POWER SECTION

BARREL JACK INPUT
24V MAX

J7
Barrel_Jack_Switch
+24V
GND

U10
LM3480-5.0
VI
VO
GND
C28
330p
35V
C29
100p
35V
GATE_BIAS_PWR

5V_2A_BUCK_BOOST
power_input
power_output_5v_3A
File: 5V_2A_BUCK_BOOST.kicad_sch
R28
1K
D15
LED

RT6154AGQW_3V3_BUCK_CONVERTER
power_input
OUTPUT_3V3D
File: RT6154AGQW_3V3_BUCK_CONVERTER.kicad_sch

POWER_PATH_V2
POWER_IN_MAIN
POWER_gate_bias
POWER_ALTERNATE_IN
TO_SYSTEM
File: POWER_PATH_V2.kicad_sch

R8
1K
R10
1K
D7
LED
D6
LED
bat_charger
JACK_PWR
SIGNAL
stat2
stat1
VBAT_CONND
THERMISTOR
File: bat_charger.kicad_sch
TP3
THERM+
TP4
THERM+
BT1
18650 BAT

boost_converter_5v_2a
POWER_INPUT
5V_2A_POWER_OUTPUT
EN/DISABLE_SIG
File: boost_converter_5v_2a.kicad_sch

BATTERY VOLTAGE LOW VOLTAGE DETECTION

C33
100n
U11
BU4228G-TR
R69
10M
C34
100n
LED
D16
R68
1K

INPUT PROTOTYPE SENSORS CONNECTORS

I2C AM2315
SOIL TEMEPERATURE SENSOR
J16
SOIL TEMPERATURE CONN

HUMIDITY TEMPERATURE SENSOR
J14
DHT22 CONN

AMBIENT LIGHT SENSOR
J17
AMBIENT LIGHT CONN

SOIL MOISTURE SENSOR
J15
SOIL MOISTURE CONN

PH SENSOR
J20
PH SENSOR

DS18B20 TEMPERATURE SENSOR
R62
4.7K
J9
DS18B20 CONN

CONTROLLER AND COMMUNICATION

USB INPUT

J1
USB_B_Micro
TH2
BSMD0603L-150
D11
D_Schottky
Z1
MMSZ5231B-7-F
R61
100R

I2C CONNECTOR

J25
Conn_01x04

RP2040TR7_MCU
USB_D+
USB_D-
SCL
SDA
fan_A
fan_B
IND_SENSOR_1
IND_SENSOR_2
I2C1_SDA
I2C1_SCL
LORA_INT
LORA_DIO1
LORA_RST
LORA_MOSI
LORA_MISO
LORA_SCK
LORA_NSS
LIGHT_SIG
DATA_DHT
DIGITAL_SIG
ANALOG_SIG
PH_SIG
TX
RX
gpio_3
gpio_2
DS18B20_SIGNAL
File: RP2040TR7_MCU.kicad_sch

