POWER SECTION

BARREL JACK INPUT
12V MAX

J7
Barrel_Jack_Switch
+12V
GND

D2
BZT52Bxx
R8
R_US
GND

MPPT_SOLAR_CHARGER_CN3722
power_input
power_output_to_sys
File: MPPT_SOLAR_CHARGER_CN3722.kicad_sch

BUCK_BOOST_CONVERTER_TPS63070_5V
POWER_INPUT
POWER_OUTPUT
File: BUCK_BOOST_CONVERTER_TPS63070_5V.kicad_sch

+5V
Q?
IRLML5203TRPBF
MODULES_PWR_5V
R?
10K
R?
100R
MODULES_PWR_EN

R28
1K
D15
LED_RED
+5V
GND

RT6154AGQW_3V3_BUCK_CONVERTER
+5V
power_input
OUTPUT_3V3
File: RT6154AGQW_3V3_BUCK_CONVERTER.kicad_sch
+3V3
Q1
IRLML5203TRPBF
MODULES_PWR_3V3
R18
10K
R24
100R
MODULES_PWR_EN

BATTERY VOLTAGE MONITOR

+BATT
R10
10K
R17
1K
Q3
IRLML5203TRPBF
R19
1K
bat_sense_en
Q4
IRLML0100TRPBF
R26
10K
GND
R25
2.7K
BATTERY_VOLTAGE
R27
10K
GND

INPUT PROTOTYPE SENSORS CONNECTORS

I2C AM2315
SOIL TEMEPERATURE SENSOR
MODULES_PWR_5V
SCL
SDA
GND
J16
SOIL TEMPERATURE CONN

HUMIDITY TEMPERATURE SENSOR
MODULES_PWR_5V
DATA_DHT
J14
DHT22 CONN
GND

AMBIENT LIGHT SENSOR
MODULES_PWR_5V
LIGHT_SIG
GND
J17
AMBIENT LIGHT CONN

SOIL MOISTURE SENSOR
MODULES_PWR_5V
DIGITAL_SIG
ANALOG_SIG
GND
J15
SOIL MOISTURE CONN

PH SENSOR
GND
MODULES_PWR_3V3
PH_SIG
J20
PH SENSOR

DS18B20 TEMPERATURE SENSOR
MODULES_PWR_3V3
R62
4.7K
DS18B20_SIGNAL
J9
DS18B20 CONN
GND

USB INPUT

J1
USB_B_Micro
VBUS
D+
D-
ID
Shield
GND
USB_D+
USB_D-
GND

TH2
BSMD0603L-150
D11
D_Schottky
+5V
Z1
MMSZ5231B-7-F
R61
100R
GND

CONTROLLER AND COMMUNICATION

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
RS485_TX
RS485_RX
RS485_DIR
DS18B20_SIGNAL
File: RP2040TR7_MCU.kicad_sch

LORA_RA02
LORA_INT
LORA_DIO1
LORA_RST
LORA_MOSI
LORA_MISO
LORA_SCK
LORA_NSS
File: LORA_RA02.kicad_sch

RS485 INTERFACE

UART_TO_RS485_SHIELDED
RS485_TX
RS485_RX
RS485_DIR
TX
RX
DIR
File: UART_TO_RS485_SHIELDED.kicad_sch

I2C CONNECTOR

J25
Conn_01x04
MODULES_PWR_3V3
GND

INDUSTRIAL SENSORS INPUT
4mA – 20mA SIGNALS

J2
Screw_Terminal_01x02
+24V
IND_SENSOR_1

J3
Screw_Terminal_01x02
+24V
IND_SENSOR_2

MOSFET OUTPUTS

IO_EXPANDER_I2C
SCL
SDA
IO_SCL
IO_SDA
P0
P1
P2
P3
P4
P5
P6
P7
MODULES_PWR_EN
bat_sense_en
File: IO_EXPANDER_I2C.kicad_sch

MOSFET_DRIVEN_OUTPUTS
SIGNAL
MOSFET_DRIVEN_OUTPUTS1
SIGNAL
MOSFET_DRIVEN_OUTPUTS2
SIGNAL

RELAY OUTPUTS ISOLATED

RELAY
SIGNAL
File: RELAY.kicad_sch
RELAY1
SIGNAL
File: RELAY.kicad_sch
RELAY2
SIGNAL
File: RELAY.kicad_sch

