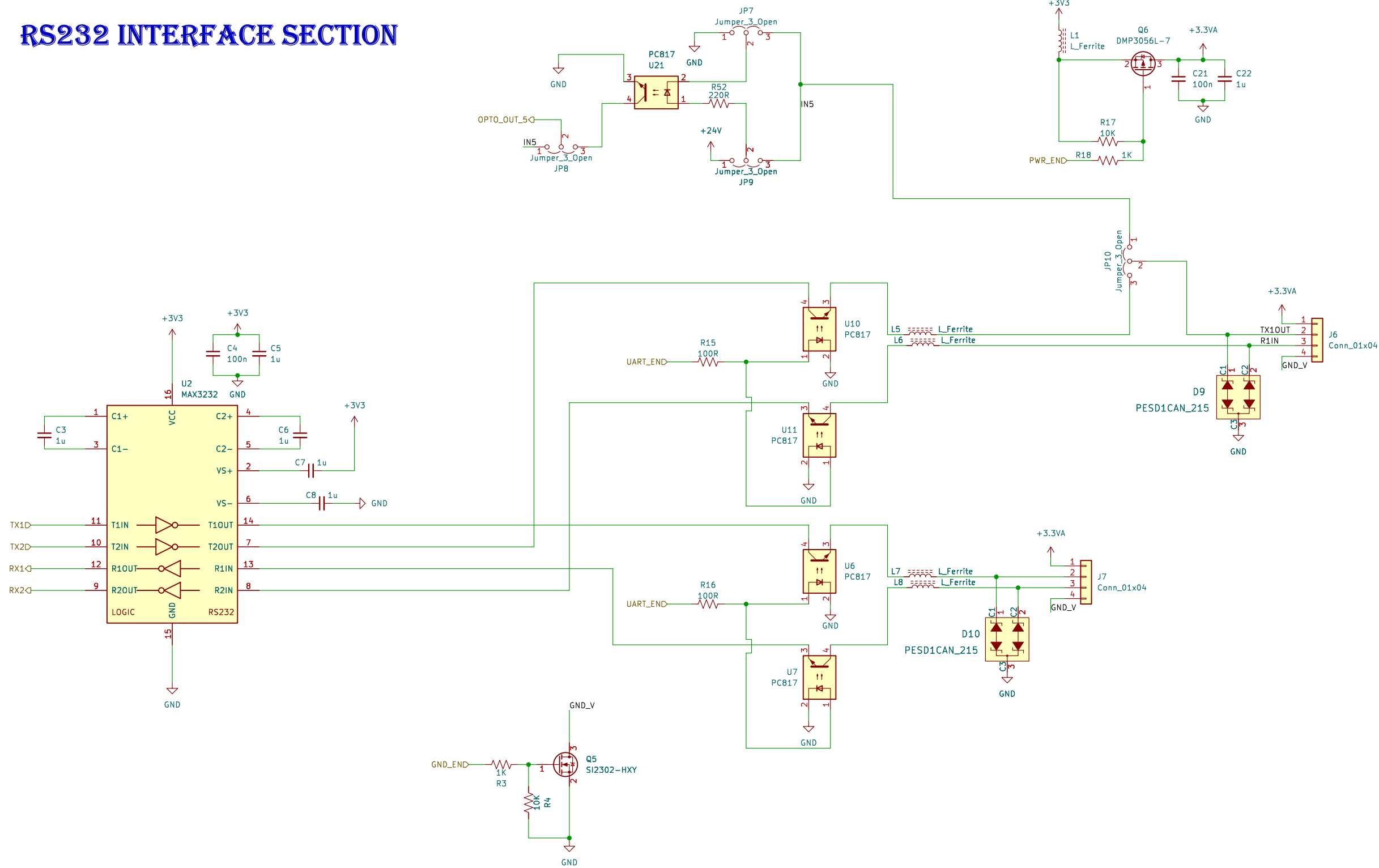


RS232 INTERFACE SECTION



ELIESTAR
Designed By: Robert Mutura
Reviewed By: Timoty Kyalo

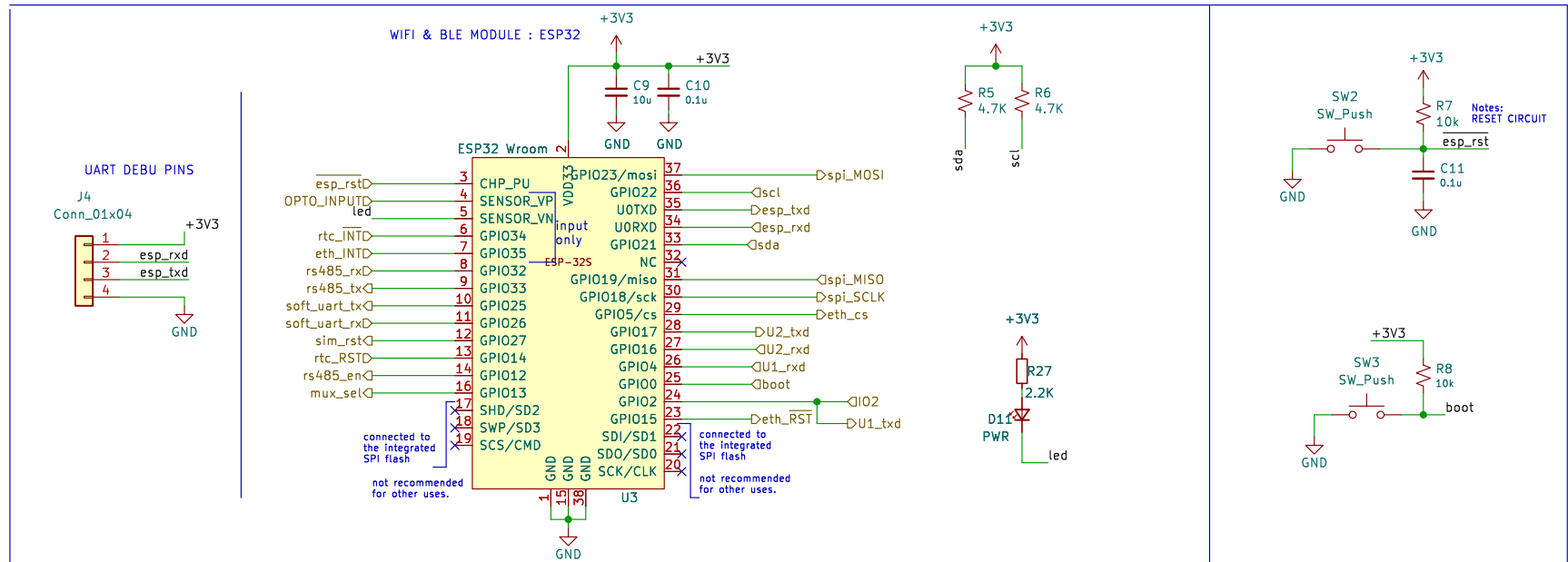
GEVITON
Sheet: /rs232_MAX232/
File: rs232_MAX232.kicad_sch

Title: ELIESTAR

Size: A3	Date: 2023-06-20
KiCad E.D.A. kicad 7.0.2	

Rev: 2.0
Id: 2/16

ESP32 MCU



PLEASE USE THIS VIDEO TO SETUP SERIAL PINS FOR ESP32

<https://techoverflow.net/2021/11/19/which-pins-can-you-use-for-uart-on-the-esp32/>
<https://microcontrollerslab.com/esp32-uart-communication-pins-example/>

ELIESTAR

Designed By: Robert Mutura

Reviewed By: Timoty Kyalo

GEVITON

Sheet: /ESP32_MCU/