LORA_RA02
File: LORA_RA02.kicad_sch

RS485 INTERFACE

UART_TO_RS485_SHIELDED
RS485_TX
RS485_RX
RS485_DIR
File: UART_TO_RS485_SHIELDED.kicad_sch

INDUSTRIAL SENSORS INPUT 4mA – 20mA SIGNALS

J2
Screw_Terminal_01x02
IND_SENSOR_1
J3
Screw_Terminal_01x02
IND_SENSOR_2

MOSFET OUTPUTS

IO_EXPANDER_I2C
IO_SCL
IO_SDA
IO_P6
IO_P7
File: IO_EXPANDER_I2C.kicad_sch

MOSFET_DRIVEN_OUTPUTS
MOSFET_DRIVEN_OUTPUTS1
MOSFET_DRIVEN_OUTPUTS2
SIGNAL

RELAY OUTPUTS ISOLATED

RELAY
RELAY1
RELAY2
File: RELAY.kicad_sch

FAN OUTPUT
J21
fan connector

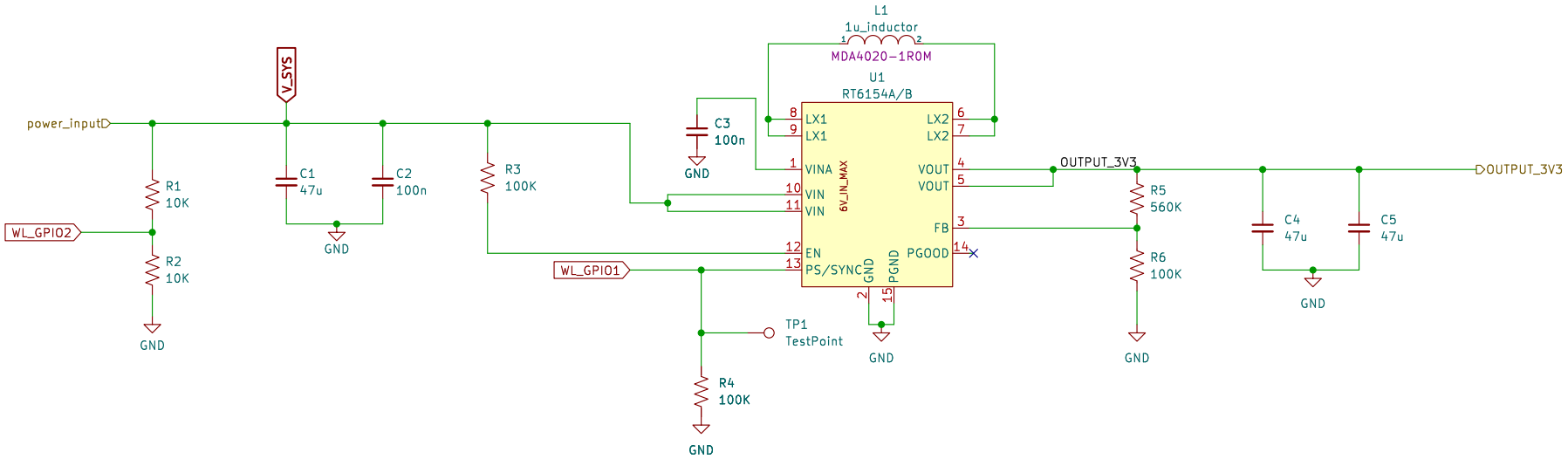
POWER CONNECTORS

TH4
SHV2920P500-30-AA
J13
Screw_Terminal_01x02
TH3
BSMD0603L-150
J18
Screw_Terminal_01x02

FID3 Fiducial
FID1 Fiducial
FID2 Fiducial

Sheet: /
File: RpiPico_Agriboard.kicad_sch
Title:
Size: A3 | Date: | Rev:
KiCad E.D.A. kicad 7.0.2 | Id: 1/17