MODULES_PWR_5V
FAN OUTPUT
fan_A
fan_B
GND
J21
fan connector

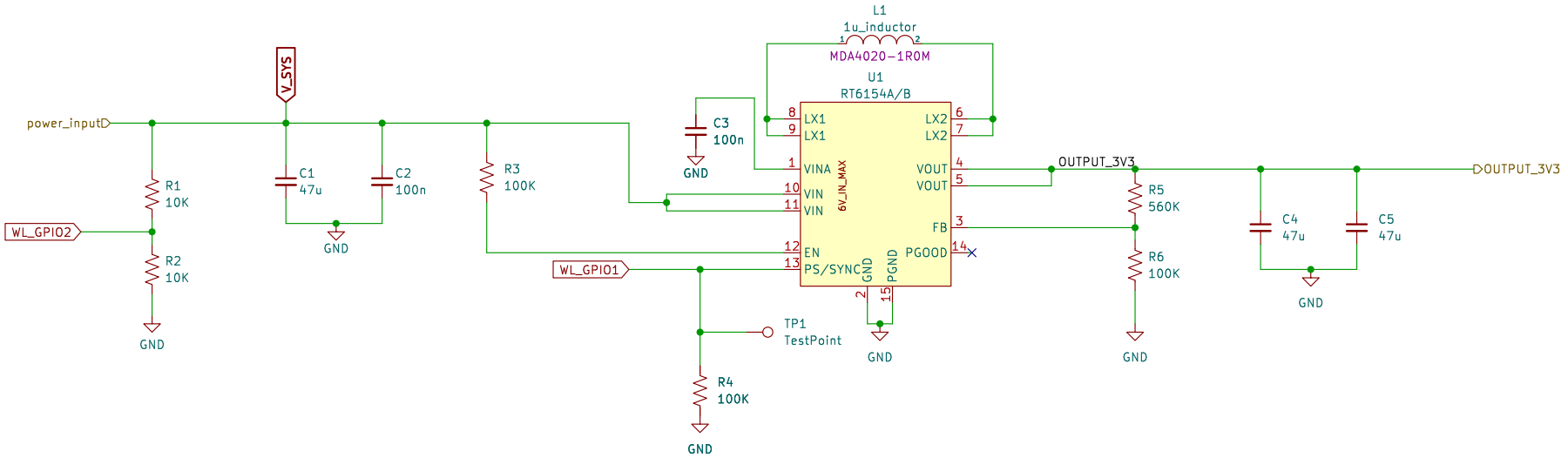
POWER CONNECTORS

+12V
TH4
TLC_LSMD100
1A OUTPUT
J13
Screw_Terminal_01x02
GND
+5V
TH3
BSMD0603L-150
J18
Screw_Terminal_01x02
GND

