM3_ETR/UART5_RX/SDIO_CMD — LEFT_WALK_DET [2^,15]
PD1/FSMC_D3 — RIGHT_WALK_DET [2^,16]
PD0/FSMC_D2 — LDS_BUMPER [2^,23]

TPC44
GYRO_nCS
GYRO_SCK
GYRO_SDO
GYRO_SDI

3V3P — CC20 — DGND

UC3
VDD, GND, SLUG
Y0 — BATT_NTC [2^,3]
Y1 — BATT_ID [2^,3]
Y2 — ADA_I_DETECT [2^,3]
Y3 — PSU_VOLTAGE [2^,3]
Select, A, B, COM, ENABLE
ADC_SELECT0
ADC_SELECT1
MIXED_ADC

TIM8
[2^,17] FAN_I_FB
[2^,15] LEFT_WHEEL_I
[2^,16] RIGHT_WHEEL_I
[2^,18] BRUSH_I_FB
[2^,21] LB_CLLIFF_DET
[2^,21] LF_CLLIFF_DET
[2^,16] RIGHT_M_FG
[2^,23] CHARGE_LED
[2^,4] 3V3P_CNTL
[2^,17] FAN_FG
[2^,22] Infrared_TX
[2^,18] BRUSH_MODE
[2^,23] Dustbox_DET

PC0/ADC123_IN10
PC1/ADC123_IN11
PC2/ADC123_IN12
PC3/ADC123_IN13
PC4/ADC12_IN14
PC5/ADC12_IN15
PC6/TIM8_CH1
PC7/TIM8_CH2
PC8/TIM8_CH3
PC9/TIM8_CH4
TIM8 Advanced-Control Timer
PC10/UART4_TX/SDIO_D2
PC11/UART4_RX/SDIO_D3
PC12/UART5_TX/SDIO_CK
PC13-TAMPER-RTC
PC14-OSC32_IN
PC15-OSC32_OUT

TPC43
CC23, CC24, YC2, RC50 N.M., RC49

TIM1 Advanced-Control Timer — Input Capture — PWM Output
PE15/TIM1_BKIN — MCU-RST-AP [2^,6,9]
PE14/TIM1_CH4 — RAG_DET [2^,24]
PE13/TIM1_CH3 — PROC_HOT [2^,3]
PE12/TIM1_CH3N — Dock_V_EN [2^,3]
PE11/TIM1_CH2 — LEFT_M_MODE [2^,15]
PE10/TIM1_CH2N — RIGHT_M_MODE [2^,16]
PE9/TIM1_CH1 — ANALOG_5V_CNTL [2^,4]
PE8/TIM1_CH1N — IRM_5V_CNTL [2^,4]
PE7/TIM1_ETR
PE6/TRACED3 / FSMC_A22/TIM9_CH2 — SYS_POWER_OFF [2^,4]
PE5/TRACED2/ FSMC_A21/TIM9_CH1 — B_ID0
PE4/TRACED1/ FSMC_A20 — B_ID1
PE3/TRACED0 / FSMC_A19 — PSU_OK [2^,3]
PE2/TRACECK / FSMC_A23 — FAN_PWR_EN [2^,17]
PE1/FSMC_NBL1 — COMPOUT [2^,3]
PE0/TIM4_ETR/FSMC_NBL0 — IRM_MID1 [2^,22]

ACC nCS — Gyro2

UC1B

VRTC, VMCU
VBAT, VDDA
VDD_5, VDD_4, VDD_1, VDD_2, VDD_3
VREF+, VREF-
VSS_3, VSS_2, VSS_1, VSS_4, VSS_5, VSSA
BC1, BC2, BC3
CC5, CC6, CC8, CC9, CC10, CC11, CC14, CC15, CC16, CC22
RC12
3V3_MCU

Reset Key

nMCU_RST — RC47 — RST_MCU — RST_MCU [2^,23]
CC17, ESDC4

Gyro1

UC4
3V3P
VDDIO, VDD, GNDIO, GND, OSCB, OSDO
SDO — GYRO_SDO
SDX — GYRO_SDI
SCX — GYRO_SCK
CSB — GYRO_nCS
INT1 — Gyro-INT
INT2
ASDx, ASCx
RC28, RC48 N.M., RC53 N.M., RC54 N.M.
CC19, CC21, CC25 N.M.

Font Color	Meaning
Blue	PWM Control Signal and high speed capture
Green	Analog: ADC/DAC
Red	Interrupt
Purple	Communication w/ AP
Orange	General GPIO

UART: for Debug and Download

TPC21, TPC22, TPC23
RC39 USART1_RX
RC40 USART1_TX
ESDC6, ESDC7

SWD Connector

AP-MCU-TMS [2^,6,8]
AP-MCU-TCK [2^,6,8]
RC19, RC35 TMS, RC36 TCK, RST_MCU
TPC37, TPC38, TPC39, TPC40, TPC41
ESDC3, ESDC5, RC51

Board Version

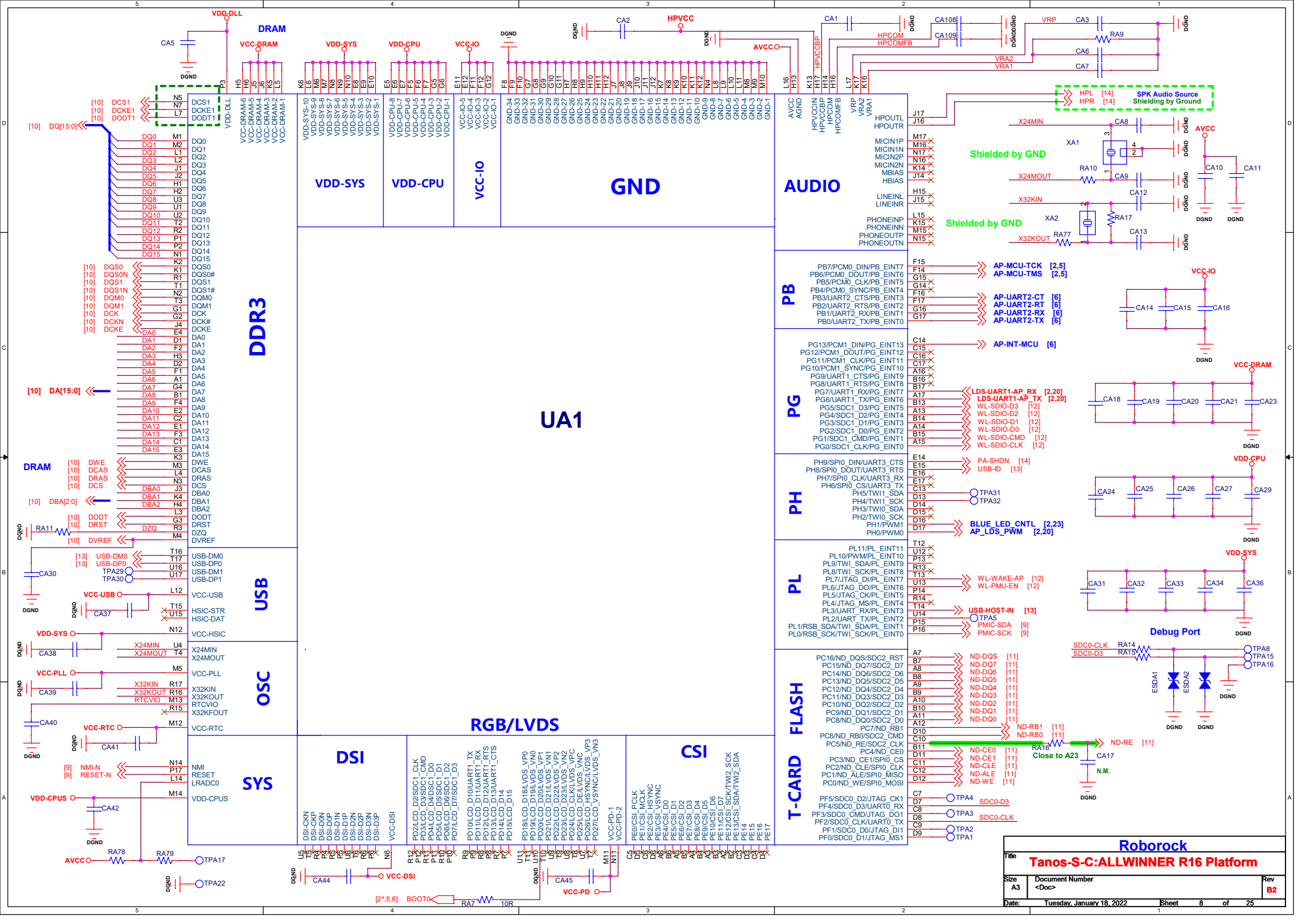
RC3 N.M. BOOT1, RC2
TPC42, BOOT0, RC30
RC32, RC33, RC37 N.M., RC52 N.M.
B_ID0, B_ID1