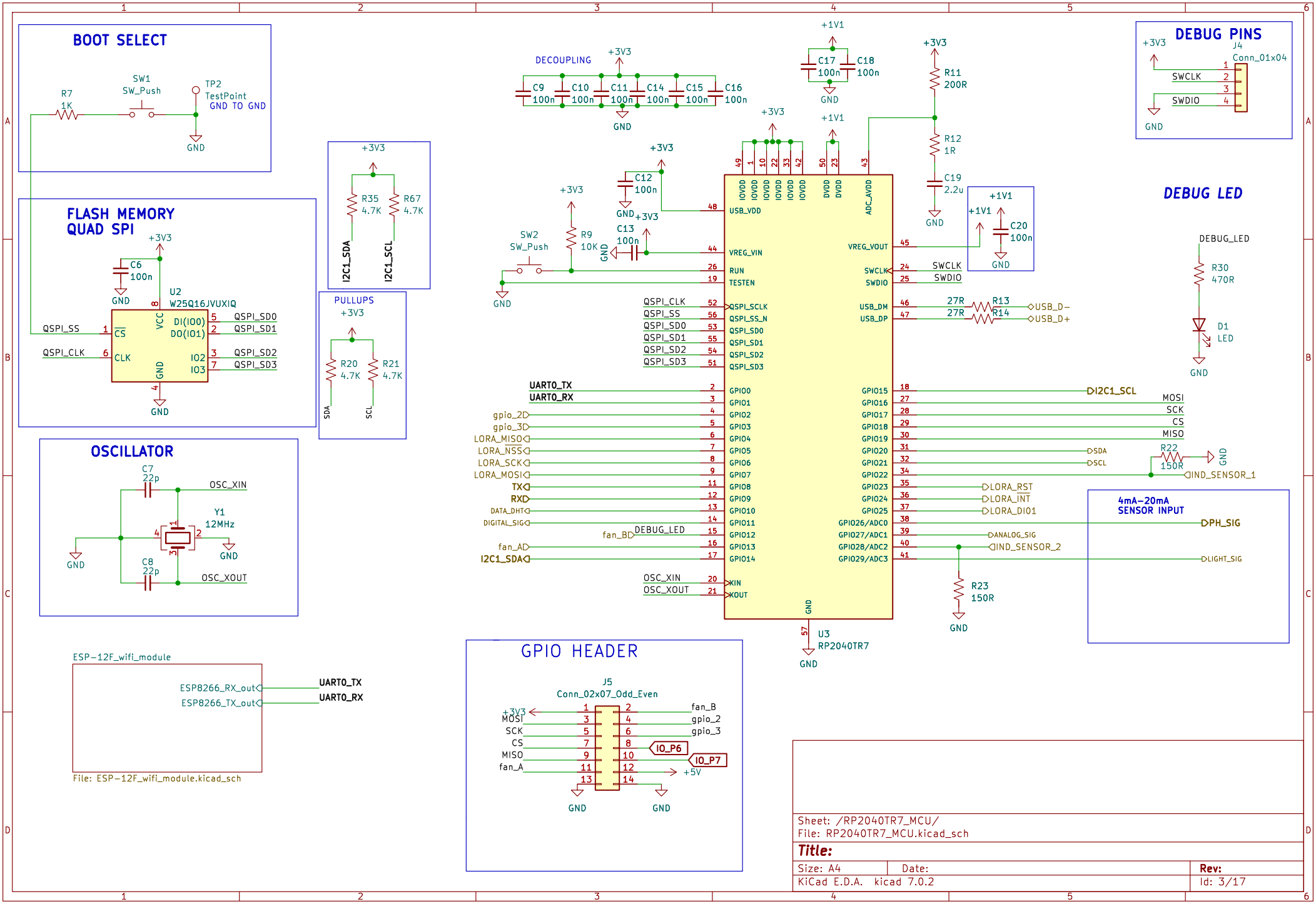
3V3 BUCK REGULATOR



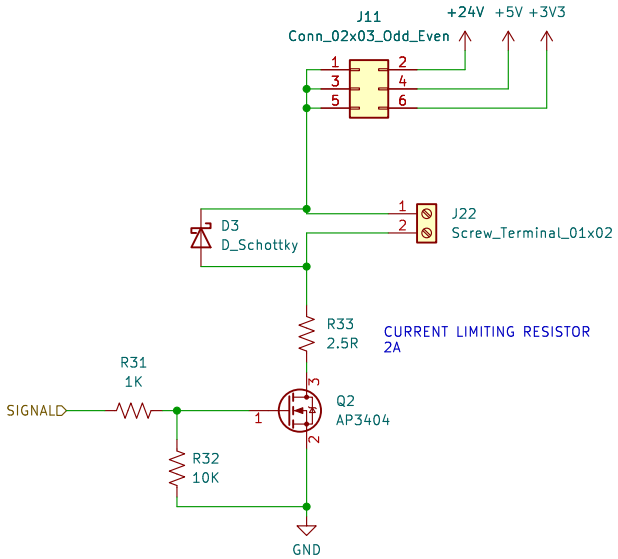
Sheet: /RT6154AGQW_3V3_BUCK_CONVERTER/
File: RT6154AGQW_3V3_BUCK_CONVERTER.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 2/17

