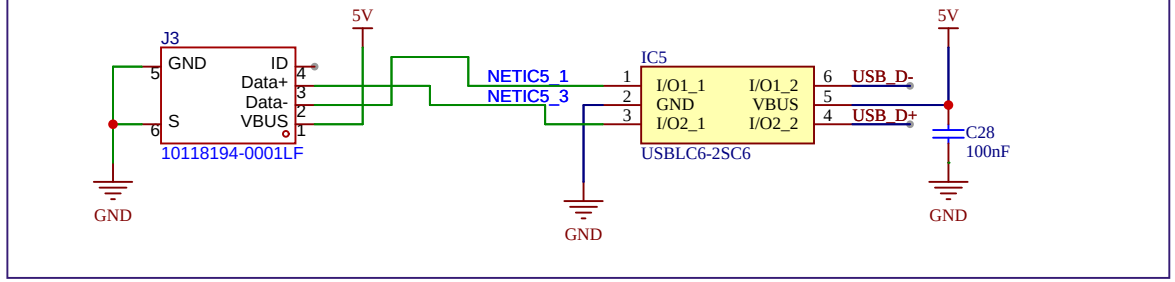
Body

USB



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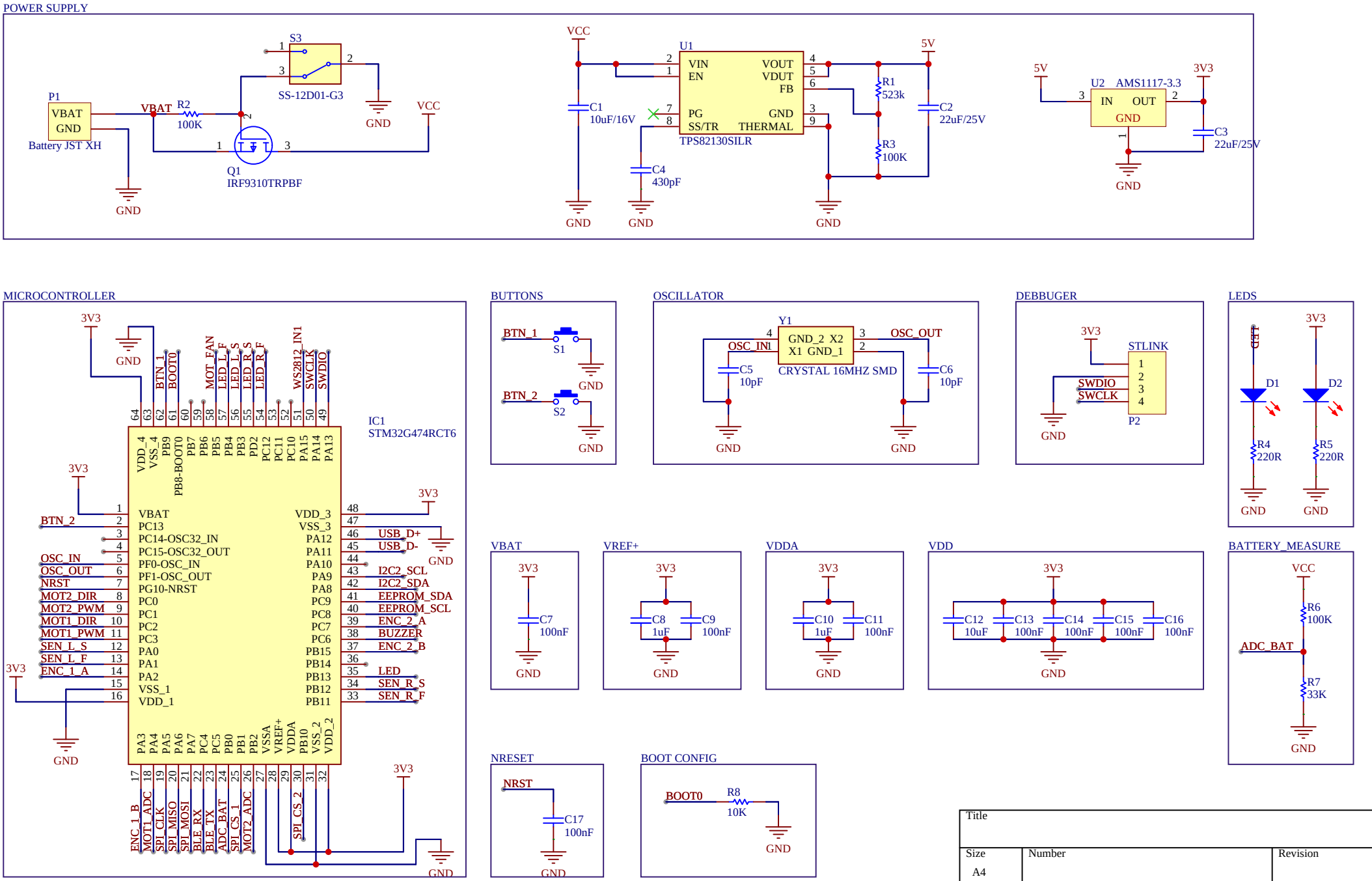
POWER SUPPLY
P1
VBAT
GND
Battery JST XH
VBAT
R2
100K
S3
SS-12D01-G3
GND
VCC
Q1
IRF9310TRPBF
GND
VCC
U1
VIN
EN
PG
SS/TR
VOUT
VDUT
FB
GND
THERMAL
TPS82130SILR
C1
10uF/16V
C4
430pF
R1
523k
R3
100K
C2
22uF/25V
5V
GND
GND
GND
5V
U2 AMS1117-3.3
IN
OUT
GND
3V3
C3
22uF/25V
GND
MICROCONTROLLER
IC1
STM32G474RCT6
3V3
GND
BTN_1
BOOT0
MOT_FAN
LED_L_F
LED_L_S
LED_R_S
LED_R_F
WS2812_IN1
SWCLK
SWDIO
VDD_4
VSS_4
PB9
PB8-BOOT0
PB7
PB6
PB5
PB4
PB3
PD2
PC12
PC11
PC10
PA15
PA14
PA13
BTN_2
OSC_IN
OSC_OUT
NRST
MOT2_DIR
MOT2_PWM
MOT1_DIR
MOT1_PWM
SEN_L_S
SEN_L_F
ENC_1_A
VBAT
PC13
PC14-OSC32_IN
PC15-OSC32_OUT
PF0-OSC_IN
PF1-OSC_OUT
PG10-NRST
PC0
PC1
PC2
PC3
PA0
PA1
PA2
VSS_1
VDD_1
VDD_3
VSS_3
PA12
PA11
PA10
PA9
PA8
PC9
PC8
PC7
PC6
PB15
PB14