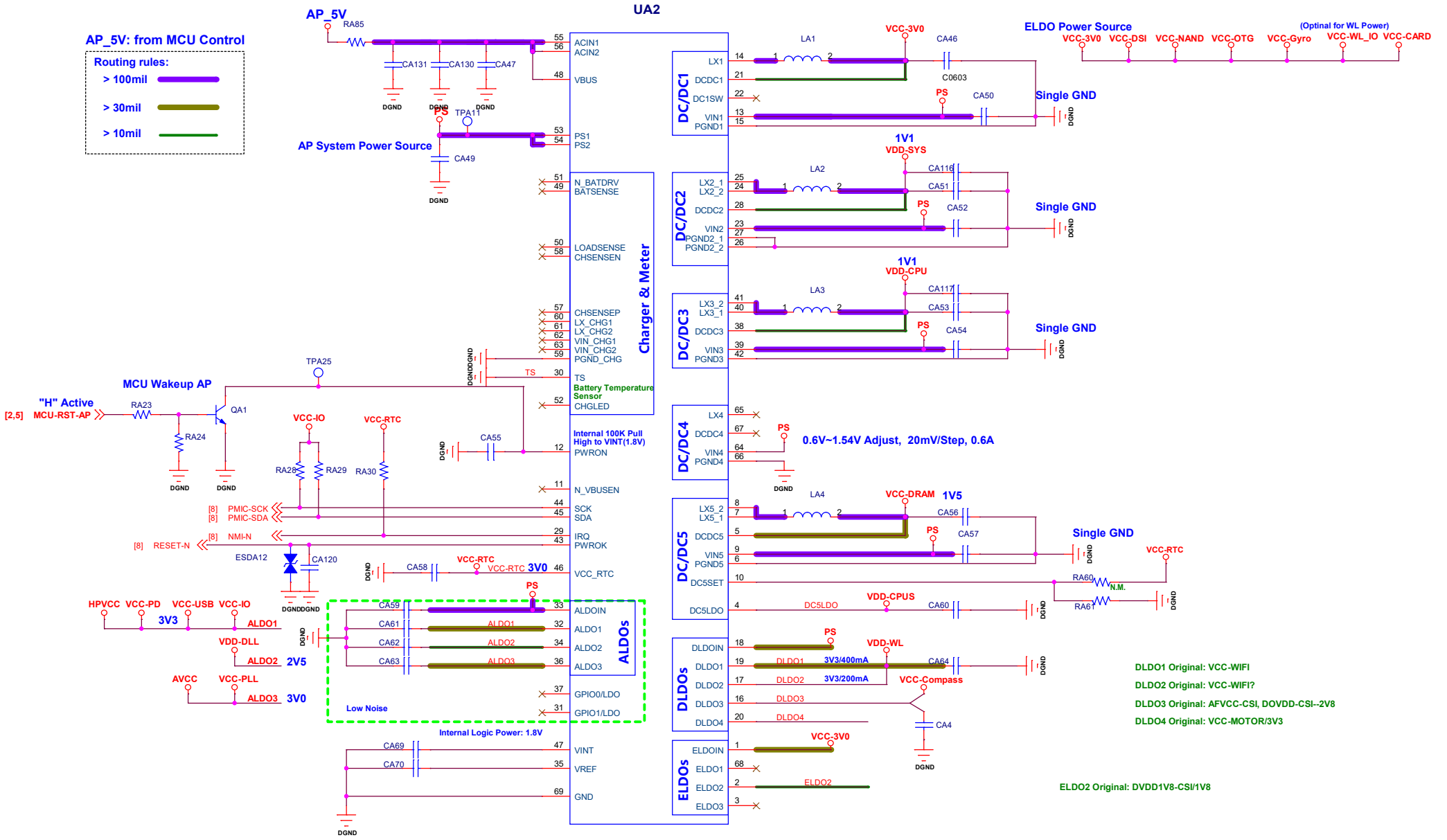
Roborock

Title: Tanos-S-C:MCU GD32F303VCT6

Size	Document Number	Rev
A3	<Doc>	B2

Date: Tuesday, January 18, 2022 Sheet 5 of 25


DRAM
VDD-SYS
VDD-CPU
VCC-IO
GND
AUDIO
PB
PG
PH
PL
FLASH
T-CARD
DDR3
USB
OSC
SYS
RGB/LVDS
DSI
CSI
UA1
Shielded by GND
SPK Audio Source Shielding by Ground
Debug Port
Close to A23
Roborock
Tanos-S-C:ALLWINNER R16 Platform
Size A3
Document Number <Doc>
Rev B2
Date: Tuesday, January 18, 2022
Sheet 8 of 25



Roborock		
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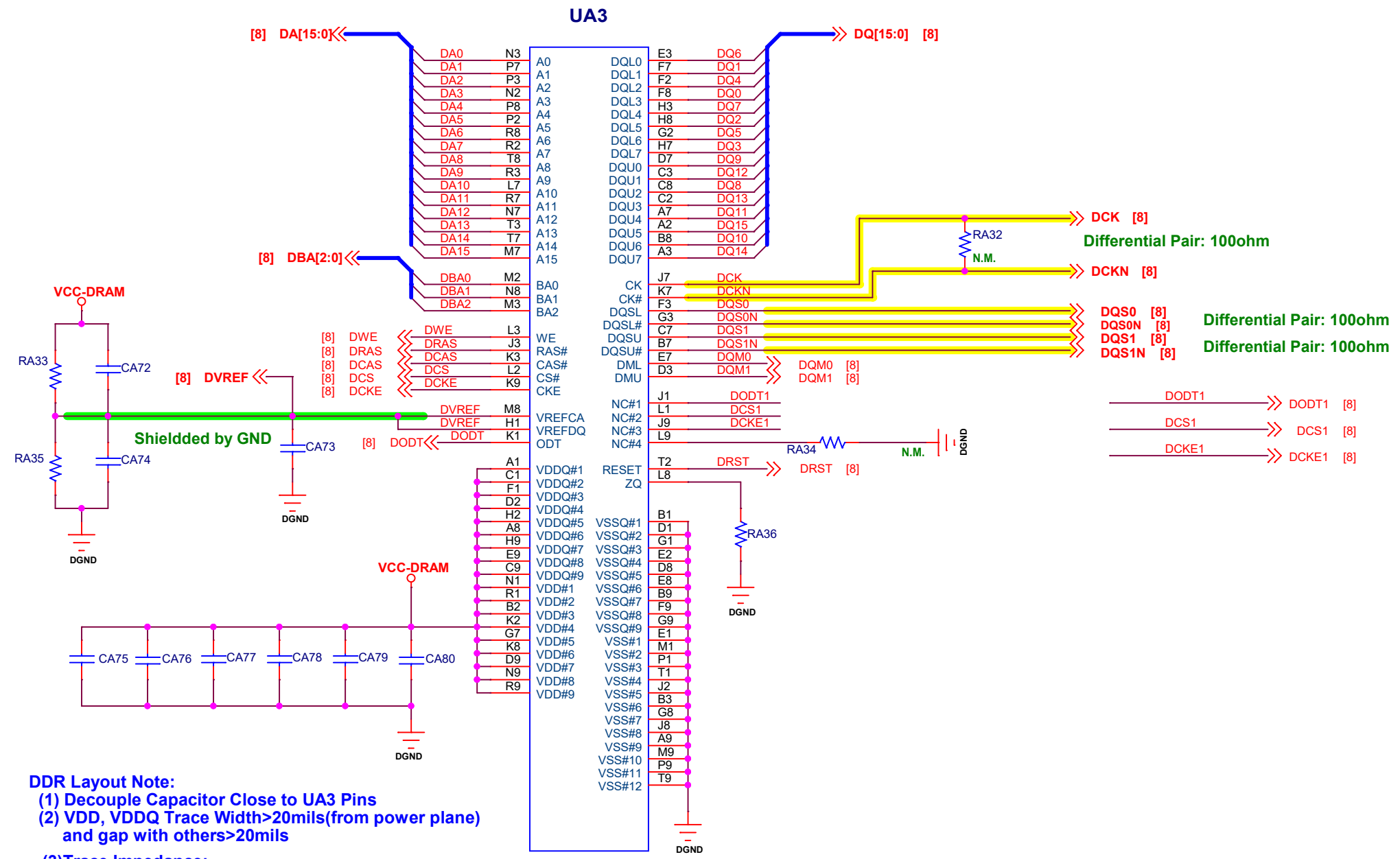
Size A3	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 9 of 25	



DDR Layout Note:

(1) Decouple Capacitor Close to UA3 Pins

(2) VDD, VDDQ Trace Width>20mils(from power plane) and gap with others>20mils

(3)Trace Impedance:

(a) Single-ended signal trace are to be 50 ohm+-10%.

(b) Differential signal trace are to be 100 ohm +- 10%.

(4) Differential clocks CK, CK#

(a) Differential line length match: within +- 25 mils;

(b) Trace length with DQS and DQS#: within +- 10 mils

Roborock		
Title: Tanos-S-C:DDR3		
Size: A4	Document Number: <Doc>	Rev: B2
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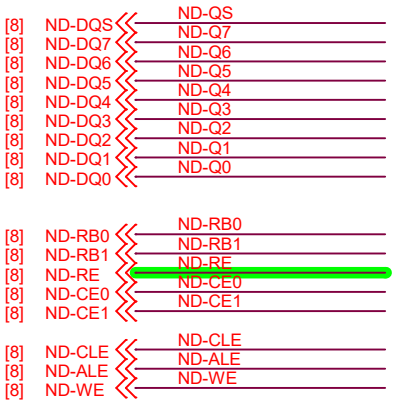
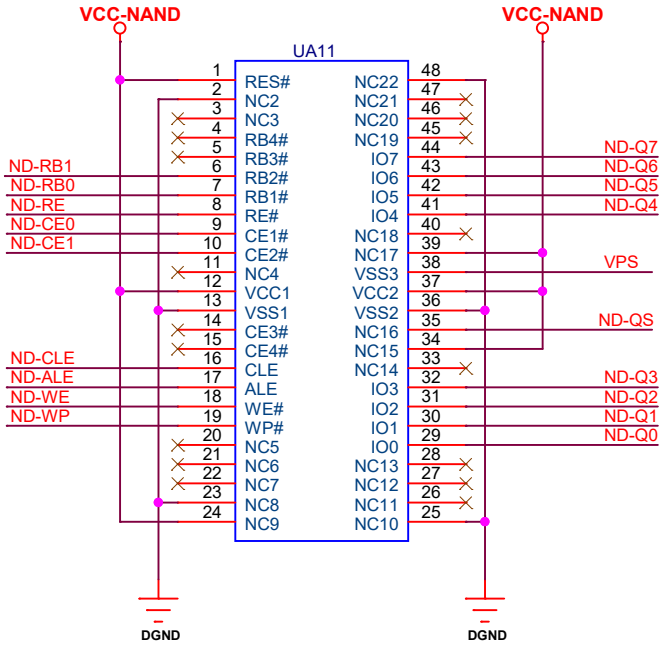
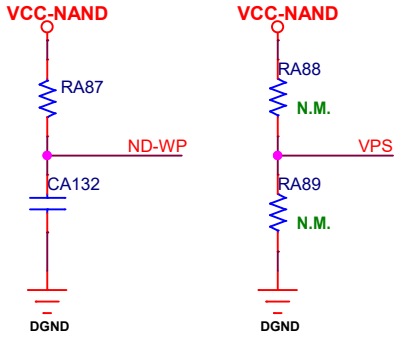
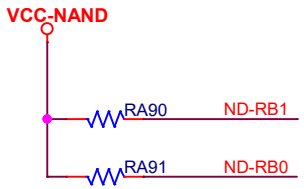
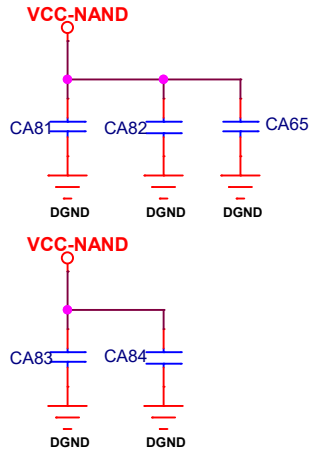
Nand Flash



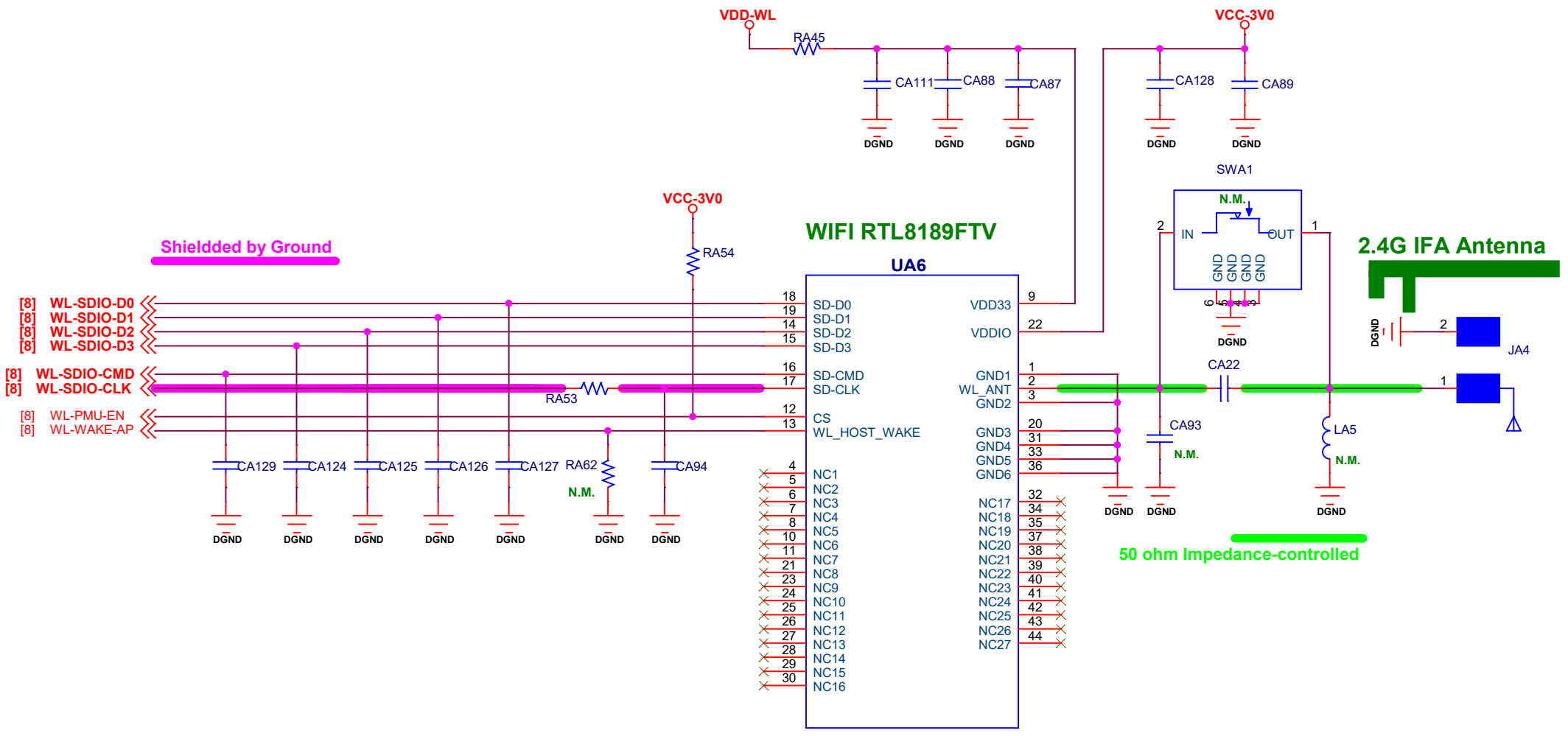




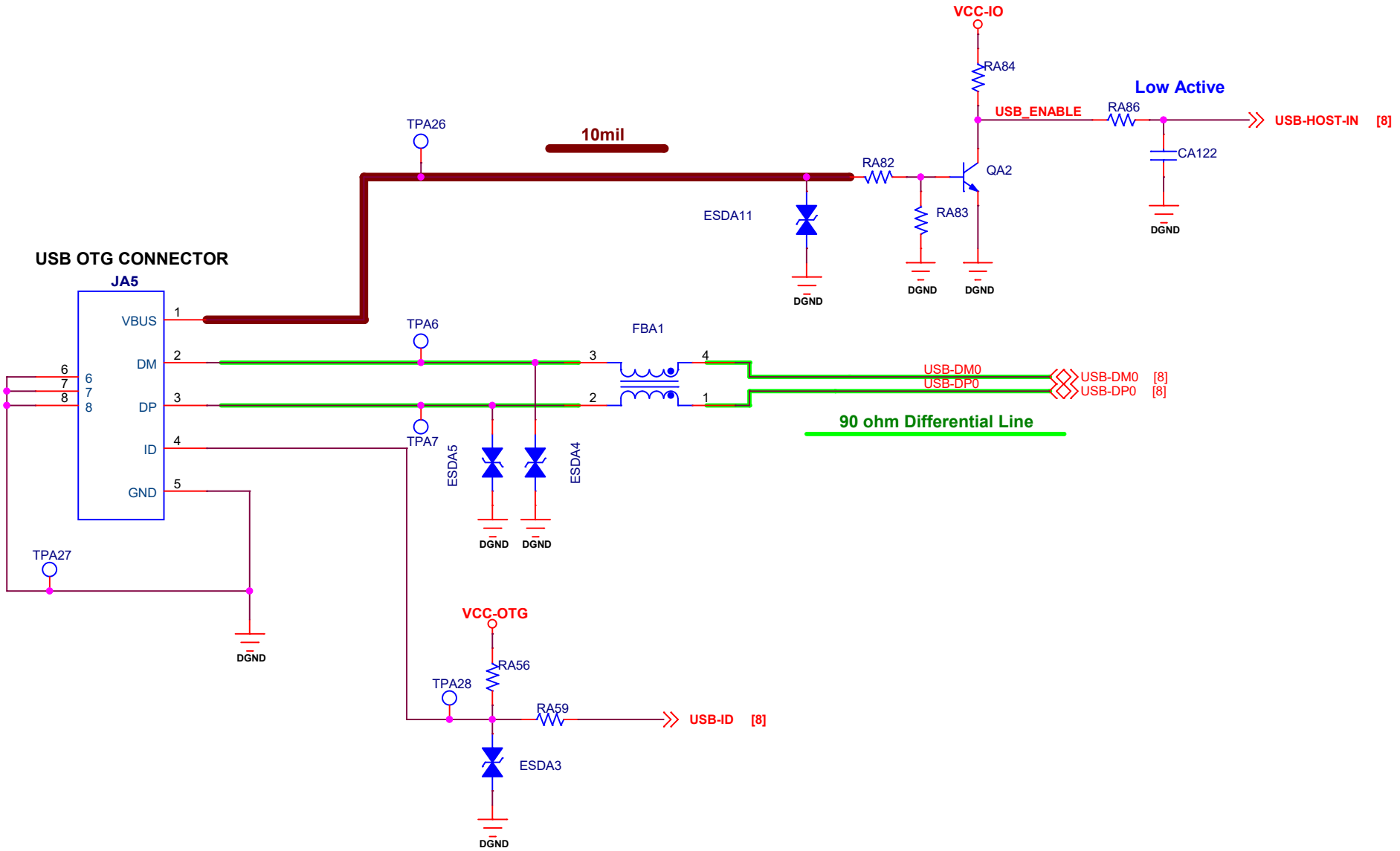




Roborock		
Title: Tanos-S-C:Nand Flash		
Size: A4	Document Number: <Doc>	Rev: B2
Date: Tuesday, January 18, 2022	Sheet 11 of 25	