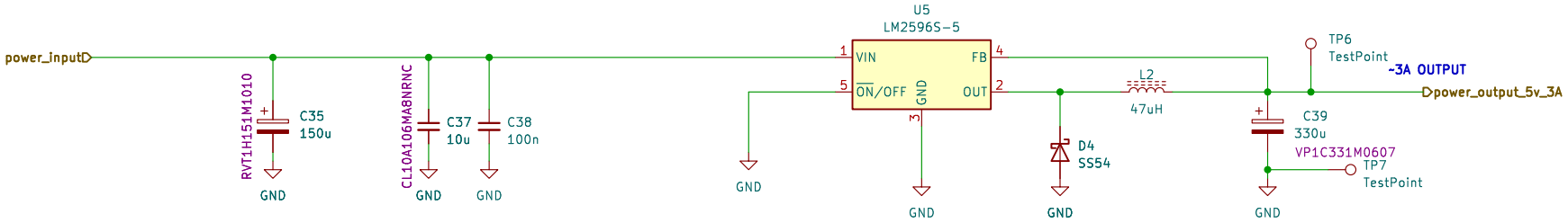

BOOT SELECT
R7
1K
SW1
SW_Push
TP2
TestPoint
GND TO GND
GND
FLASH MEMORY
QUAD SPI
+3V3
C6
100n
U2
W25Q16JVUXIQ
QSPI_SS
QSPI_CLK
CS
CLK
VCC
GND
DI(IO0)
DO(IO1)
IO2
IO3
QSPI_SD0
QSPI_SD1
QSPI_SD2
QSPI_SD3
OSCILLATOR
C7
22p
C8
22p
Y1
12MHz
OSC_XIN
OSC_XOUT
ESP-12F_wifi_module
ESP8266_RX_out
ESP8266_TX_out
UART0_TX
UART0_RX
File: ESP-12F_wifi_module.kicad_sch
+3V3
R35
4.7K
R67
4.7K
I2C1_SDA
I2C1_SCL
PULLUPS
R20
4.7K
R21
4.7K
SDA
SCL
DECOUPLING
C9
100n
C10
100n
C11
100n
C14
100n
C15
100n
C16
100n
+1V1
C17
100n
C18
100n
R11
200R
R12
1R
C19
2.2u
C20
100n
C12
100n
C13
100n
R9
10K
SW2
SW_Push
IOVDD
DVDD
ADC_AVDD
USB_VDD
VREG_VIN
VREG_VOUT
RUN
TESTEN
QSPI_SCLK
QSPI_SS_N
QSPI_SD0
QSPI_SD1
QSPI_SD2
QSPI_SD3
USB_DM
USB_DP
27R
R13
R14
USB_D-
USB_D+
SWCLK
SWDIO
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO14
GPIO15
GPIO16
GPIO17
GPIO18
GPIO19
GPIO20
GPIO21
GPIO22
GPIO23
GPIO24
GPIO25
GPIO26/ADC0
GPIO27/ADC1
GPIO28/ADC2
GPIO29/ADC3
XIN
XOUT
U3
RP2040TR7
DEBUG PINS
J4
Conn_01x04
DEBUG LED
DEBUG_LED
R30
470R
D1
LED
R22
150R
IND_SENSOR_1
R23
150R
IND_SENSOR_2
4mA-20mA
SENSOR INPUT
PH_SIG
LIGHT_SIG
ANALOG_SIG
LORA_RST
LORA_INT
LORA_DIO1
I2C1_SCL
SDA
SCL
MOSI
SCK
CS
MISO
TX
RX
DATA_DHT
DIGITAL_SIG
fan_A
fan_B
LORA_MISO
LORA_NSS
LORA_SCK
LORA_MOSI
gpio_2
gpio_3
GPIO HEADER
J5
Conn_02x07_Odd_Even
IO_P6
IO_P7
+5V
Sheet: /RP2040TR7_MCU/
File: RP2040TR7_MCU.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. kicad 7.0.2
Id: 3/17

MOSFET DRIVER



Sheet: /MOSFET_DRIVEN_OUTPUTS1/		
File: MOSFET_DRIVEN_OUTPUTS.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 5/17

5V 3A BUCK CONVERTER LM2596S



Sheet: /5V_2A_BUCK_BOOST/		
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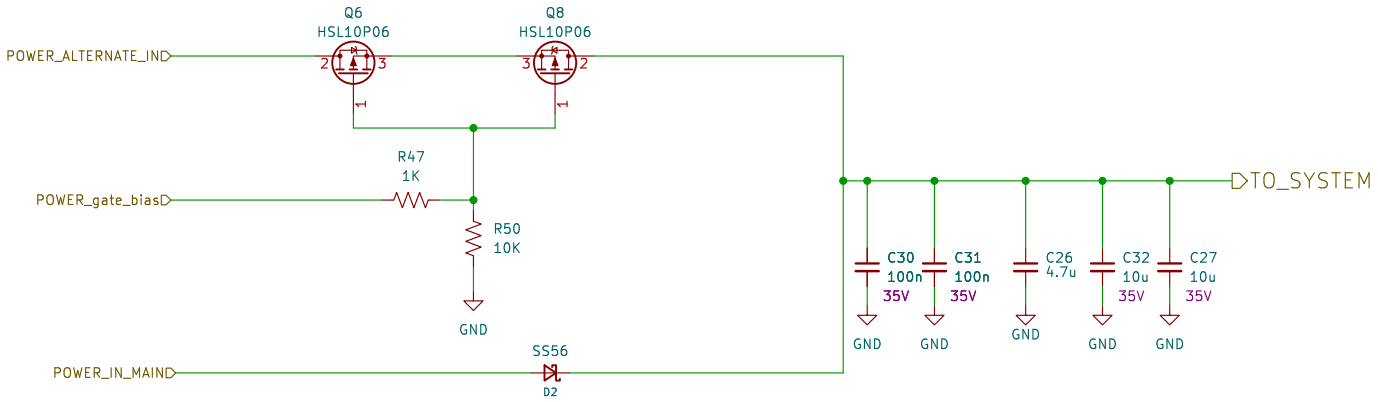
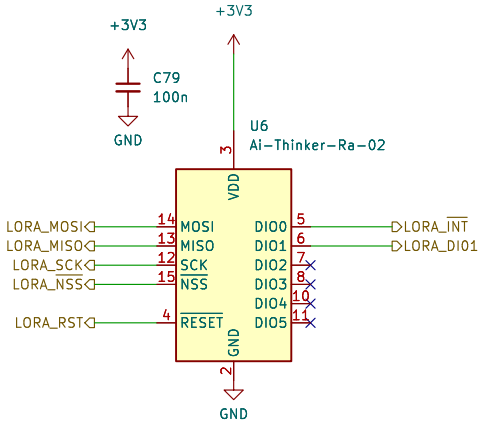
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 6/17