PB13
PB12
PB11
USB_D+
USB_D-
I2C2_SCL
I2C2_SDA
EEPROM_SDA
EEPROM_SCL
ENC_2_A
BUZZER
ENC_2_B
LED
SEN_R_S
SEN_R_F
PA3
PA4
PA5
PA6
PA7
PC4
PC5
PB0
PB1
PB2
VSSA
VREF+
VDDA
PB10
VSS_2
VDD_2
ENC_1_B
MOT1_ADC
SPI_CLK
SPI_MISO
SPI_MOSI
BLE_RX
BLE_TX
ADC_BAT
SPI_CS_1
MOT2_ADC
SPI_CS_2
BUTTONS
BTN_1
S1
BTN_2
S2
GND
OSCILLATOR
Y1
GND_2 X2
X1 GND_1
CRYSTAL 16MHZ SMD
OSC_IN
OSC_OUT
C5
10pF
C6
10pF
DEBBUGER
3V3
STLINK
SWDIO
SWCLK
P2
LEDS
LED
D1
D2
R4
220R
R5
220R
VBAT
C7
100nF
VREF+
C8
1uF
C9
100nF
VDDA
C10
1uF
C11
100nF
VDD
C12
10uF
C13
100nF
C14
100nF
C15
100nF
C16
100nF
BATTERY_MEASURE
VCC
R6
100K
ADC_BAT
R7
33K
NRESET
NRST
C17
100nF
BOOT CONFIG
BOOT0
R8
10K
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I_trip = Max Driver Current

I_trip = Vref / (R_irop * 0.000455)

Using R = 2K and VREF = 3.3
I_trip = 3.626A

MOT1_ADC cannot be larger than adc max value.

So:

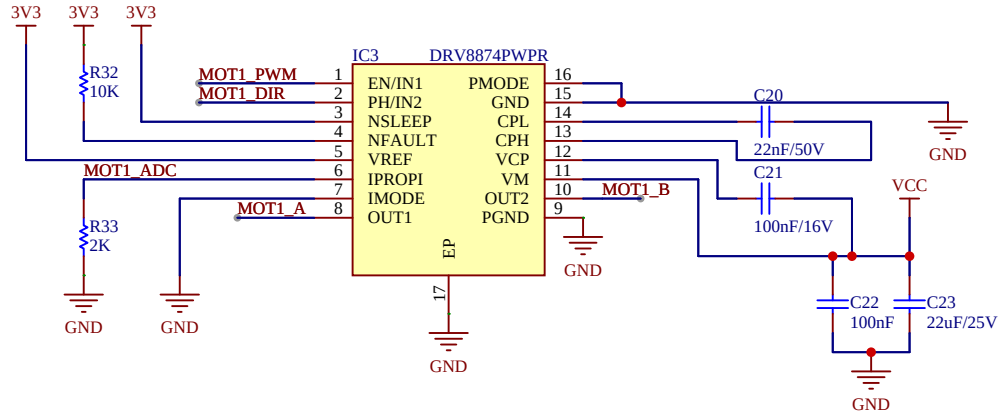
V = R*I = R * Aipropi * i =>

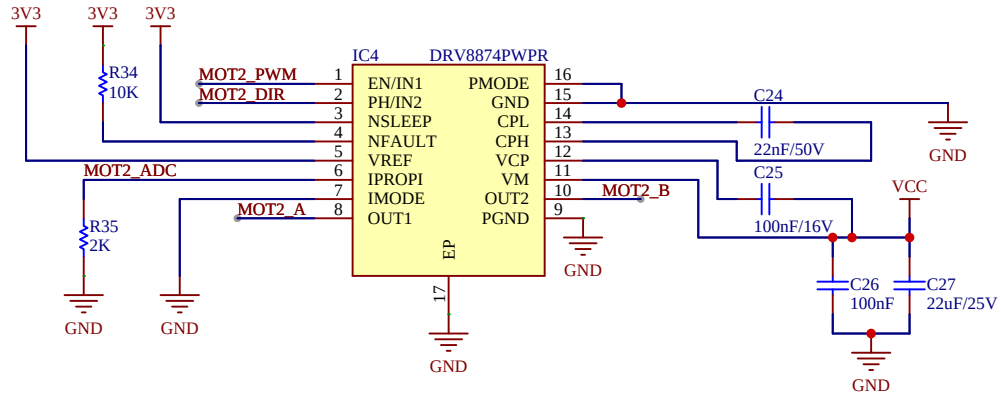
V = 2000 * 0.000455 * i

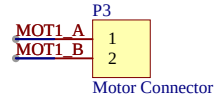
Para V = 3.3, I = 3.62

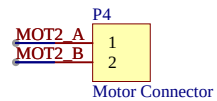
Precisão do ADC:
3.3/4096 -> 0.000805664mV

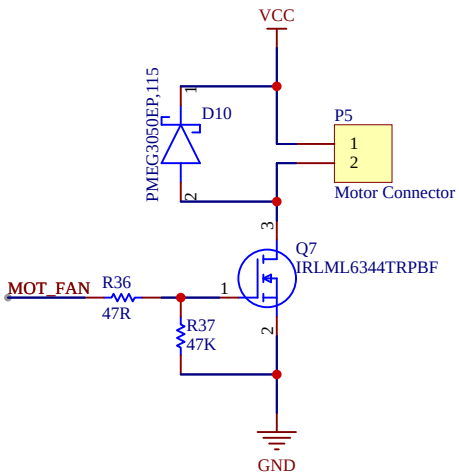
Precisão da corrente:
V = R*I = R * Aipropi * i
i = 0.000805664 / (2000 * 0.000455) = 0.88mA