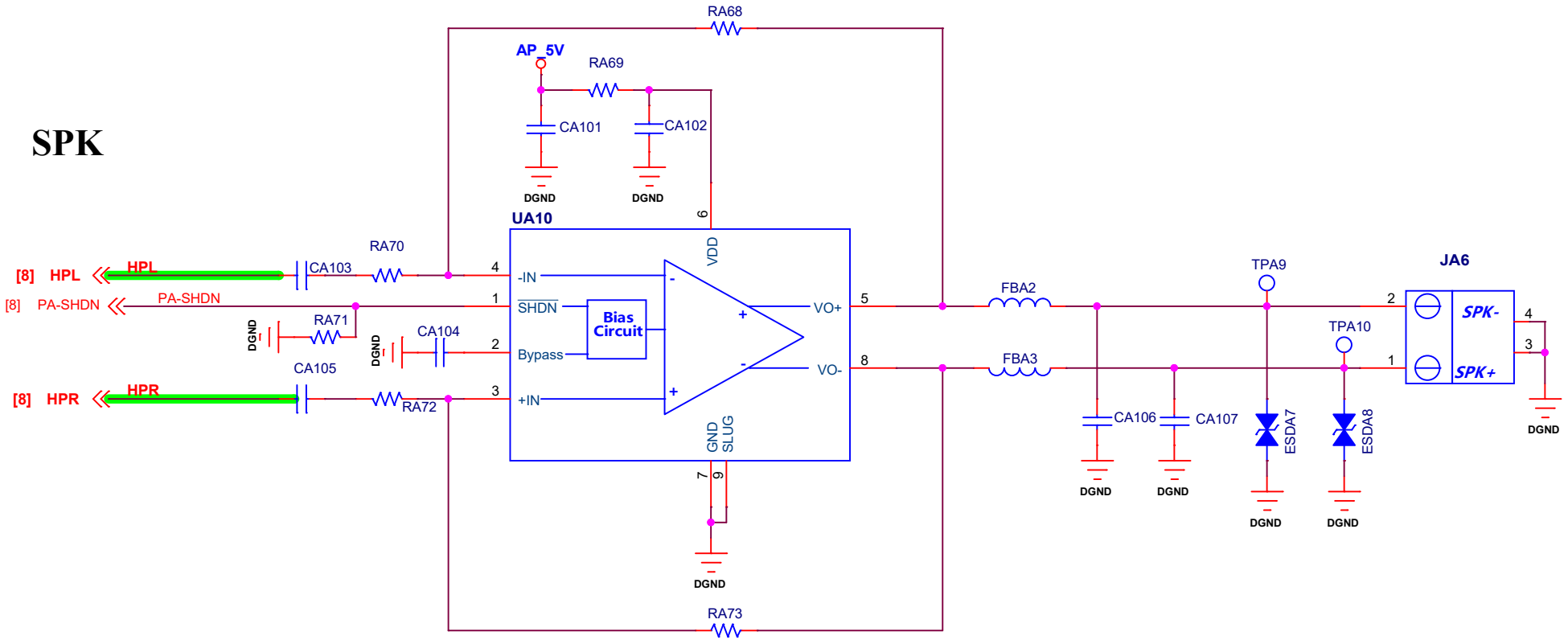


Roborock		
Title: Tanos-S-C:WiFi Module: 802.11b/g/n		
Size: A4	Document Number: <Doc>	Rev: B2
Date: Tuesday, January 18, 2022	Sheet 12 of 25	

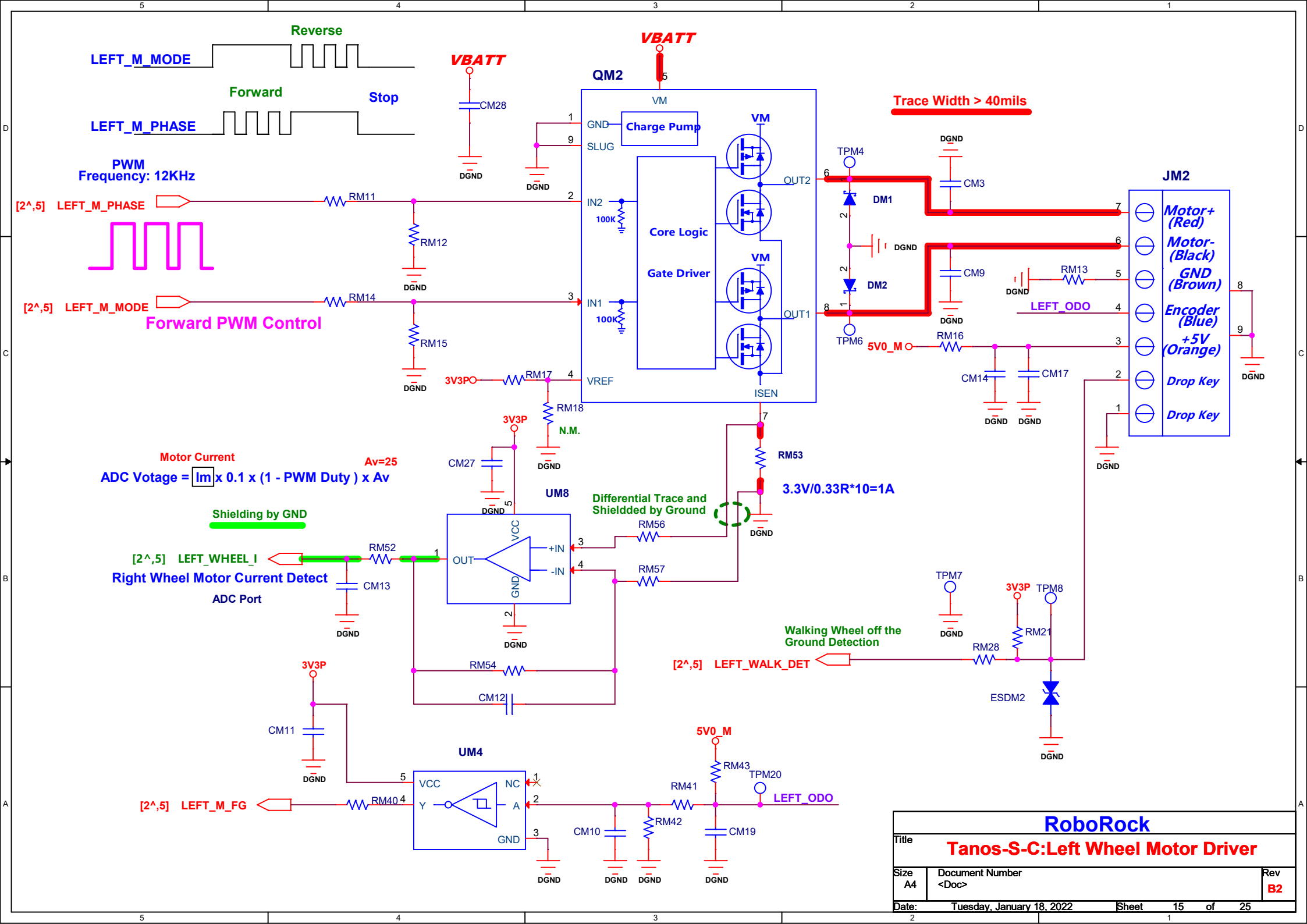


Roborock		
Title	Tanos-S-C:USB&Uboot	
Size A4	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 13 of 25	

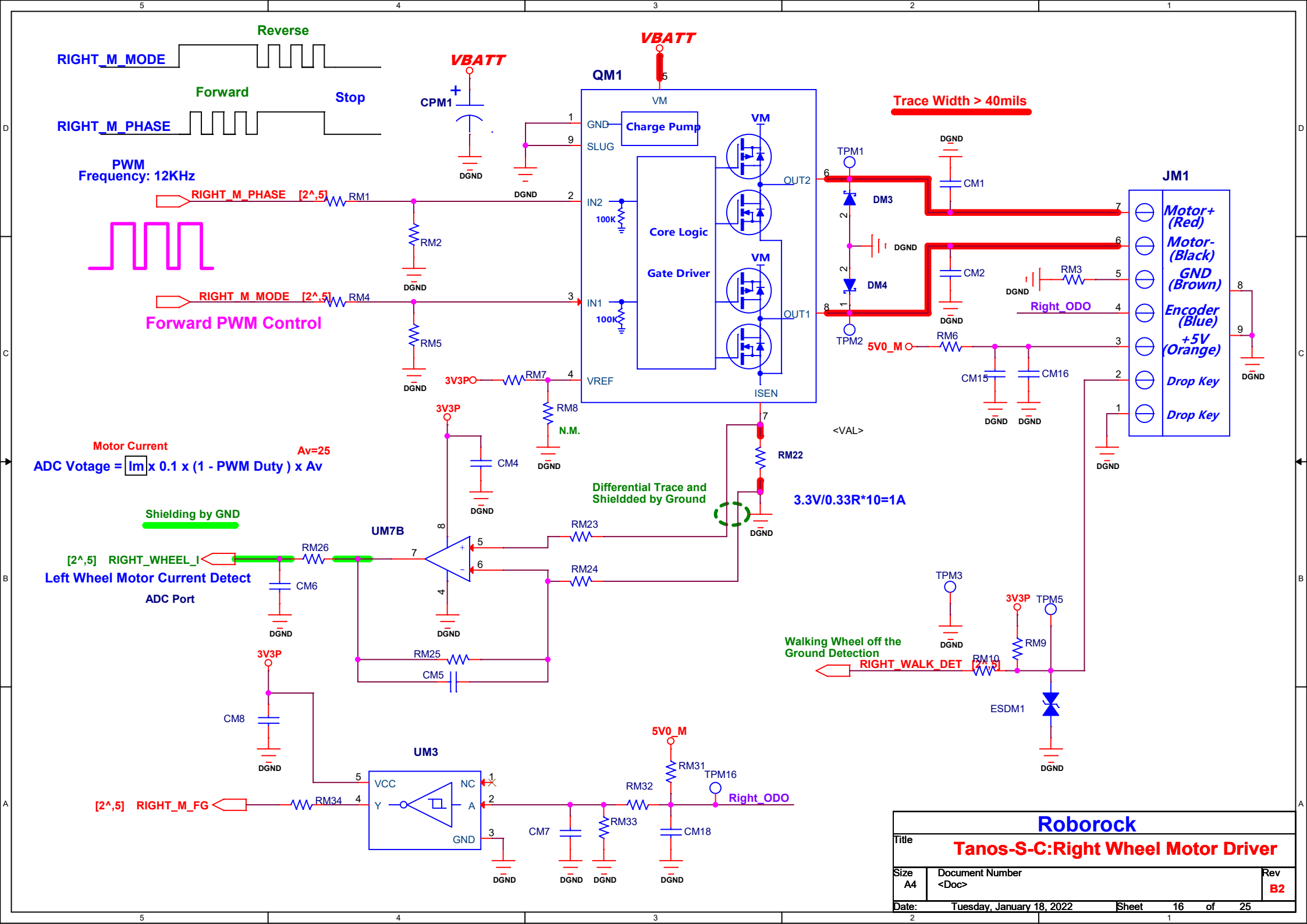
SPK



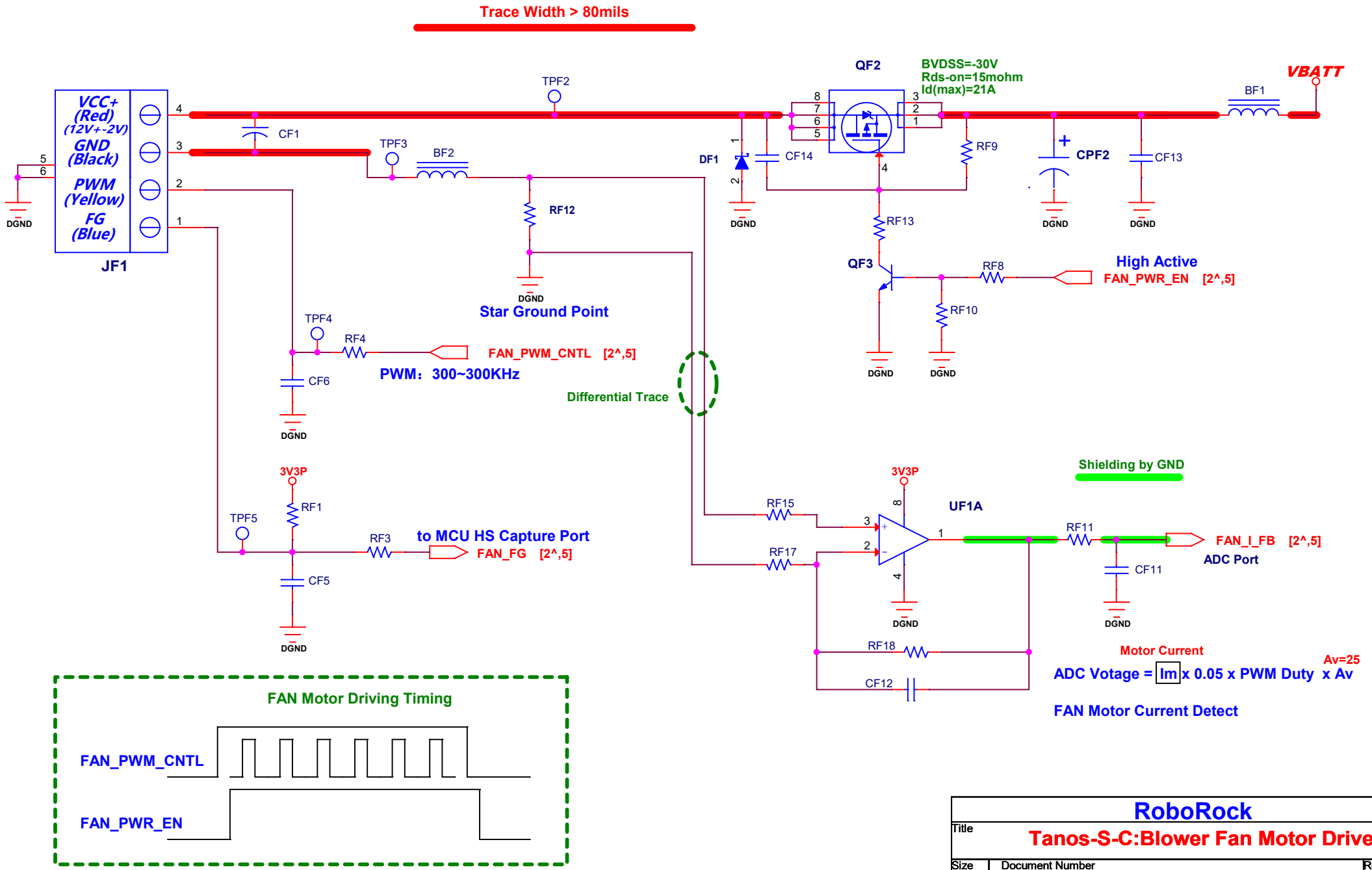
Roborock		
Title	Tanos-S-C:Speaker	
Size A4	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 14 of 25	



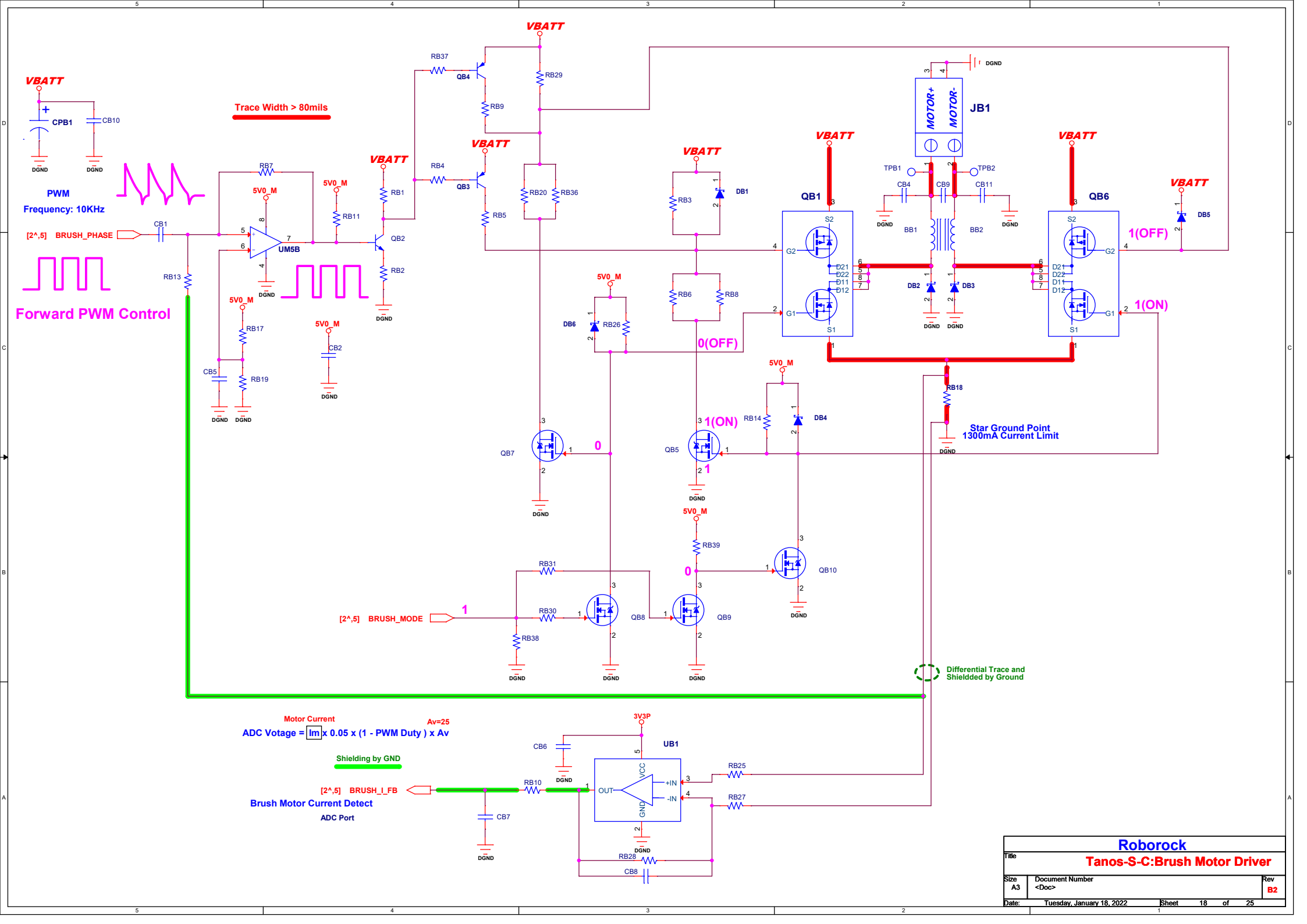
RoboRock		
Title: Tanos-S-C:Left Wheel Motor Driver		
Size: A4	Document Number: <Doc>	Rev: B2
Date: Tuesday, January 18, 2022	Sheet 15 of 25	