POWER PATH SELECTOR



Sheet: /POWER_PATH_V2/		
File: POWER_PATH_V2.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 7/17

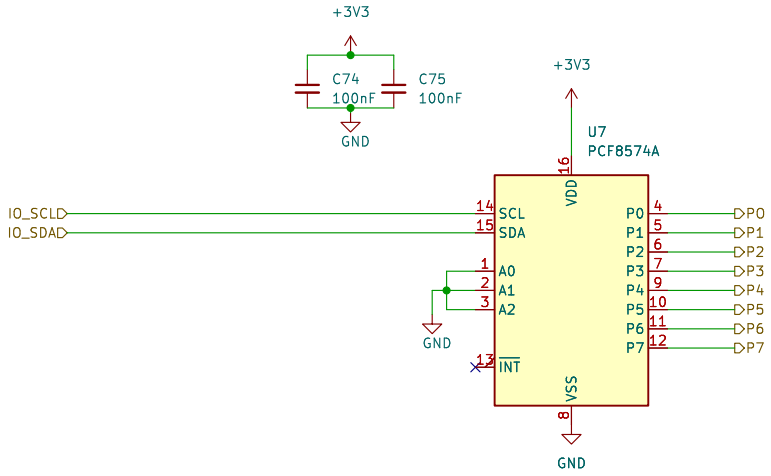


Sheet: /LORA_RA02/
File: LORA_RA02.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 8/17

IO EXPANDER

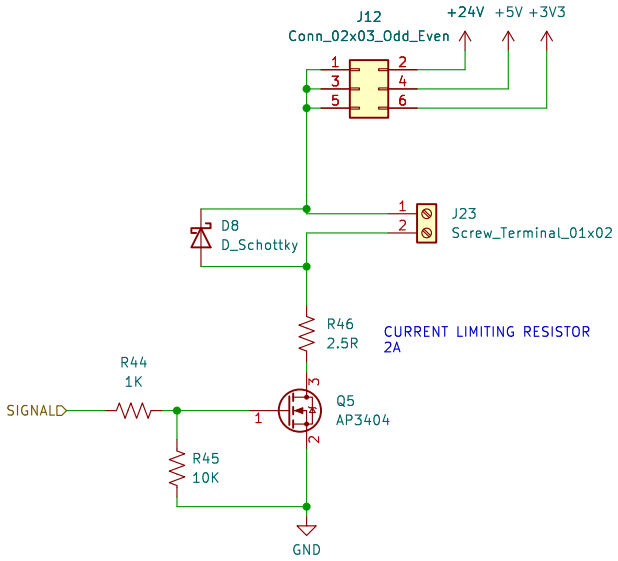


Sheet: /IO_EXPANDER_I2C/
File: IO_EXPANDER_I2C.kicad_sch

Title:

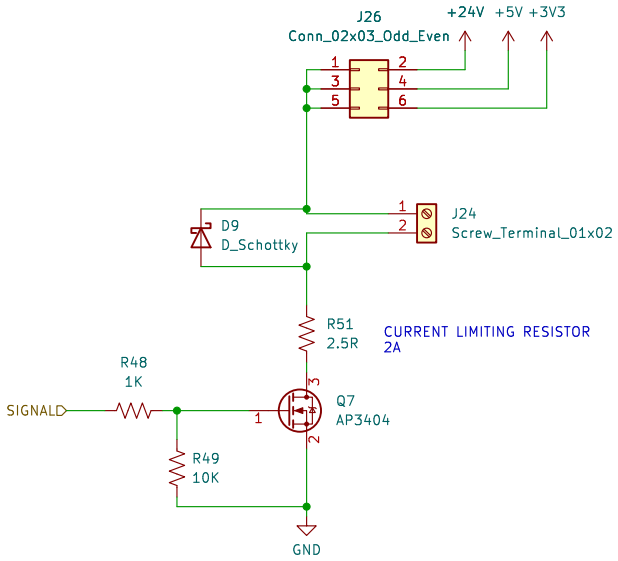
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 9/17

MOSFET DRIVER



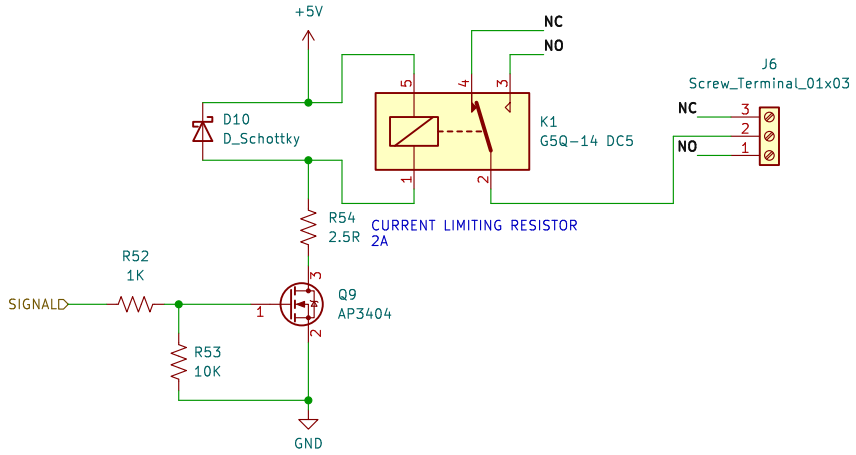
Sheet: /MOSFET_DRIVEN_OUTPUTS/		
File: MOSFET_DRIVEN_OUTPUTS.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 10/17

MOSFET DRIVER



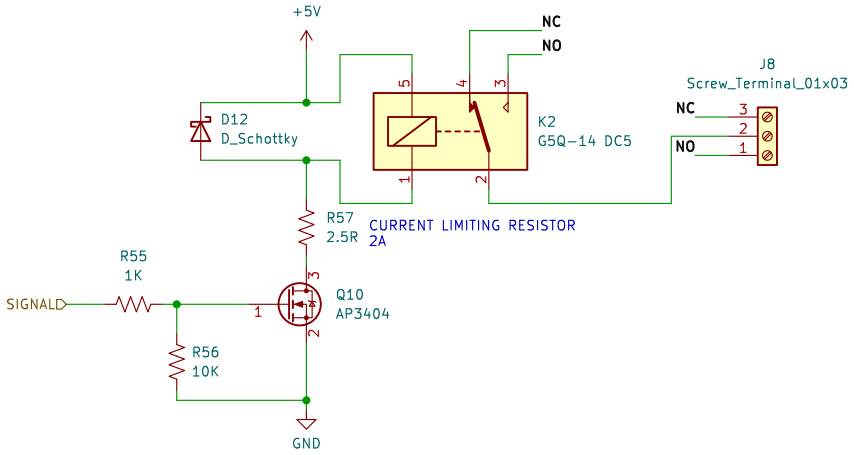
Sheet: /MOSFET_DRIVEN_OUTPUTS2/		
File: MOSFET_DRIVEN_OUTPUTS.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 11/17

RELAY DRIVER



Sheet: /RELAY1/		
File: RELAY.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 12/17

RELAY DRIVER



Sheet: /RELAY/		
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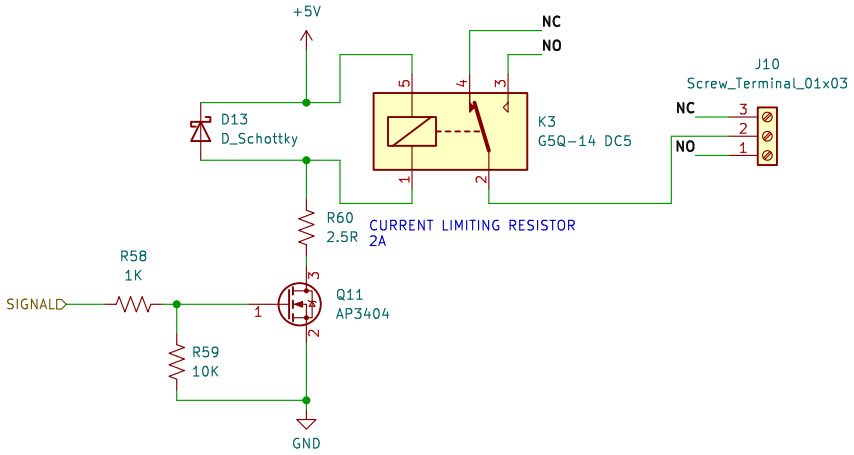
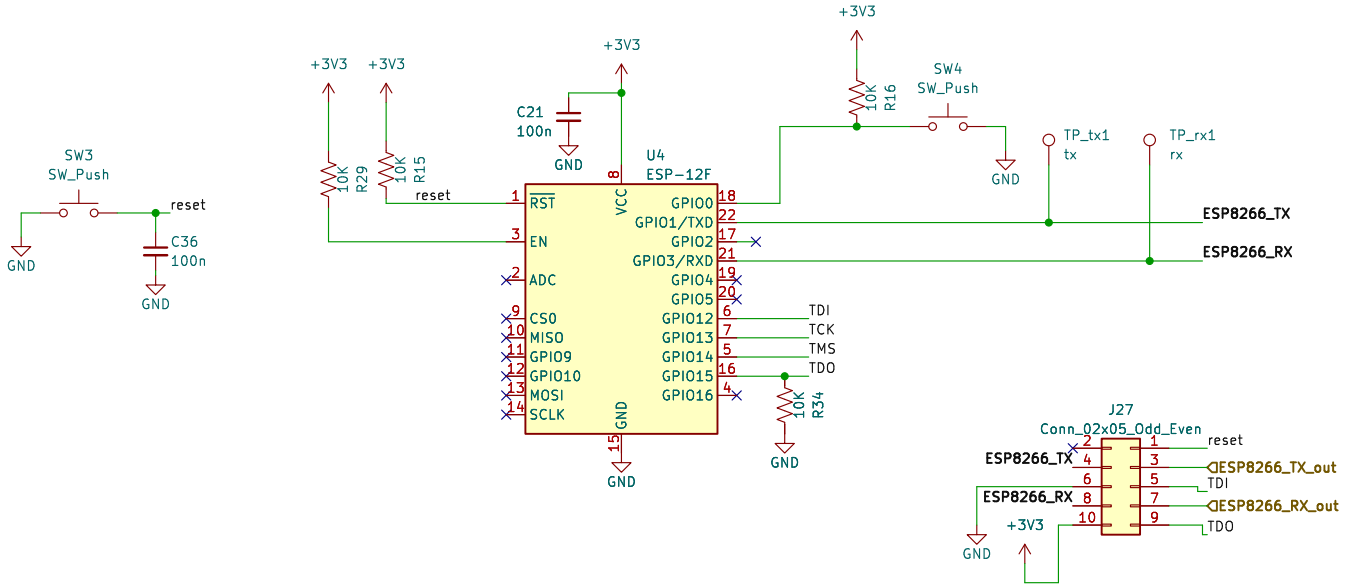
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 13/17

RELAY DRIVER



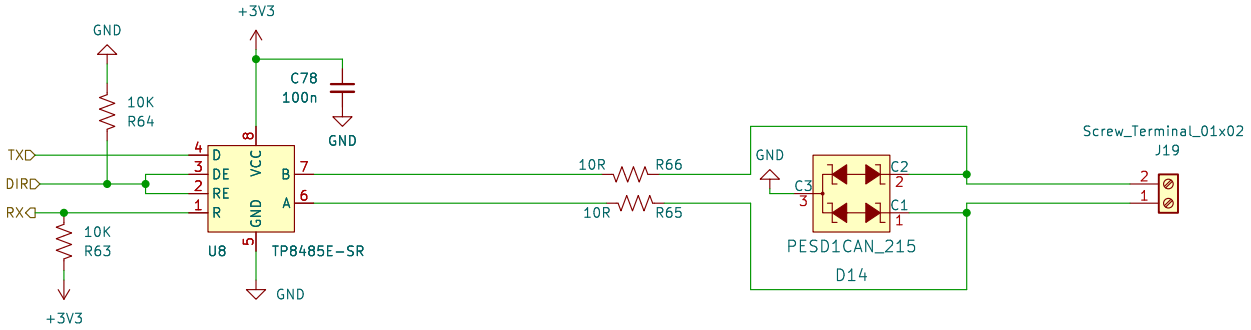
Sheet: /RELAY2/		
File: RELAY.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 14/17



Sheet: /RP2040TR7_MCU/ESP-12F_wifi_module/
File: ESP-12F_wifi_module.kicad_sch

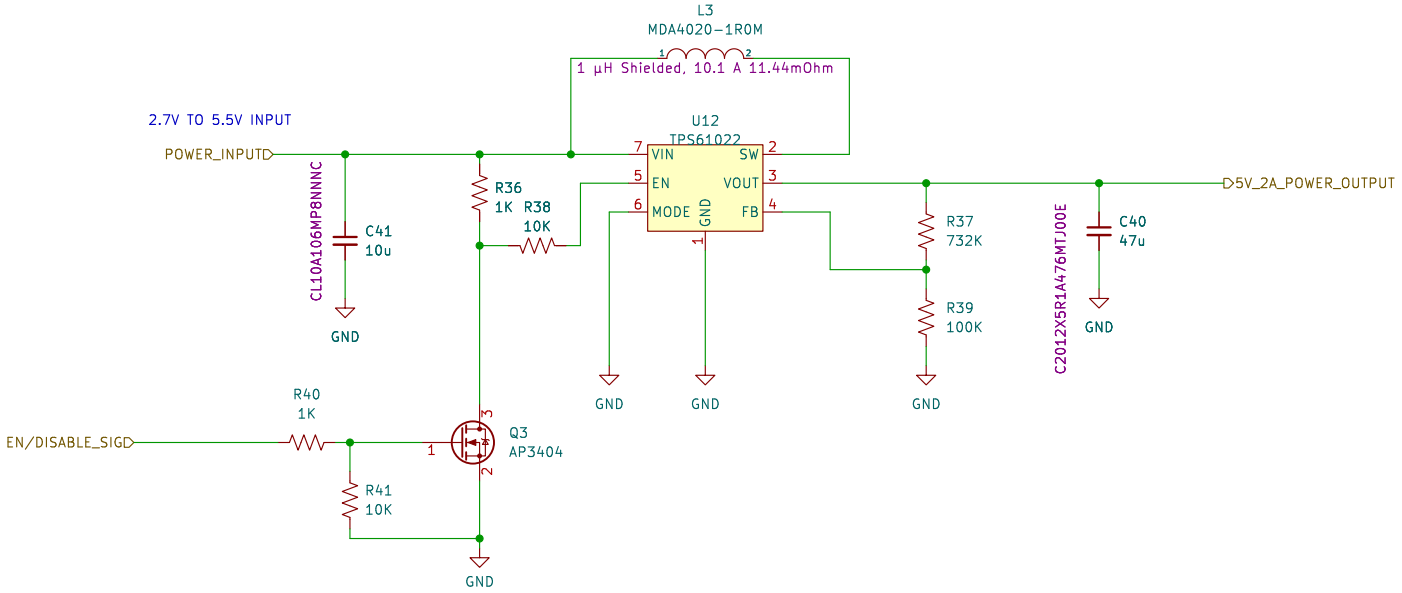
Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 16/17



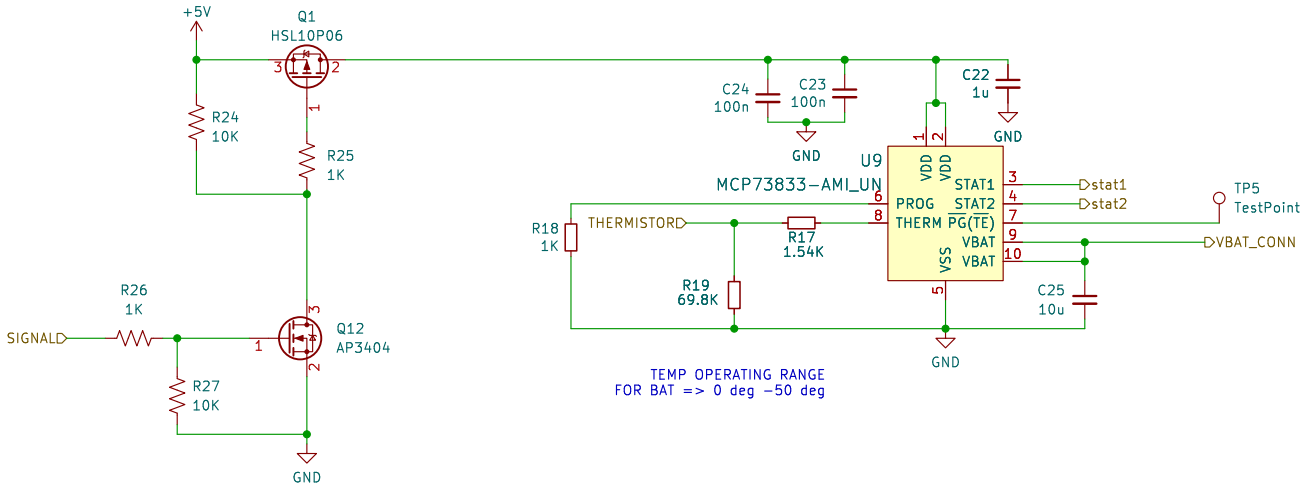
Sheet: /UART_TO_RS485_SHIELDED/		
File: UART_TO_RS485_SHIELDED.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 16/17

5V 4A BOOST CONVERTER
EFFICIENT , LOW QUIESCENT



Sheet: /boost_converter_5v_2a/		
File: boost_converter_5v_2a.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 17/17

LITHIUM BATTERY CHARGER



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Title:		
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KiCad E.D.A. kicad 7.0.2		Id: 18/17