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: 1/16

3V3 BUCK BOOST REGULATOR



Sheet: /RT6154AGQW_3V3_BUCK_CONVERTER/		
File: RT6154AGQW_3V3_BUCK_CONVERTER.kicad_sch		
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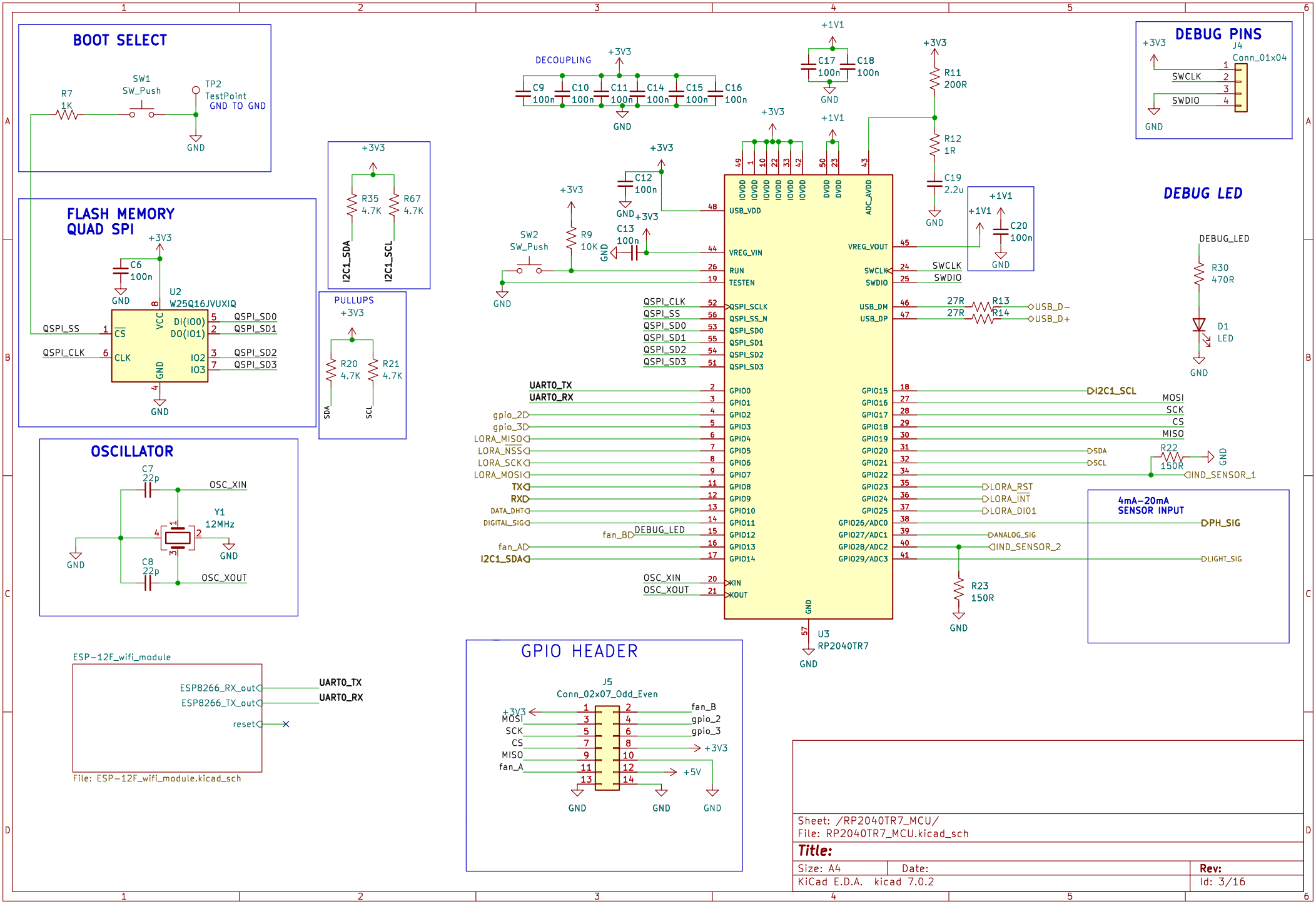
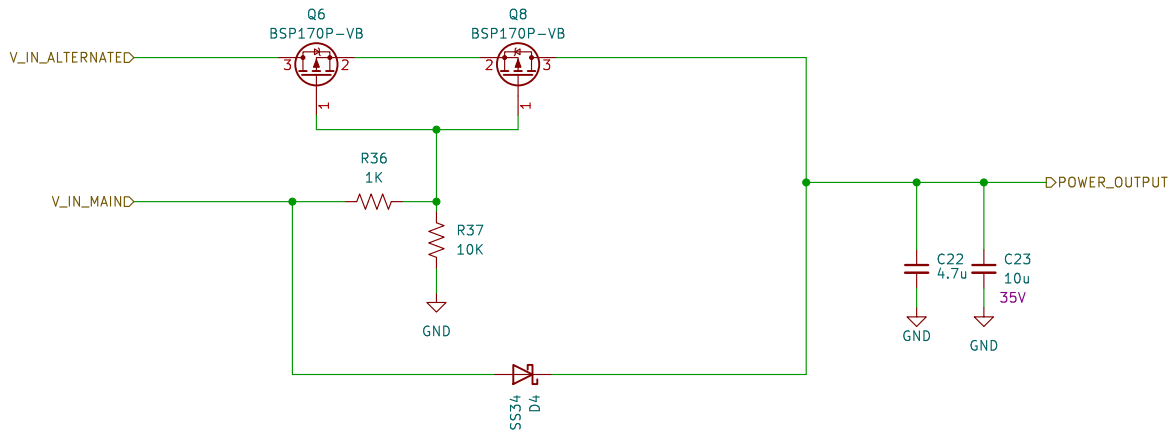
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 2/16