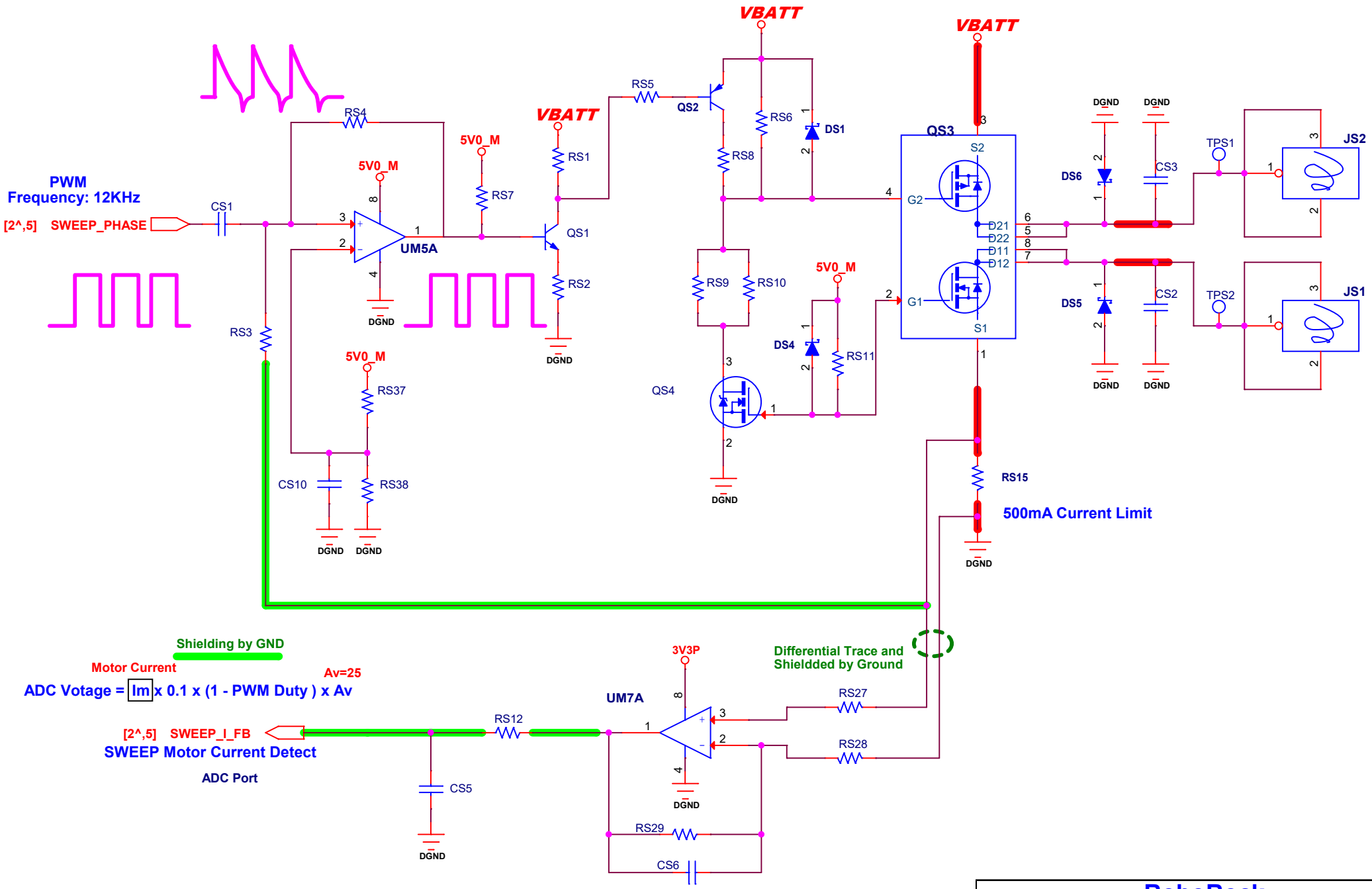
Roborock		
Title	Tanos-S-C:Right Wheel Motor Driver	
Size A4	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 16 of 25	



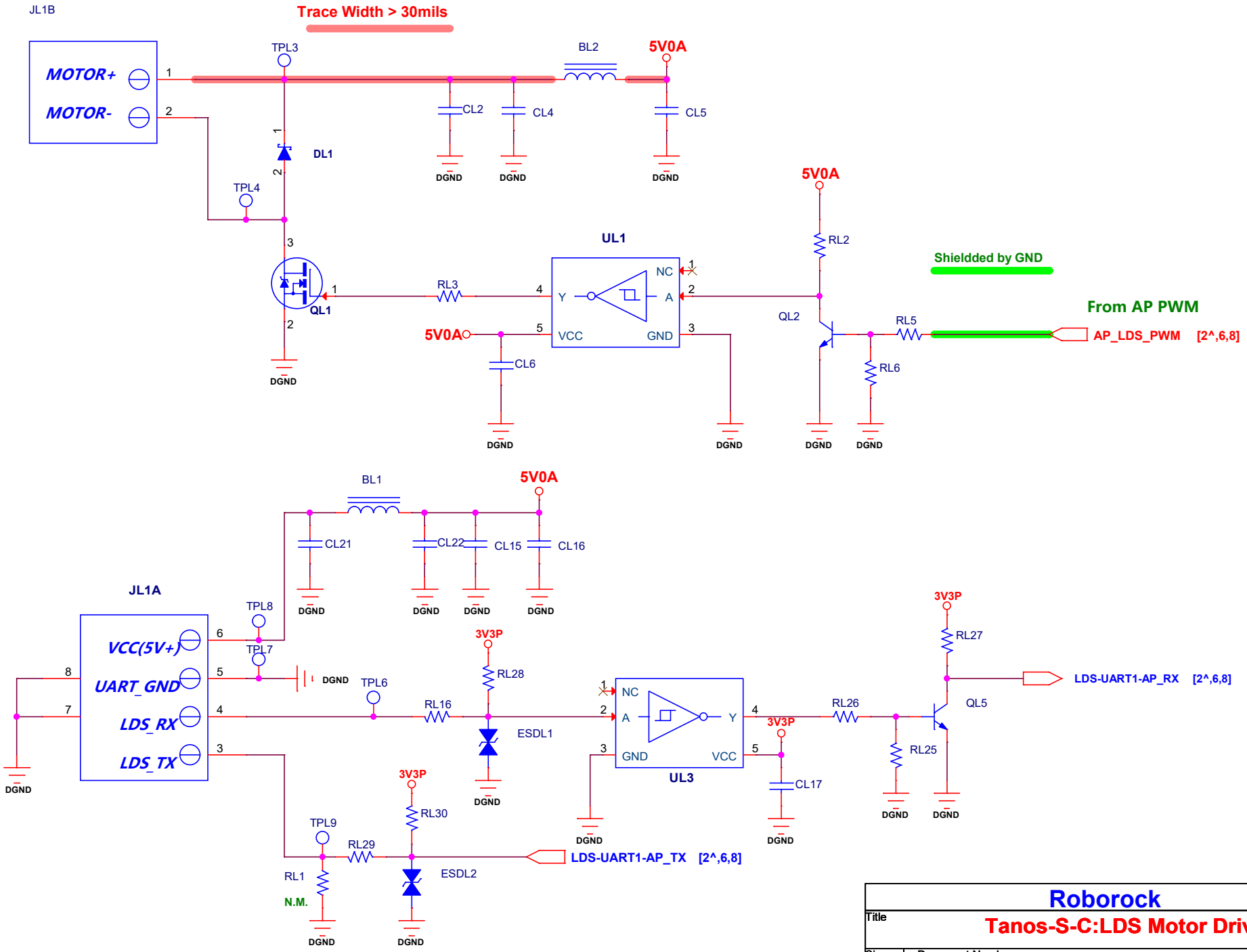
RoboRock		
Title	Tanos-S-C:Blower Fan Motor Driver	
Size A4	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 17 of 25	



Roborock		
Title	Tanos-S-C:Brush Motor Driver	
Size A3	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 18 of 25	



RoboRock		
Title: Tanos-S-C:Sweep Motor Driver		
Size: A4	Document Number: <Doc>	Rev: B2
Date: Tuesday, January 18, 2022	Sheet 19 of 25	