File: ESP32_MCU.kicad_sch

Title: ELIESTAR

Size: A4 Date: 2023-06-20

KiCad E.D.A. kicad 7.0.2

Rev: 2.0

Id: 3/16

USB To TTL Converter Section

Micro USB Interface
J5
USB_B_Micro

VBUS
+5V

Z2
MMSZ5231B-7-F

R9
2K

GND

22uF
100nF

C13
C14

D+
D-
ID

22pF
22pF

C15
C16

Y1
12MHz

U4
CH340T(SSOP20W)

VCC
V3
GND
UD+
UD-
XI
XO

TXD
RXD
RTS#
CTS#
DTR#
DSR#
DCD#
RI#
NOS#
IR#

R10
10k

R11
10k

D3
D4

TTL_Txd
TTL_Rxd

dtr
rts

10k
10k

R12
R13

Q1
Q2

D5

Desp_rst

Auto program

DTR	RTS->EN	IO0
1	1	1
0	0	1
1	0	1
0	1	0

boot
IO2

220R
R14

D6
BAT54C

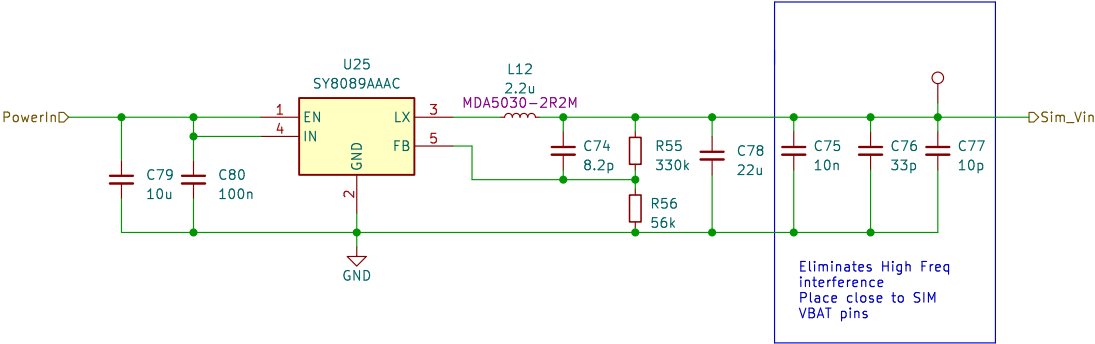
Designed By: Robert Mutura
Reviewed By: Timoty Kyalo

Sheet: /USB_TTL_CH340/
File: USB_TTL_CH340.kicad_sch

Size: A4	Date: 2023-06-20
KiCad E.D.A. kicad 7.0.2	

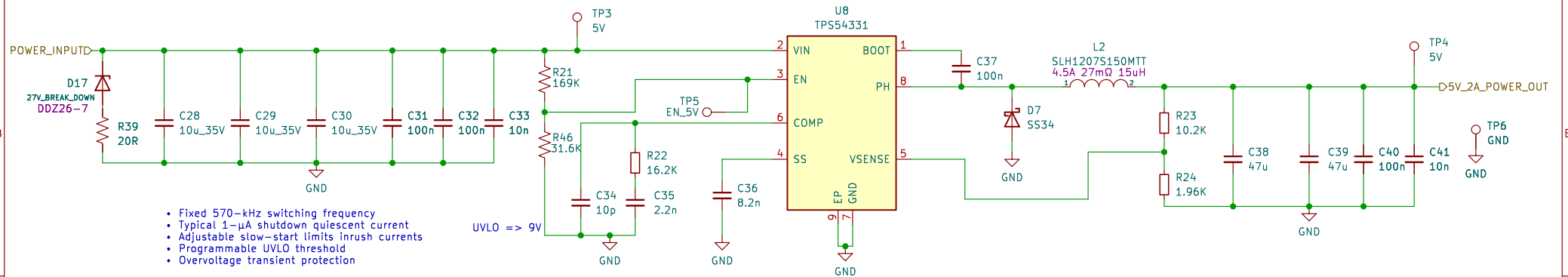
Rev: 2.0
Id: 4/16

SIM MODULE POWER SUPPLY 4.2V/2A



ELIESTAR		
Designed By: Robert Mutura		
Reviewed By: Timoty Kyalo		
GEVITON		
Sheet: /Sim_Power_Supply/		
File: Sim_Power_Supply.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 5/16

BUCK CONVERTER 24V MAX INPUT 2A 5V OUTPUT



ELIESTAR
Designed By: Robert Mutura
Reviewed By: Timoty Kyalo

GEVITON

Sheet: /BUCK_CONVERTER_TPS54331/
File: BUCK_CONVERTER_TPS54331.kicad_sch

Title: ELIESTAR

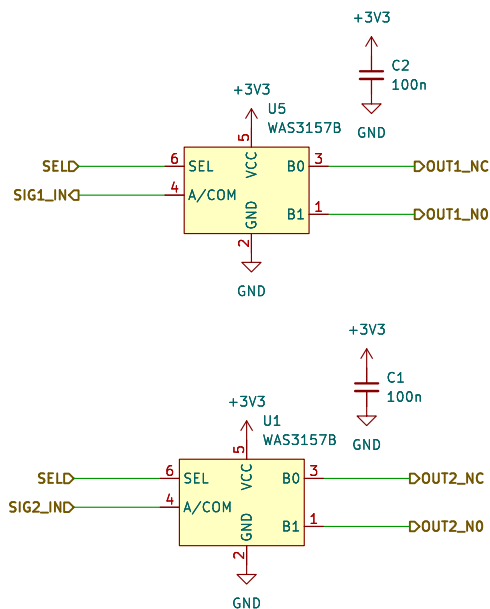
Size: A4
KiCad E.D.A. kicad 7.0.2

Date: 2023-06-20

Rev: 2.0

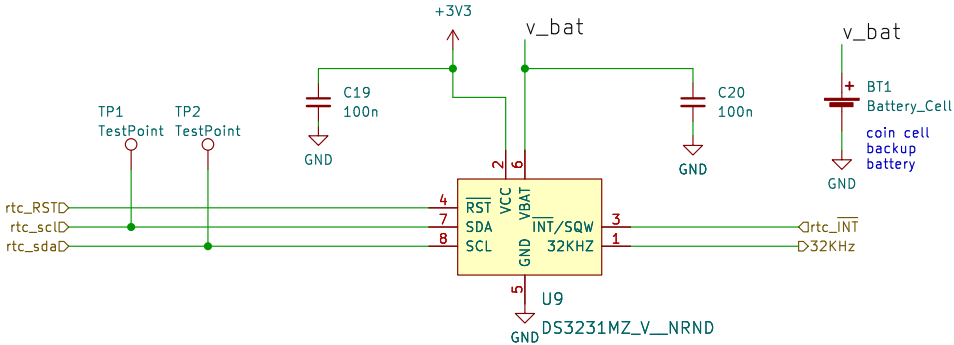
Id: 8/16

ANALOG SWITCH / MULTIPLEXER IC



ELIESTAR		
Designed By: Robert Mutura		
Reviewed By: Timoty Kyalo		
GEVITON		
Sheet: /MULTIPLEXER_SWITCH_WAS3157B-6/		
File: MULTIPLEXER_SWITCH_WAS3157B-6.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 8/16

RTC MODULE DS3231



ELIESTAR
Designed By: Robert Mutura
Reviewed By: Timoty Kyalo

GEVITON

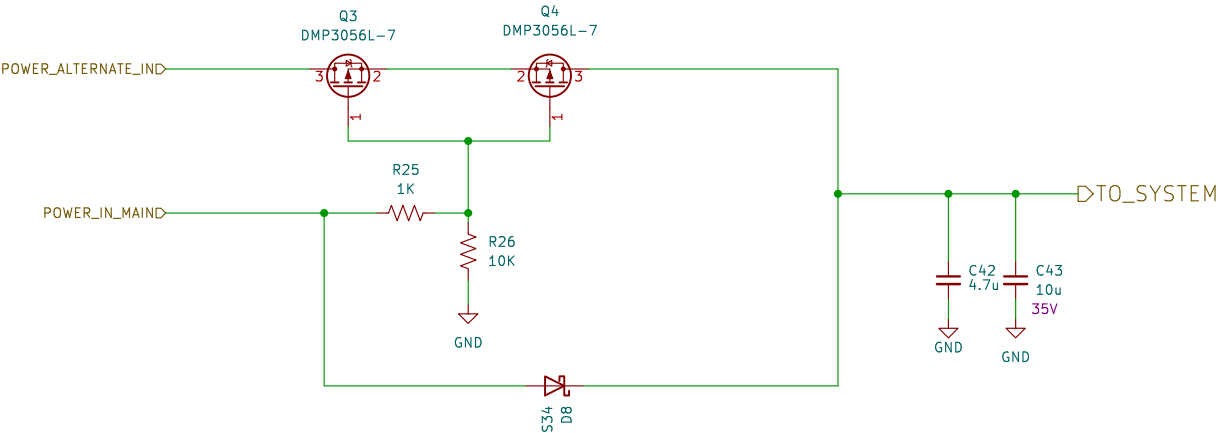
Sheet: /RTC_DS3231/
File: RTC_DS3231.kicad_sch

Title: ELIESTAR

Size: A4	Date: 2023-06-20
KiCad E.D.A. kicad 7.0.2	

Rev: 2.0
Id: 8/16

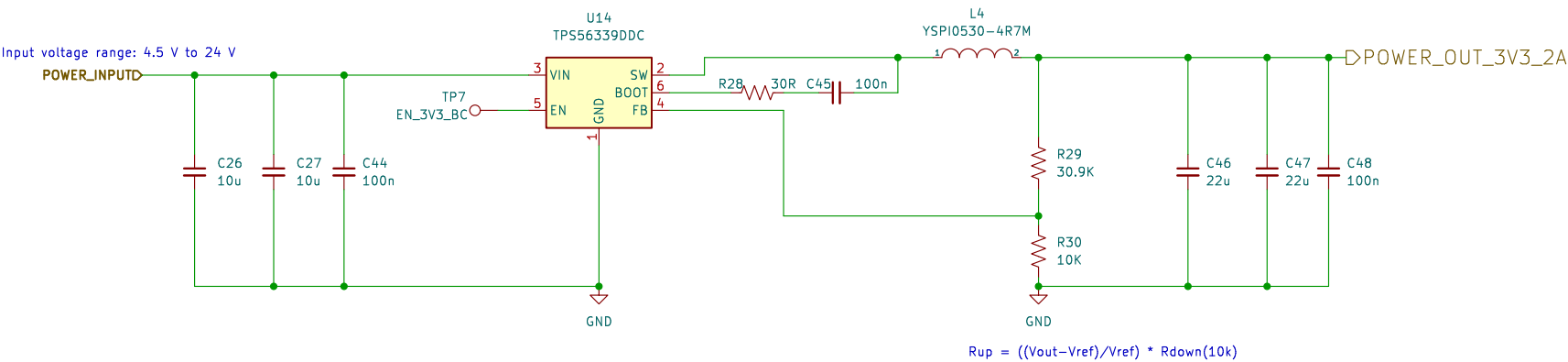
POWER PATH SELECTOR WITH LOW QUIESCENT/LEAKAGE CURRENT



WHEN CIRUCIT IS ON 24v is ocnected
- 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

ELIESTAR		
Designed By: Robert Mutura		
Reviewed By: Timoty Kyalo		
GEVITON		
Sheet: /custom_power_path_selector/		
File: custom_power_path_selector.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2	Id: 9/16	

3V3 2A BUCK CONVERTER TPS56339DDCR



ELIESTAR
Designed By: Robert Mutura
Reviewed By: Timoty Kyalo

GEVITON

Sheet: /BUCK_CONVERTER_TPS56339/
File: BUCK_CONVERTER_TPS56339.kicad_sch

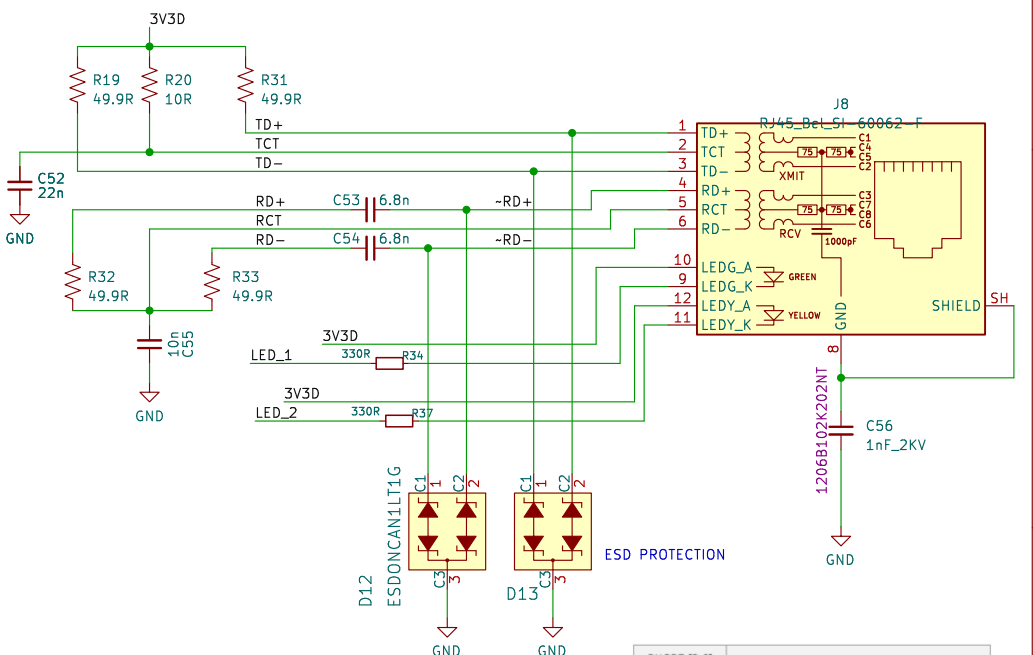
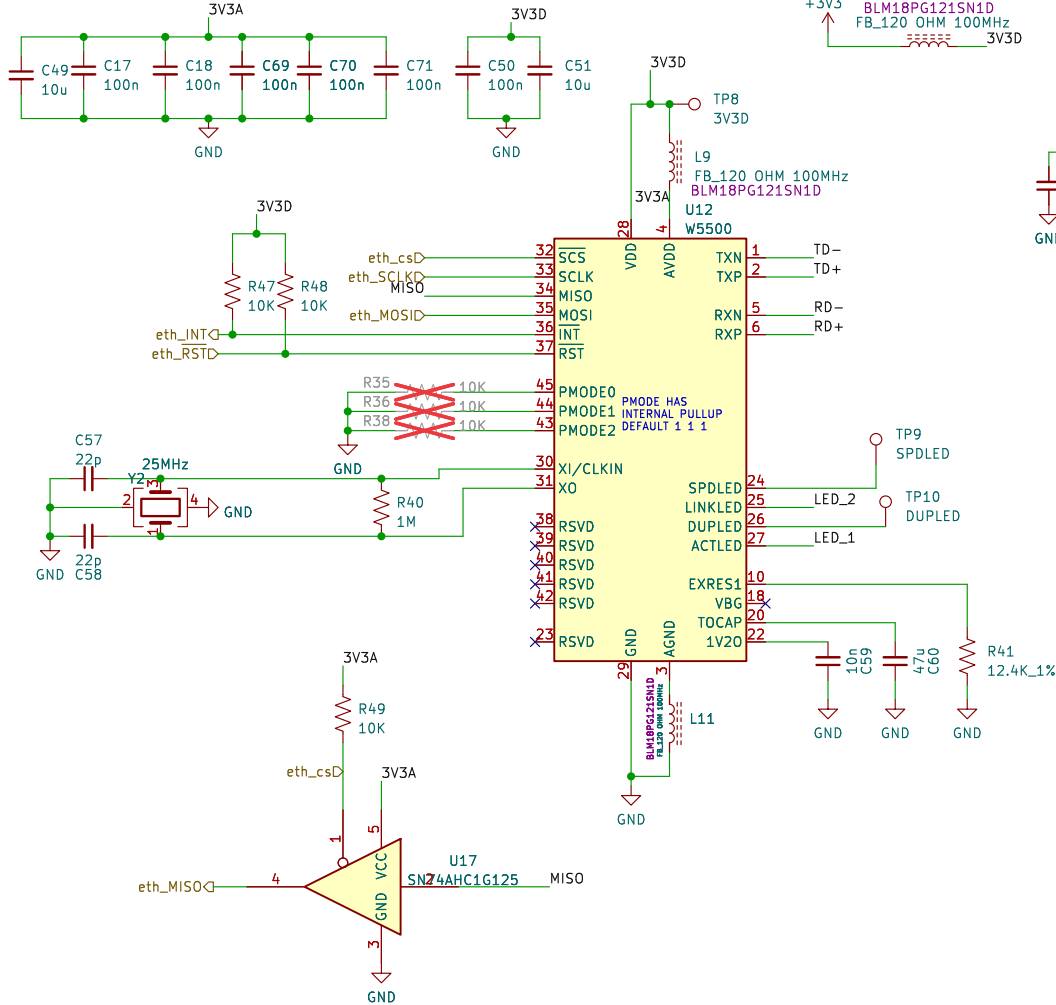
Title: ELIESTAR

Size: A4 Date: 2023-06-20
KiCad E.D.A. kicad 7.0.2

Rev: 2.0
Id: 9/16

ETHERNET TO SPI INTERFACE ID W5500

DECOUPLING CAPACITORS



PMODE [2:0]			Description
2	1	0	
0	0	0	10BT Half-duplex, Auto-negotiation disabled
0	0	1	10BT Full-duplex, Auto-negotiation disabled
0	1	0	100BT Half-duplex, Auto-negotiation disabled
0	1	1	100BT Full-duplex, Auto-negotiation disabled
1	0	0	100BT Half-duplex, Auto-negotiation enabled
1	0	1	Not used
1	1	0	Not used
1	1	1	All capable, Auto-negotiation enabled

ELIESTAR

Designed By: Robert Mutura

Reviewed By: Timoty Kyalo

VERIFIED

GEVITON

Sheet: /SPI_ETH_INTERFACE_W5500/

File: SPI_ETH_INTERFACE_W5500.kicad_sch

Title: ELIESTAR

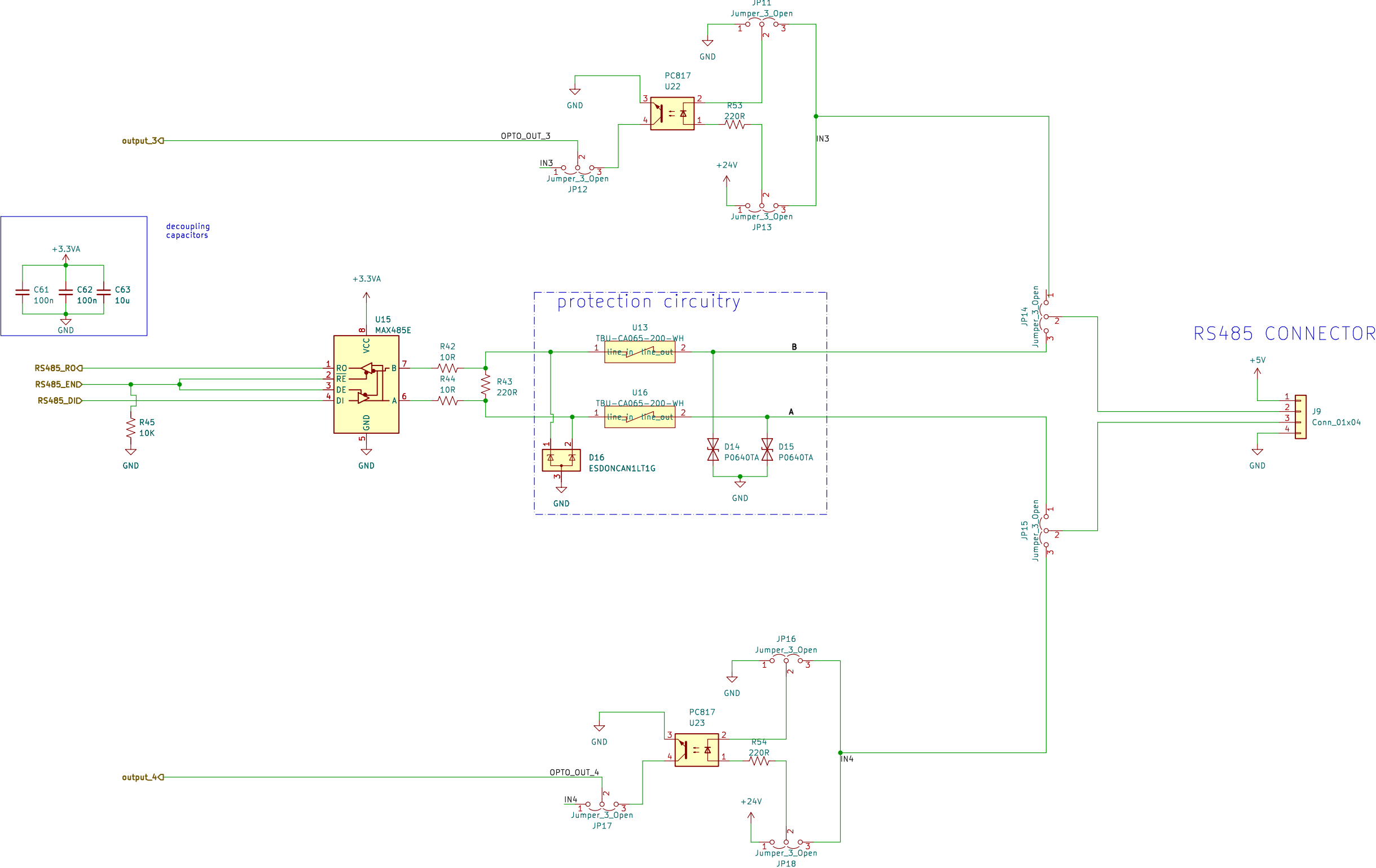
Size: A4 Date: 2023-06-20

KiCad E.D.A. kicad 7.0.2

Rev: 2.0

Id: 10/16

RS485 COMMUNICATION INTERFACE WITH PROTECTION CIRCUIT



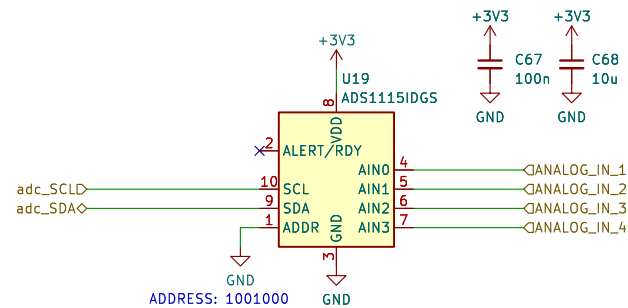
OPTO ISOLATOR INPUT

The schematic diagram illustrates an NPN_PNP_ISOLATED_INPUT circuit. It features two optoisolators, PC817 U18 and PC817 U20. Each optoisolator has an LED input (pins 1, 2, 3) and a phototransistor output (pins 4, 5, 6). The LED inputs are connected to +24V through 220R resistors (R50, R51) and to GND through jumpers JP1, JP2, JP3, JP4, JP5, and JP6. The phototransistor outputs are connected to IN1 and IN2. A +24V supply is connected to the circuit through a network of capacitors (C64, C65, C66) and a 1uF capacitor. An industrial sensor connector J10 (Conn_01x04) is connected to the +24V and GND lines. The schematic is labeled with various components and their values.

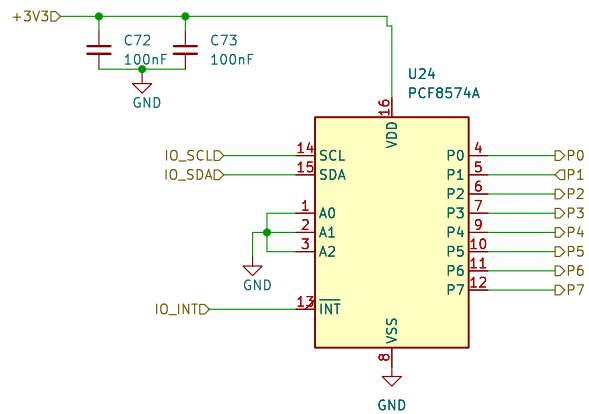
ELIESTAR Designed By: Robert Mutura Reviewed By: Timoty Kyalo		
GEVITON Sheet: /NPN_PNP_ISOLATED_INPUT/ File: NPN_ISOLATED_INPUT.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 12/16

Rev: 2.0
Id: 12/16

16BIT DIGITAL TO ANALOG CONVERTER

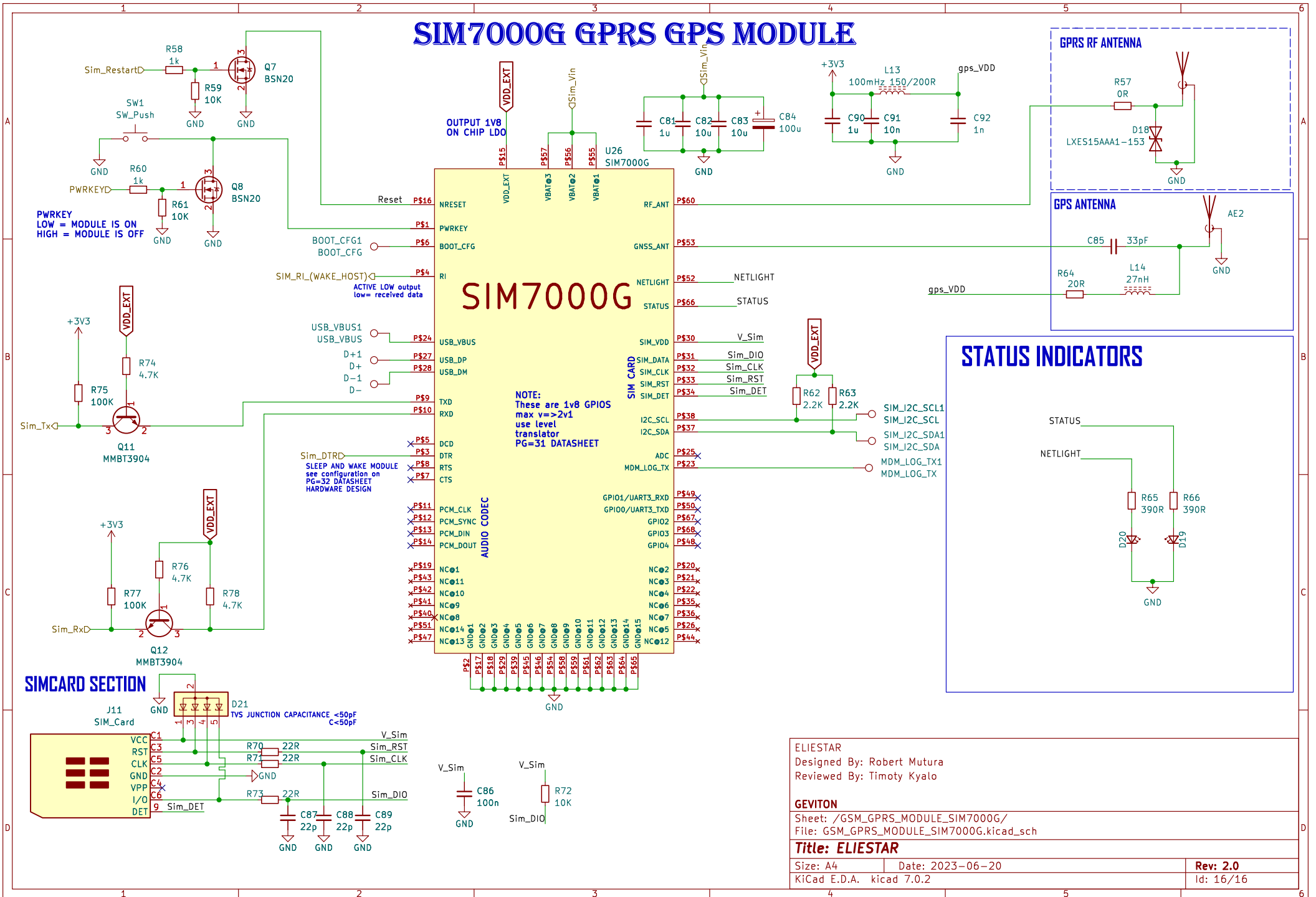


ELIESTAR		
Designed By: Robert Mutura		
Reviewed By: Timoty Kyalo		
GEVITON		
Sheet: /16BIT_ADC_ADS1115/		
File: 16BIT_ADC_ADS1115.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 13/16



ELIESTAR		
Designed By: Robert Mutura		
Reviewed By: Timoty Kyalo		
GEVITON		
Sheet: /io_expander/		
File: io_expander.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 14/16

SIM7000G GPRS GPS MODULE



ELIESTAR
 Designed By: Robert Mutura
 Reviewed By: Timoty Kyalo

GEVITON
 Sheet: /GSM_GPRS_MODULE_SIM7000G/
 File: GSM_GPRS_MODULE_SIM7000G.kicad_sch

Title: ELIESTAR

Size: A4	Date: 2023-06-20
KiCad E.D.A. kicad 7.0.2	Rev: 2.0 Id: 16/16