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
reset
UART0_TX
UART0_RX
File: ESP-12F_wifi_module.kicad_sch
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
C17
100n
C18
100n
+1V1
R11
200R
R12
1R
C19
2.2u
C20
100n
C12
100n
C13
100n
R9
10K
SW2
SW_Push
U3
RP2040TR7
IOVDD
DVDD
ADC_AVDD
USB_VDD
VREG_IN
VREG_VOUT
RUN
TESTEN
QSPI_SCLK
QSPI_SS_N
QSPI_SD0
QSPI_SD1
QSPI_SD2
QSPI_SD3
USB_DM
USB_DP
R13
27R
R14
27R
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
LORA_RST
LORA_INT
LORA_DIO1
ANALOG_SIG
IND_SENSOR_2
LIGHT_SIG
PH_SIG
IND_SENSOR_1
R23
150R
R22
150R
4mA-20mA
SENSOR INPUT
DEBUG PINS
J4
Conn_01x04
DEBUG LED
DEBUG_LED
R30
470R
D1
LED
GPIO HEADER
J5
Conn_02x07_Odd_Even
fan_B
gpio_2
gpio_3
+5V
Sheet: /RP2040TR7_MCU/
File: RP2040TR7_MCU.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. kicad 7.0.2
Id: 3/16

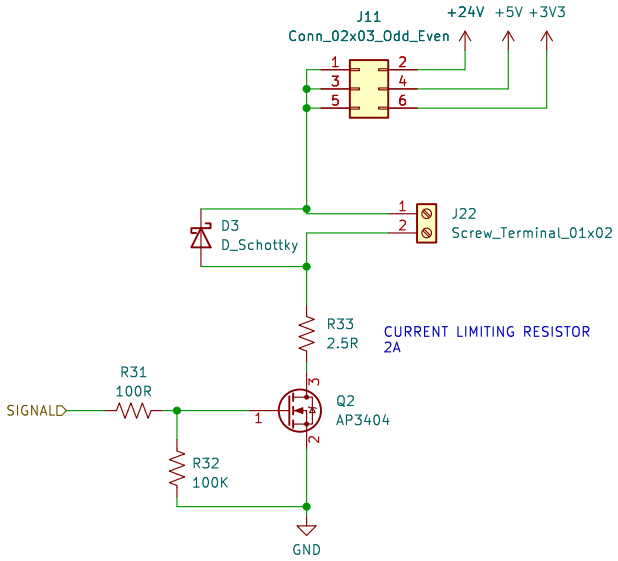
POWER PATH SELECTOR WITH LOW QUIESCENT/LEAKAGE CURRENT



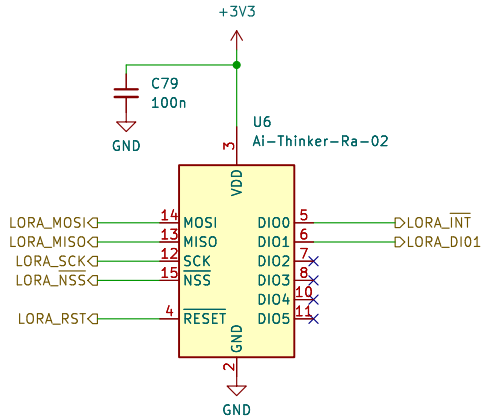
WHEN CIRUCIT IS ON 24v is ocnnected
– voltage across the gate is at a max of 20V(our gate can handle upto 25v)
– when not connected the gateis at 0V and source at 5V which enable power to flow through the circuit

Sheet: /MPPT_SOLAR_CHARGER_CN3722/power_path_simple/		
File: power_path_simple.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 4/16

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: 5/16

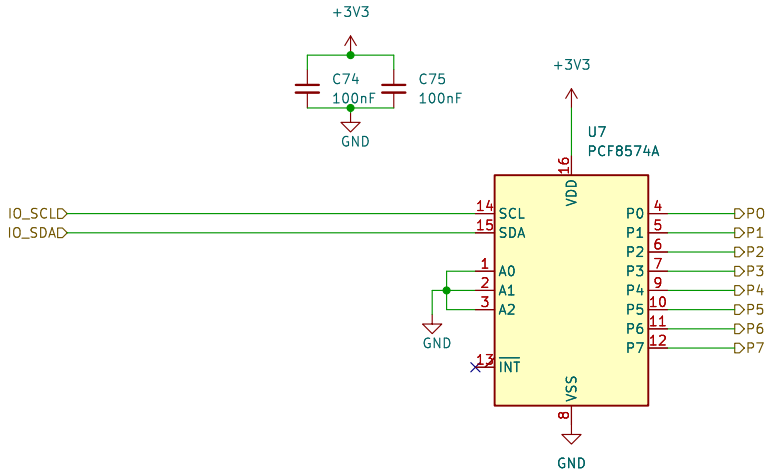


Sheet: /LORA_RA02/
File: LORA_RA02.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 8/16