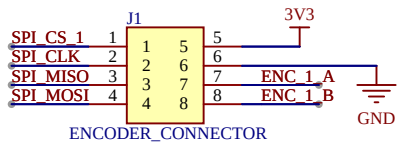


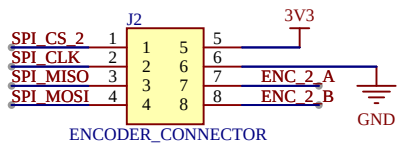












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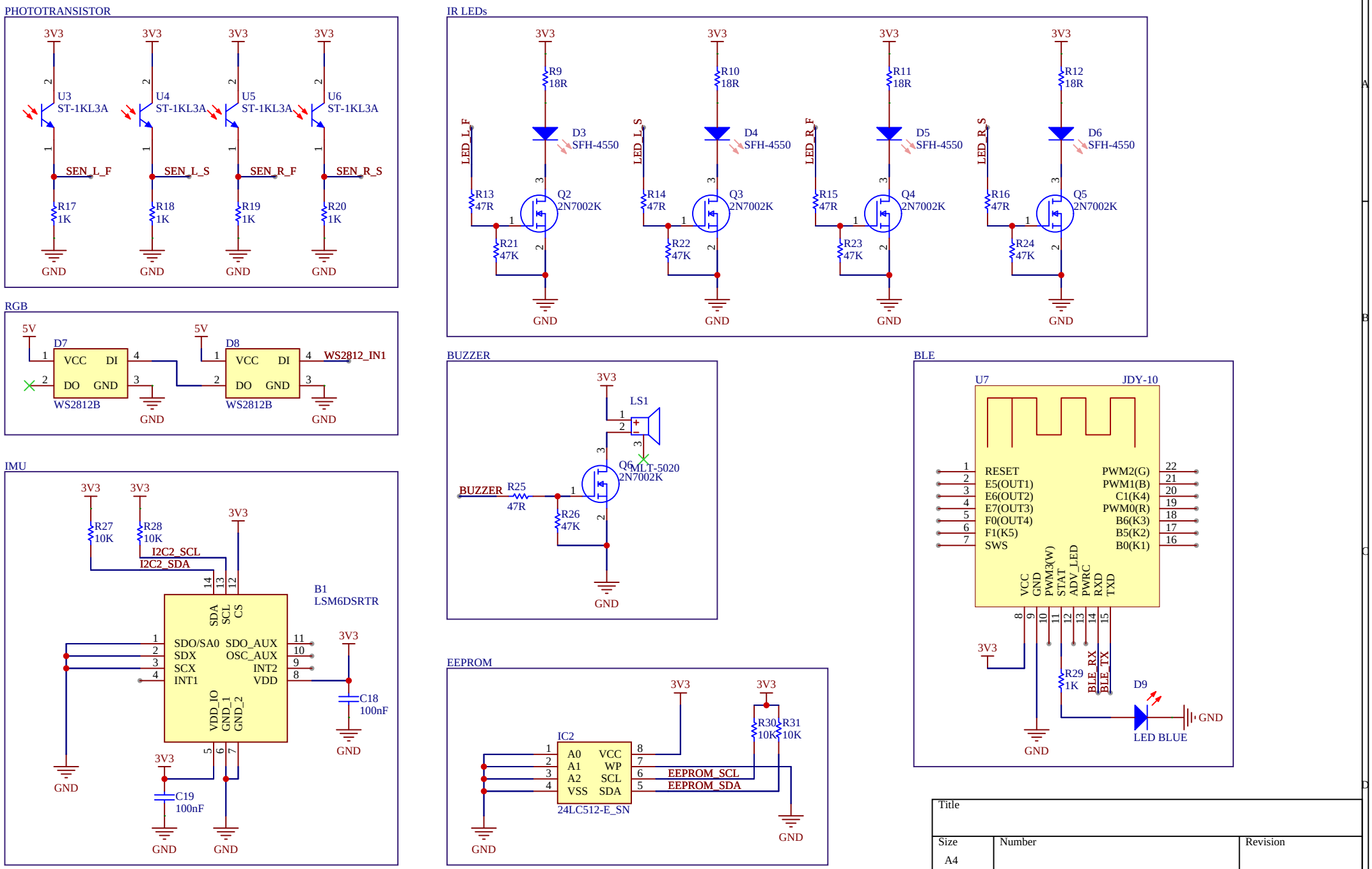
PHOTOTRANSISTOR
3V3
U3
ST-1KL3A
U4
ST-1KL3A
U5
ST-1KL3A
U6
ST-1KL3A
SEN_L_F
SEN_L_S
SEN_R_F
SEN_R_S
R17
1K
R18
1K
R19
1K
R20
1K
GND
IR LEDs
R9
18R
R10
18R
R11
18R
R12
18R
D3
SFH-4550
D4
SFH-4550
D5
SFH-4550
D6
SFH-4550
LED_L_F
LED_L_S
LED_R_F
LED_R_S
R13
47R
R14
47R
R15
47R
R16
47R
Q2
2N7002K
Q3
2N7002K
Q4
2N7002K
Q5
2N7002K
R21
47K
R22
47K
R23
47K
R24
47K
RGB
5V
D7
D8
VCC
DI
DO
GND
WS2812B
WS2812_IN1
BUZZER
LS1
MLT-5020
Q6
2N7002K
R25
47R
R26
47K
BLE
U7
JDY-10
RESET
E5(OUT1)
E6(OUT2)
E7(OUT3)
F0(OUT4)
F1(K5)
SWS
PWM2(G)
PWM1(B)
C1(K4)
PWM0(R)
B6(K3)
B5(K2)
B0(K1)
VCC
GND
PWM3(W)
STAT
ADV_LED
PWRC
RXD
TXD
R29
1K
BLE_RX
BLE_TX
D9
LED BLUE
IMU
R27
10K
R28
10K
I2C2_SCL
I2C2_SDA
B1
LSM6DSRTR
SDA
SCL
CS
SDO/SA0
SDX
SCX
INT1
SDO_AUX
OSC_AUX
INT2
VDD
VDD_IO
GND_1
GND_2
C18
100nF
C19
100nF
EEPROM
IC2
A0
A1
A2
VSS
VCC
WP
SCL
SDA
24LC512-E_SN
R30
10K
R31
10K
EEPROM_SCL
EEPROM_SDA
Title
Size
A4
Number
Revision
Date:
File:
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Drawn By: