

RS232 INTERFACE SECTION

The schematic diagram illustrates the RS232 interface section of the ELIESTAR project. It features a MAX3232 IC (U2) interfaced with an RS232 module (U1) and a MAX3232 module (U2). The circuit includes power supply connections for +3V3, +24V, and +3.3VA, along with various capacitors (C1-C8), resistors (R1-R18), and jumpers (JP1-JP10). The RS232 module (U1) has pins for TX1D, TX2D, RX1D, RX2D, and logic ground. The MAX3232 module (U2) has pins for VCC, VS+, VS-, T1IN, T1OUT, T2IN, T2OUT, R1IN, R1OUT, R2IN, R2OUT, and logic ground. The MAX3232 module (U2) has pins for VCC, VS+, VS-, T1IN, T1OUT, T2IN, T2OUT, R1IN, R1OUT, R2IN, R2OUT, and logic ground.

Legend:

- U1: RS232
- U2: MAX3232
- U3: MAX3232
- U4: MAX3232
- U5: MAX3232
- U6: MAX3232
- U7: MAX3232
- U8: MAX3232
- U9: MAX3232
- U10: MAX3232
- U11: MAX3232
- U12: MAX3232
- U13: MAX3232
- U14: MAX3232
- U15: MAX3232
- U16: MAX3232
- U17: MAX3232
- U18: MAX3232
- U19: MAX3232
- U20: MAX3232
- U21: MAX3232
- U22: MAX3232
- U23: MAX3232
- U24: MAX3232
- U25: MAX3232
- U26: MAX3232
- U27: MAX3232
- U28: MAX3232
- U29: MAX3232
- U30: MAX3232
- U31: MAX3232
- U32: MAX3232
- U33: MAX3232
- U34: MAX3232
- U35: MAX3232
- U36: MAX3232
- U37: MAX3232
- U38: MAX3232
- U39: MAX3232
- U40: MAX3232
- U41: MAX3232
- U42: MAX3232
- U43: MAX3232
- U44: MAX3232
- U45: MAX3232
- U46: MAX3232
- U47: MAX3232
- U48: MAX3232
- U49: MAX3232
- U50: MAX3232
- U51: MAX3232
- U52: MAX3232
- U53: MAX3232
- U54: MAX3232
- U55: MAX3232
- U56: MAX3232
- U57: MAX3232
- U58: MAX3232
- U59: MAX3232
- U60: MAX3232
- U61: MAX3232
- U62: MAX3232
- U63: MAX3232
- U64: MAX3232
- U65: MAX3232
- U66: MAX3232
- U67: MAX3232
- U68: MAX3232
- U69: MAX3232
- U70: MAX3232
- U71: MAX3232
- U72: MAX3232
- U73: MAX3232
- U74: MAX3232
- U75: MAX3232
- U76: MAX3232
- U77: MAX3232
- U78: MAX3232
- U79: MAX3232
- U80: MAX3232
- U81: MAX3232
- U82: MAX3232
- U83: MAX3232
- U84: MAX3232
- U85: MAX3232
- U86: MAX3232
- U87: MAX3232
- U88: MAX3232
- U89: MAX3232
- U90: MAX3232
- U91: MAX3232
- U92: MAX3232
- U93: MAX3232
- U94: MAX3232
- U95: MAX3232
- U96: MAX3232
- U97: MAX3232
- U98: MAX3232
- U99: MAX3232
- U100: MAX3232

Legend:

- U1: RS232
- U2: MAX3232
- U3: MAX3232
- U4: MAX3232
- U5: MAX3232
- U6: MAX3232
- U7: MAX3232
- U8: MAX3232
- U9: MAX3232
- U10: MAX3232
- U11: MAX3232
- U12: MAX3232
- U13: MAX3232
- U14: MAX3232
- U15: MAX3232
- U16: MAX3232
- U17: MAX3232
- U18: MAX3232
- U19: MAX3232
- U20: MAX3232
- U21: MAX3232
- U22: MAX3232
- U23: MAX3232
- U24: MAX3232
- U25: MAX3232
- U26: MAX3232
- U27: MAX3232
- U28: MAX3232
- U29: MAX3232
- U30: MAX3232
- U31: MAX3232
- U32: MAX3232
- U33: MAX3232
- U34: MAX3232
- U35: MAX3232
- U36: MAX3232
- U37: MAX3232
- U38: MAX3232
- U39: MAX3232
- U40: MAX3232
- U41: MAX3232
- U42: MAX3232
- U43: MAX3232
- U44: MAX3232
- U45: MAX3232
- U46: MAX3232
- U47: MAX3232
- U48: MAX3232
- U49: MAX3232
- U50: MAX3232
- U51: MAX3232
- U52: MAX3232
- U53: MAX3232
- U54: MAX3232
- U55: MAX3232
- U56: MAX3232
- U57: MAX3232
- U58: MAX3232
- U59: MAX3232
- U60: MAX3232
- U61: MAX3232
- U62: MAX3232
- U63: MAX3232
- U64: MAX3232
- U65: MAX3232
- U66: MAX3232
- U67: MAX3232
- U68: MAX3232
- U69: MAX3232
- U70: MAX3232
- U71: MAX3232
- U72: MAX3232
- U73: MAX3232
- U74: MAX3232
- U75: MAX3232
- U76: MAX3232
- U77: MAX3232
- U78: MAX3232
- U79: MAX3232
- U80: MAX3232
- U81: MAX3232
- U82: MAX3232
- U83: MAX3232
- U84: MAX3232
- U85: MAX3232
- U86: MAX3232
- U87: MAX3232
- U88: MAX3232
- U89: MAX3232
- U90: MAX3232
- U91: MAX3232
- U92: MAX3232
- U93: MAX3232
- U94: MAX3232
- U95: MAX3232
- U96: MAX3232
- U97: MAX3232
- U98: MAX3232
- U99: MAX3232
- U100: MAX3232

Legend:

- U1: RS232
- U2: MAX3232
- U3: MAX3232
- U4: MAX3232
- U5: MAX3232
- U6: MAX3232
- U7: MAX3232
- U8: MAX3232
- U9: MAX3232
- U10: MAX3232
- U11: MAX3232
- U12: MAX3232
- U13: MAX3232
- U14: MAX3232
- U15: MAX3232
- U16: MAX3232
- U17: MAX3232
- U18: MAX3232
- U19: MAX3232
- U20: MAX3232
- U21: MAX3232
- U22: MAX3232
- U23: MAX3232
- U24: MAX3232
- U25: MAX3232
- U26: MAX3232
- U27: MAX3232
- U28: MAX3232
- U29: MAX3232
- U30: MAX3232
- U31: MAX3232
- U32: MAX32

GEVITON
Sheet: /rs232_MAX232/
File: rs232_MAX232.kicad_sch

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

Size: A3	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 2/16

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

D2

R10
10k

R11
10k

U4
CH340T(SSOP20W)