IO EXPANDER

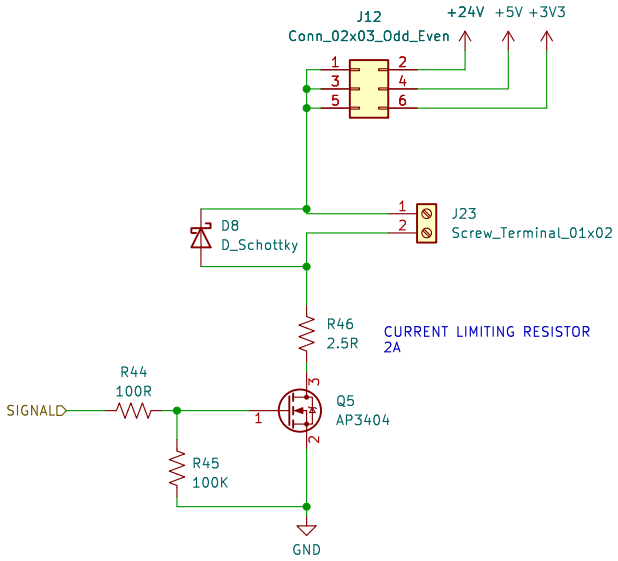


Sheet: /IO_EXPANDER_I2C/
File: IO_EXPANDER_I2C.kicad_sch

Title:

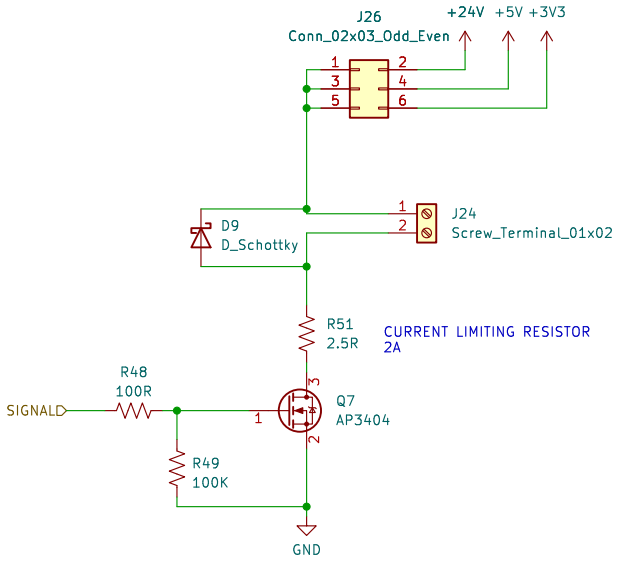
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 9/16

MOSFET DRIVER



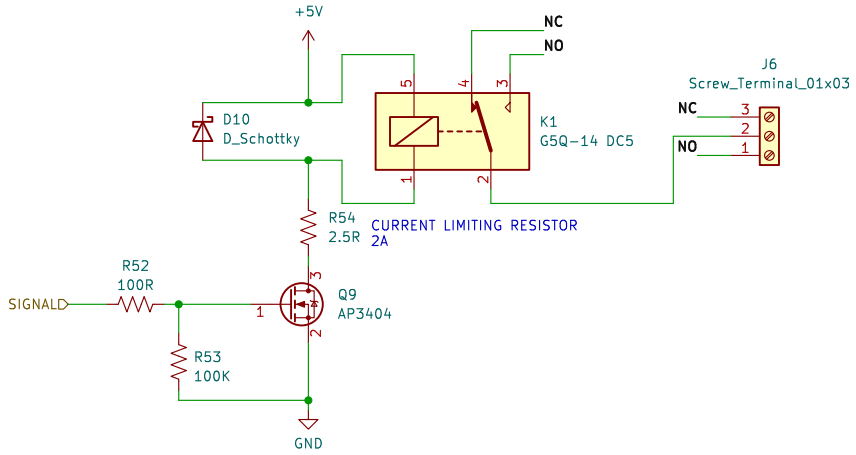
Sheet: /MOSFET_DRIVEN_OUTPUTS/		
File: MOSFET_DRIVEN_OUTPUTS.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 10/16

MOSFET DRIVER



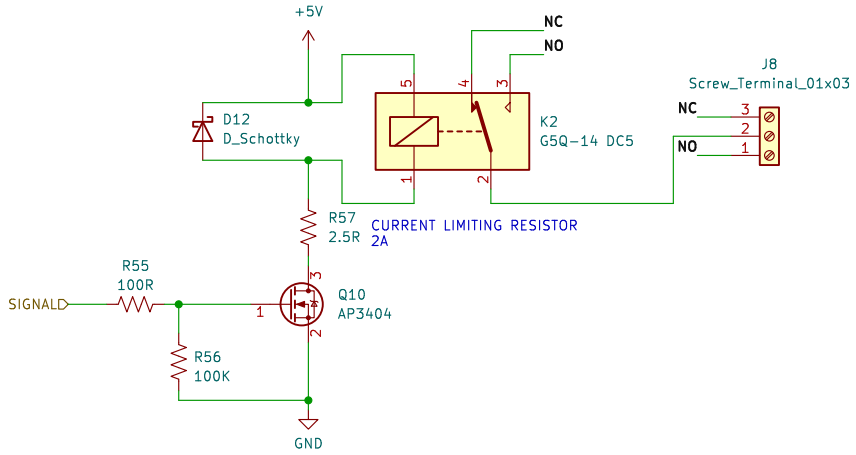
Sheet: /MOSFET_DRIVEN_OUTPUTS2/		
File: MOSFET_DRIVEN_OUTPUTS.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 11/16

RELAY DRIVER



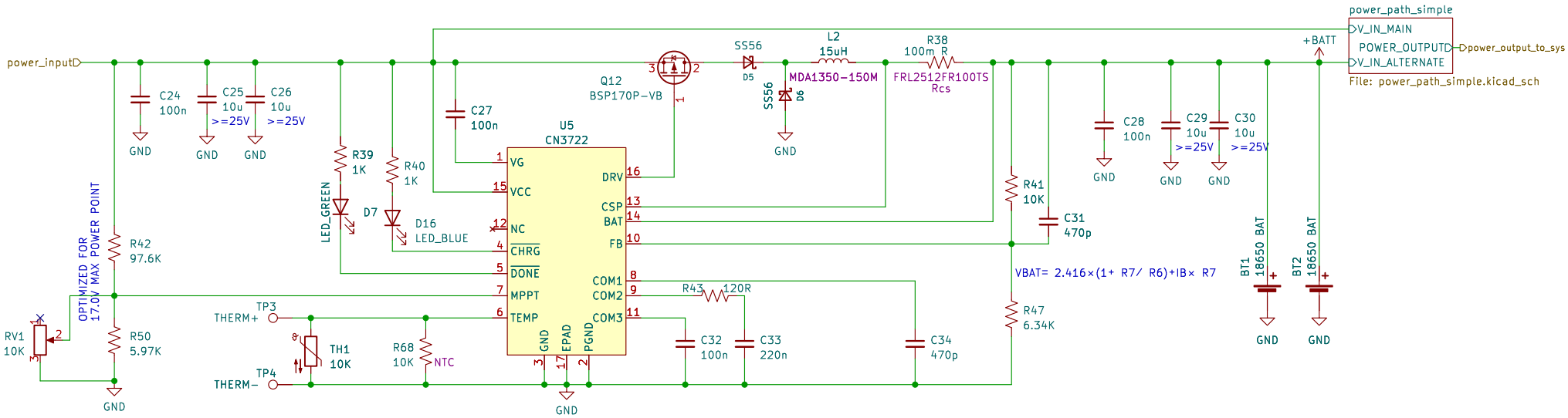
Sheet: /RELAY1/		
File: RELAY.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 12/16

RELAY DRIVER



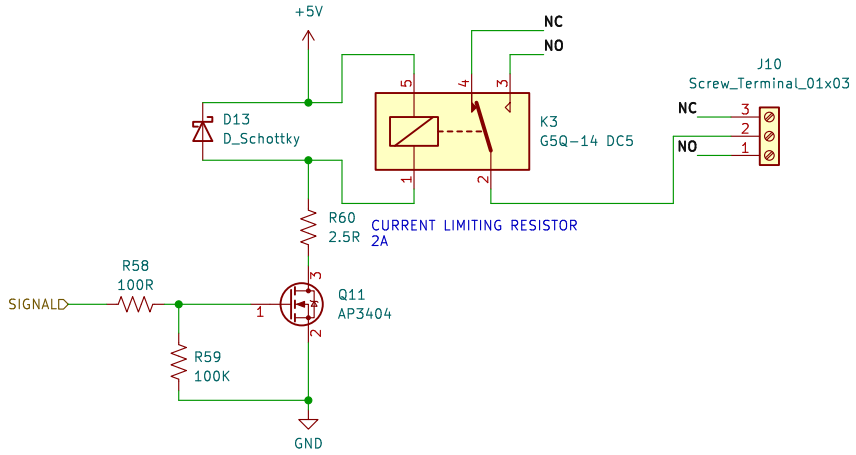
Sheet: /RELAY/		
File: RELAY.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 13/16

MPPT CHARGER CONTROLLER WITH BATTERY CHARGER



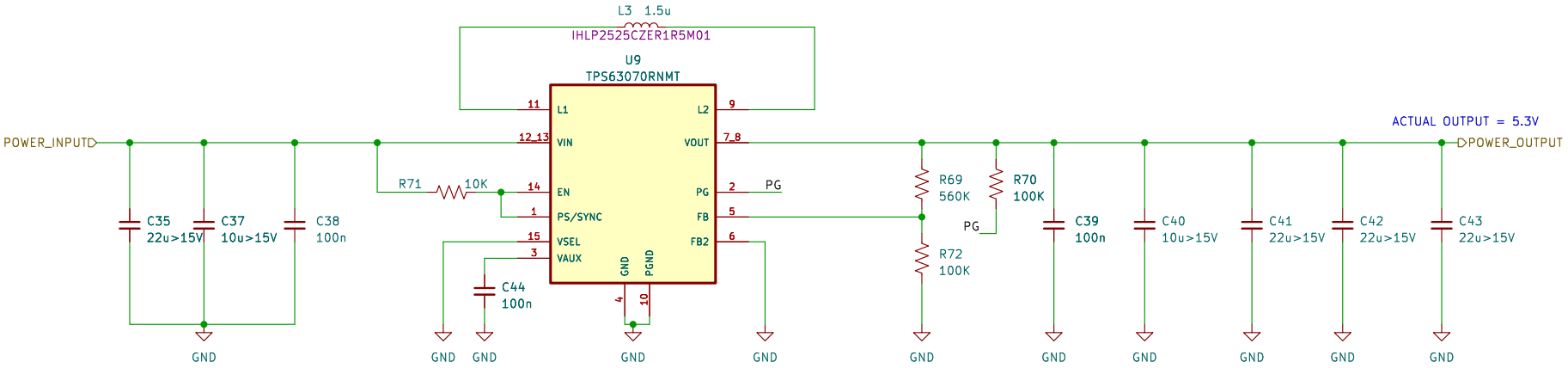
Sheet: /MPPT_SOLAR_CHARGER_CN3722/		
File: MPPT_SOLAR_CHARGER_CN3722.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 14/16

RELAY DRIVER

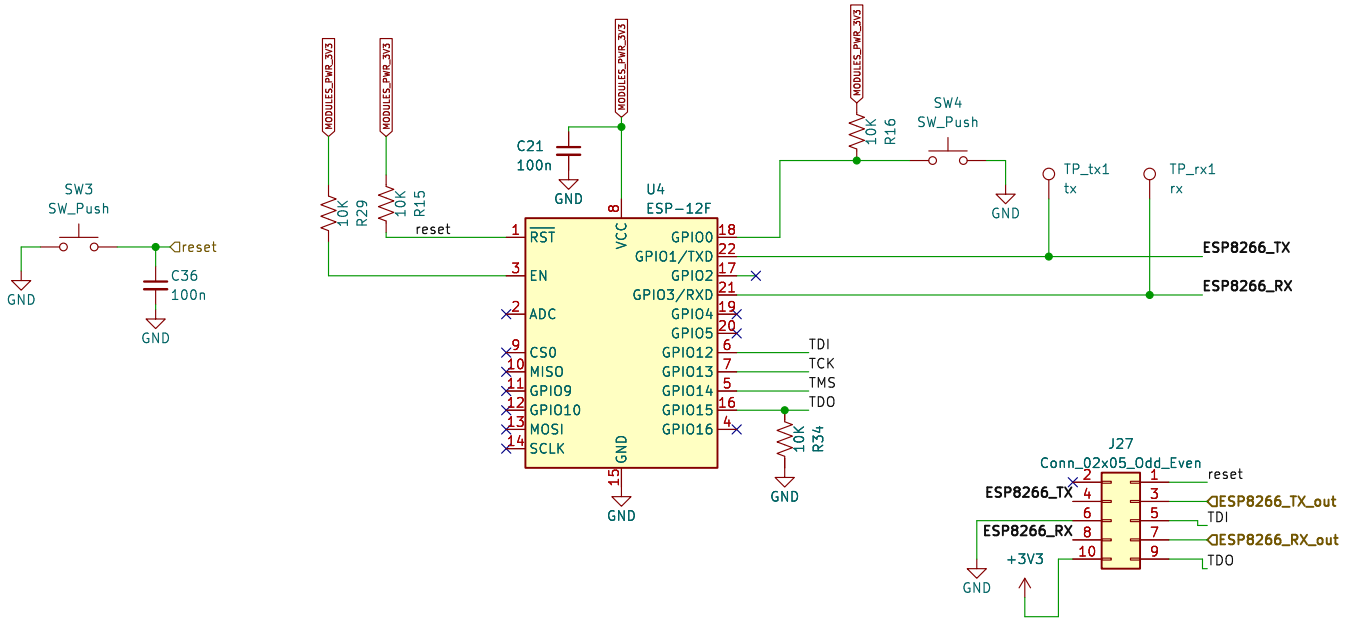


Sheet: /RELAY2/		
File: RELAY.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 14/16

BUCK BOOST CONVERTER 5V 1.5 A OUTPUT



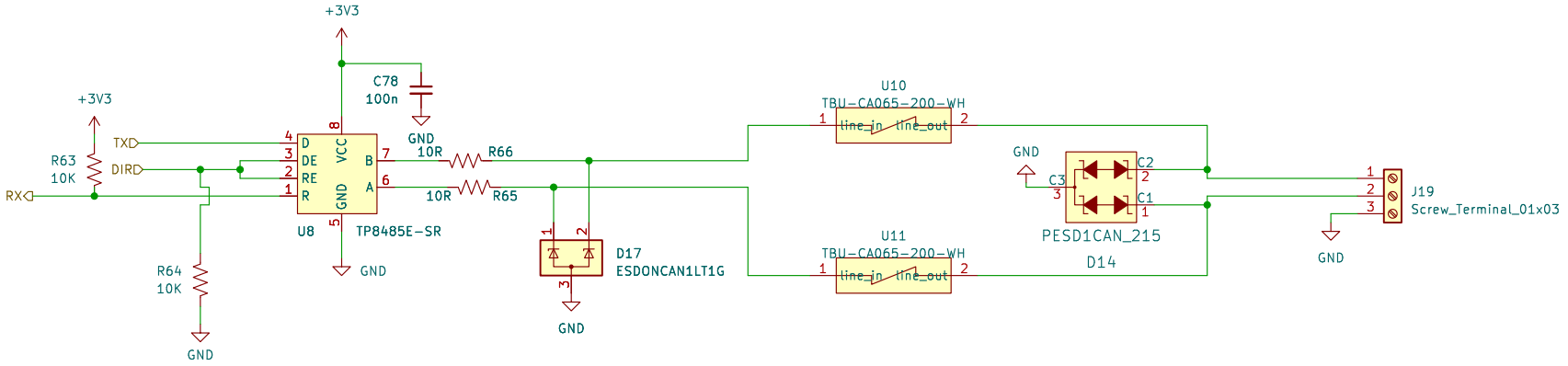
Sheet: /BUCK_BOOST_CONVERTER_TPS63070_5V/		
File: BUCK_BOOST_CONVERTER_TPS63070_5V.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.2		Id: 16/16



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: 16/16



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