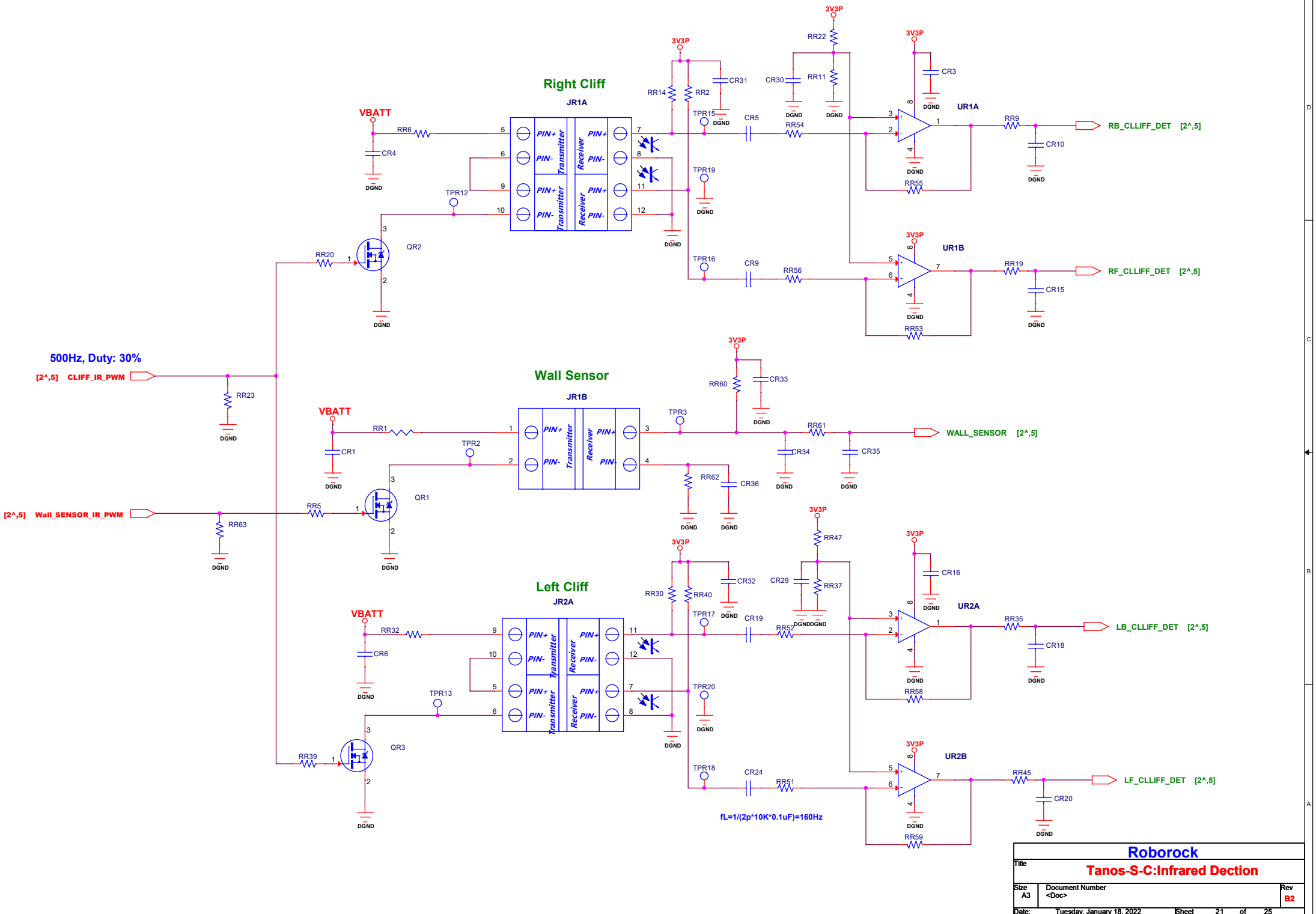


Roborock

Title: Tanos-S-C:LDS Motor Driver

Size	Document Number	Rev
A4	<Doc>	B2

Date: Tuesday, January 18, 2022 Sheet 20 of 25



Roborock		
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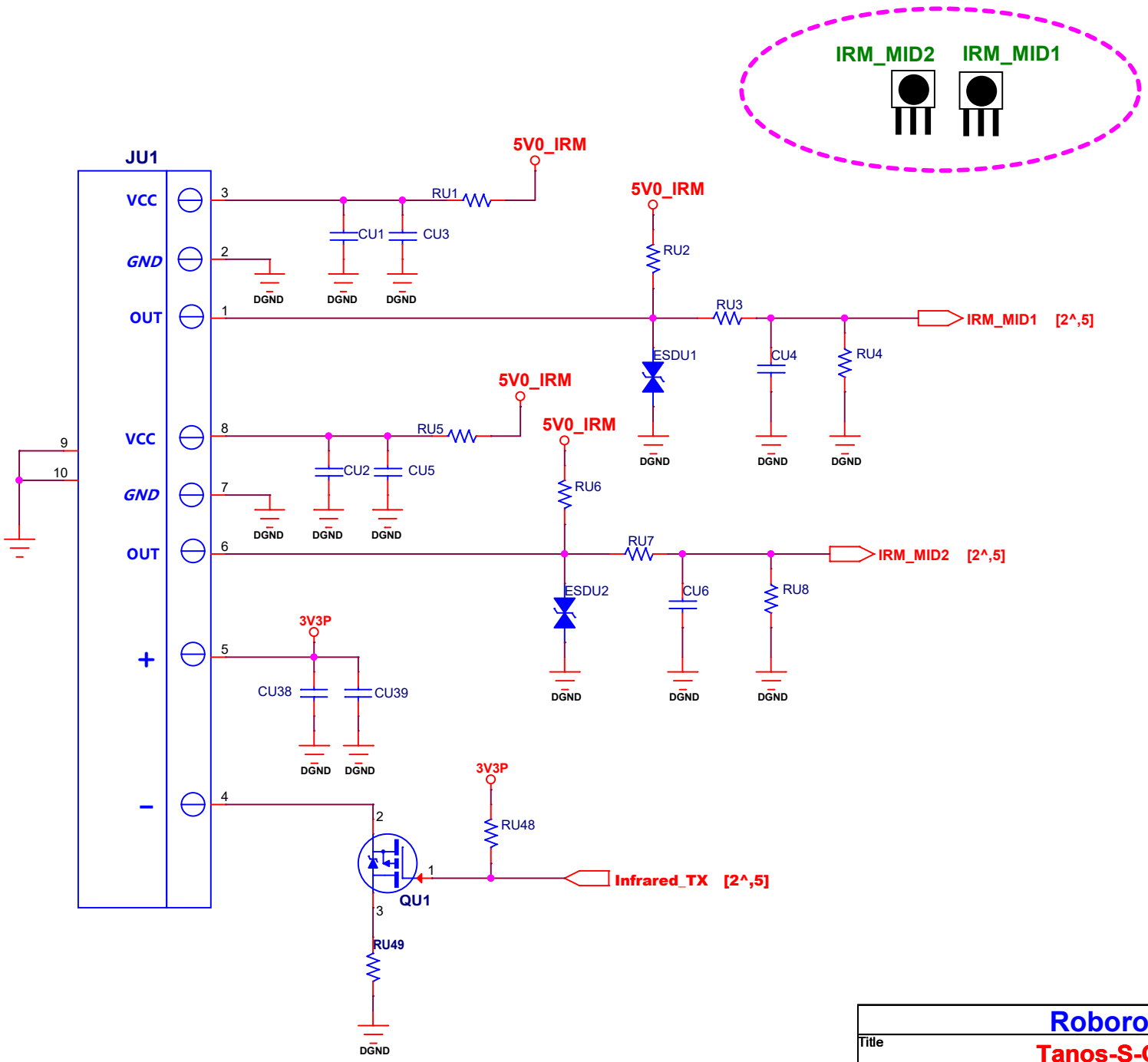
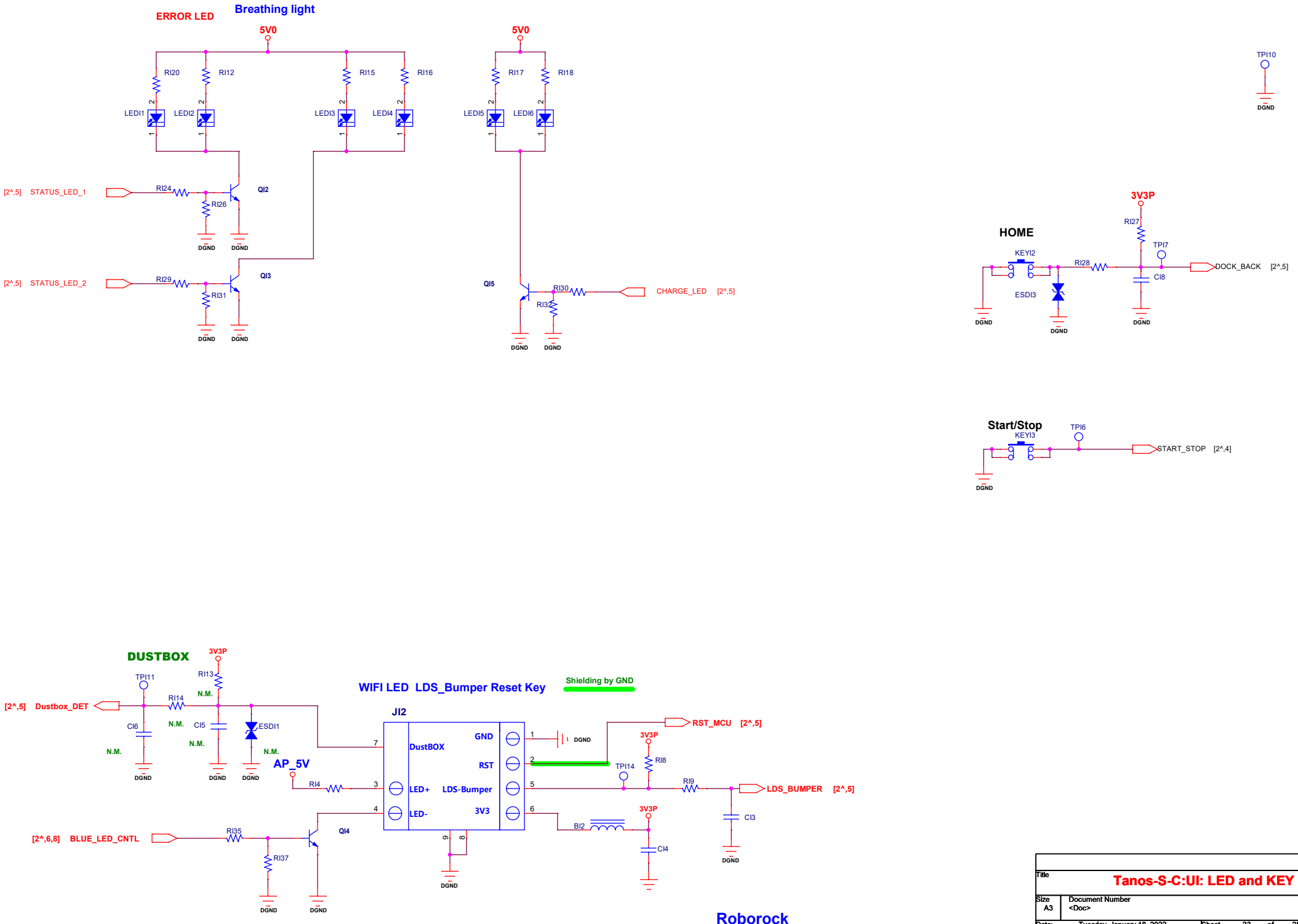
Size A3	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 21 of 25	



Roborock		
Title	Tanos-S-C:IRM	
Size A4	Document Number <Doc>	Rev B2
Date: Tuesday, January 18, 2022	Sheet 22 of 25	


ERROR LED
Breathing light
5V0
RI20
RI12
RI15
RI16
LEDI1
LEDI2
LEDI3
LEDI4
[2^,5] STATUS_LED_1
RI24
RI26
QI2
[2^,5] STATUS_LED_2
RI29
RI31
QI3
DGND
5V0
RI17
RI18
LEDI5
LEDI6
QI5
RI30
RI32
CHARGE_LED [2^,5]
TPI10
DGND
HOME
3V3P
RI27
KEYI2
RI28
TPI7
DOCK_BACK [2^,5]
ESDI3
CI8
Start/Stop
KEYI3
TPI6
START_STOP [2^,4]
DUSTBOX
3V3P
TPI11
RI13
N.M.
[2^,5] Dustbox_DET
RI14
CI6
CI5
ESDI1
AP_5V
WIFI LED LDS_Bumper Reset Key
Shielding by GND
JI2
DustBOX
LED+
LED-
GND
RST
3V3
LDS-Bumper
RST_MCU [2^,5]
TPI14
RI8
RI9
LDS_BUMPER [2^,5]
CI3
BI2
CI4
RI4
[2^,6,8] BLUE_LED_CNTL
RI35
QI4
RI37
Roborock
Title
Tanos-S-C:UI: LED and KEY
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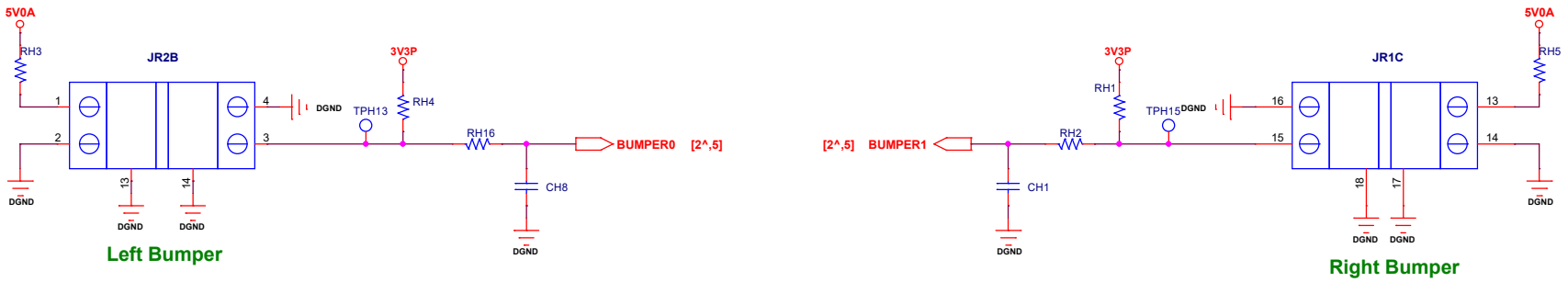
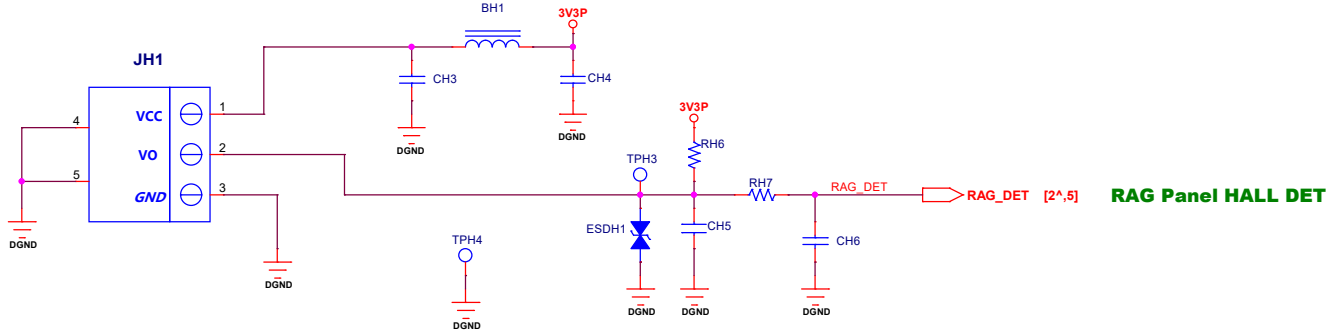
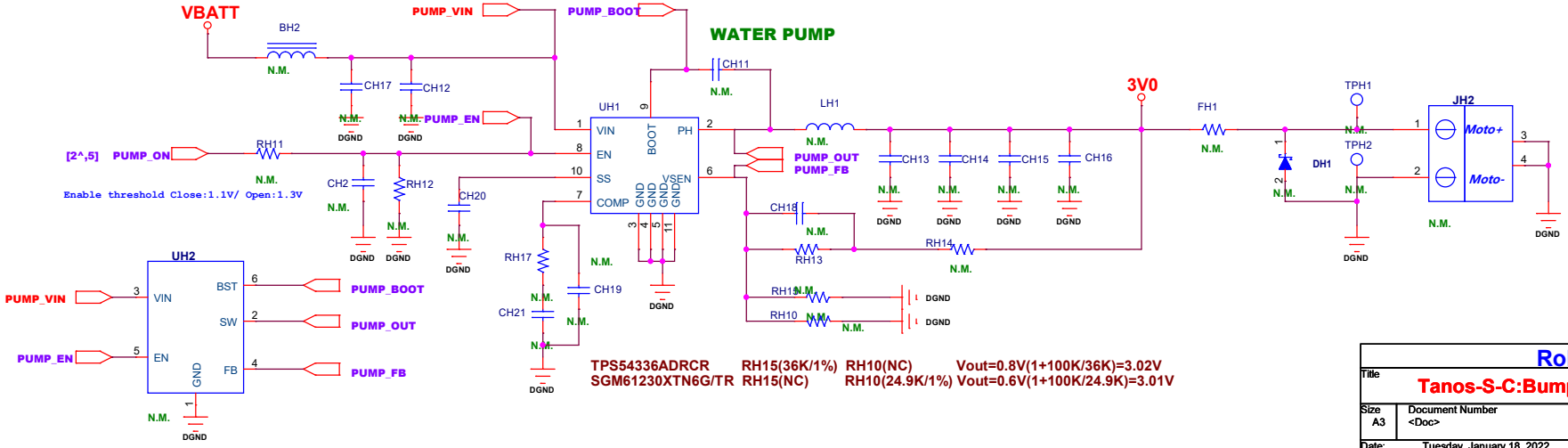
Sheet 23 of 25

Bumper Detection x2







Roborock		
Title: Tanos-S-C:Bumper&Dustbox&Pump		
Size: A3	Document Number: <Doc>	Rev: B2
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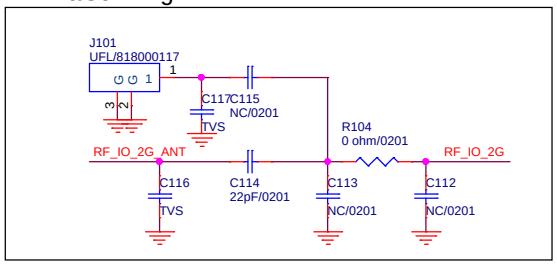
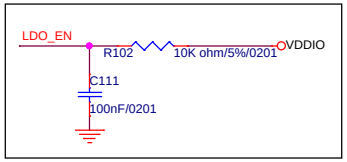
RF Matching

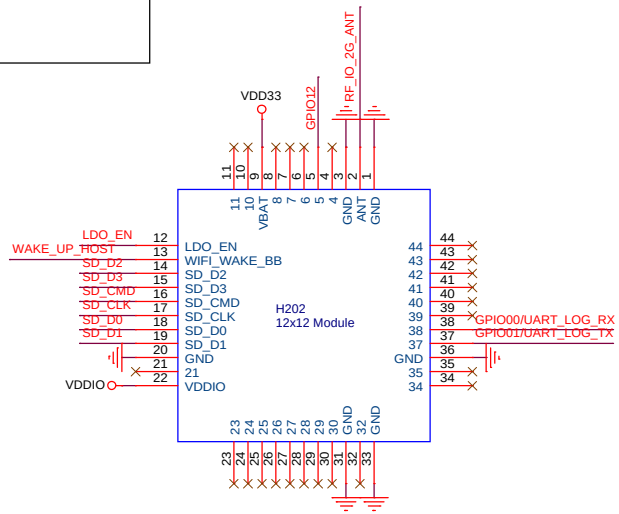


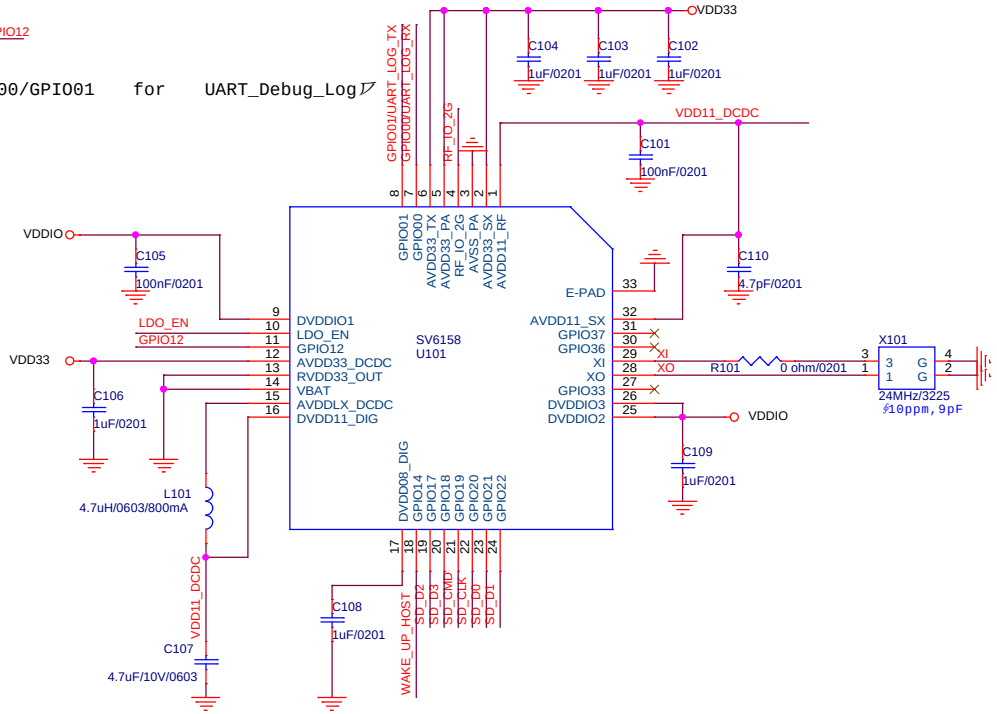
Boot strap	GPIO12
SDIO	0(default)
SPIDATA	1

GPIO00/GPIO01 for UART_Debug_Log

LDO_EN







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Size B	Document Number <Doc>		
Date: Friday, January 08, 2021		Sheet 1 of 1	