TXD
RXD

RTS#
DTR#
DSR#
DCD#
RI#
NOS#
IR#

3
4

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

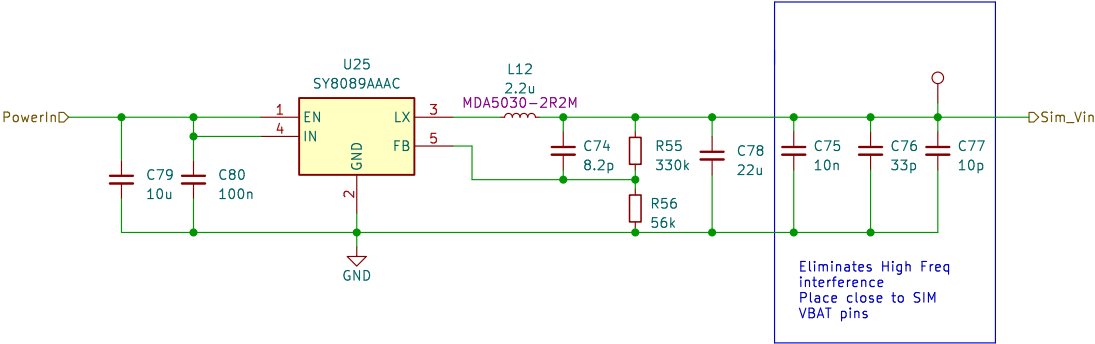
boot
IO2

R14
220R

D6
BAT54C

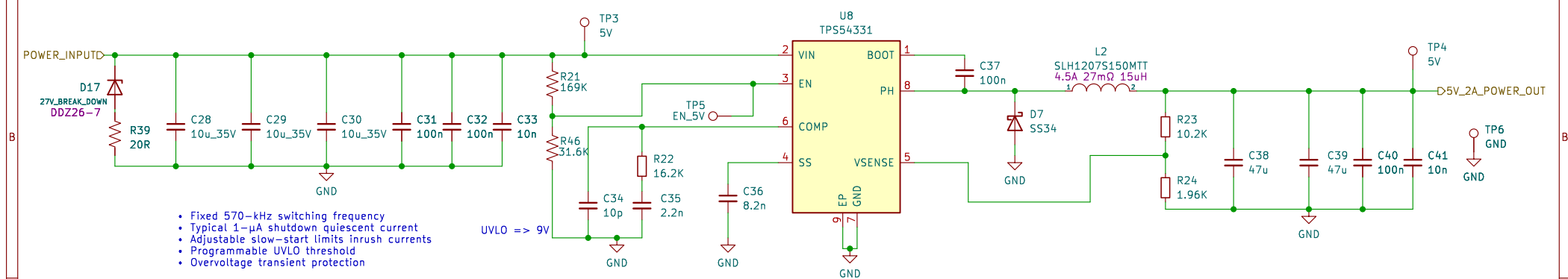
Rev: 2.0
Id: 4/16

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

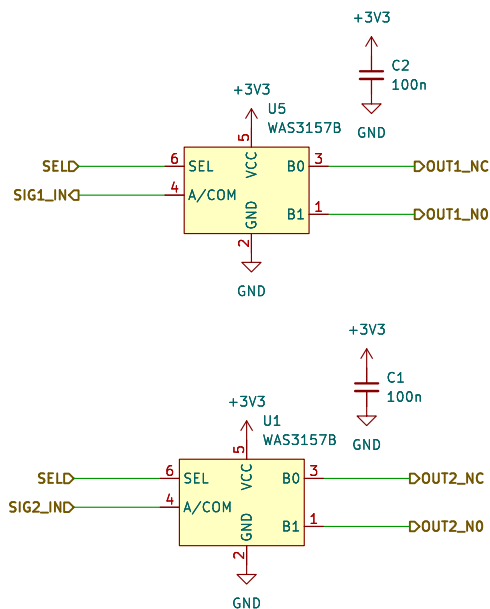
Size: A4
KiCad E.D.A. kicad 7.0.2

Date: 2023-06-20

Rev: 2.0

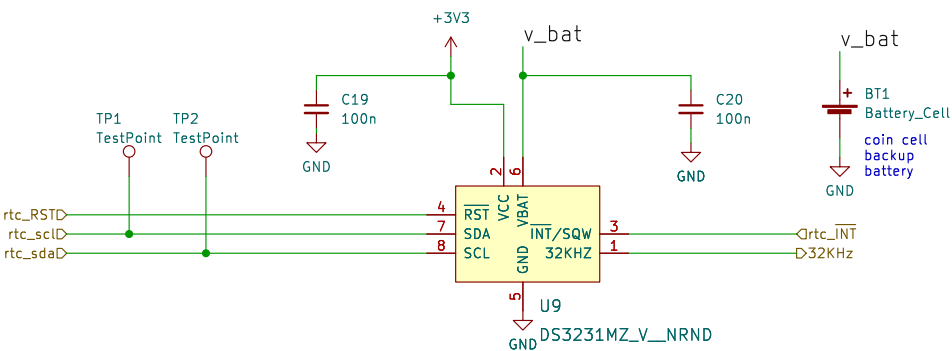
Id: 8/16

ANALOG SWITCH / MULTIPLEXER IC



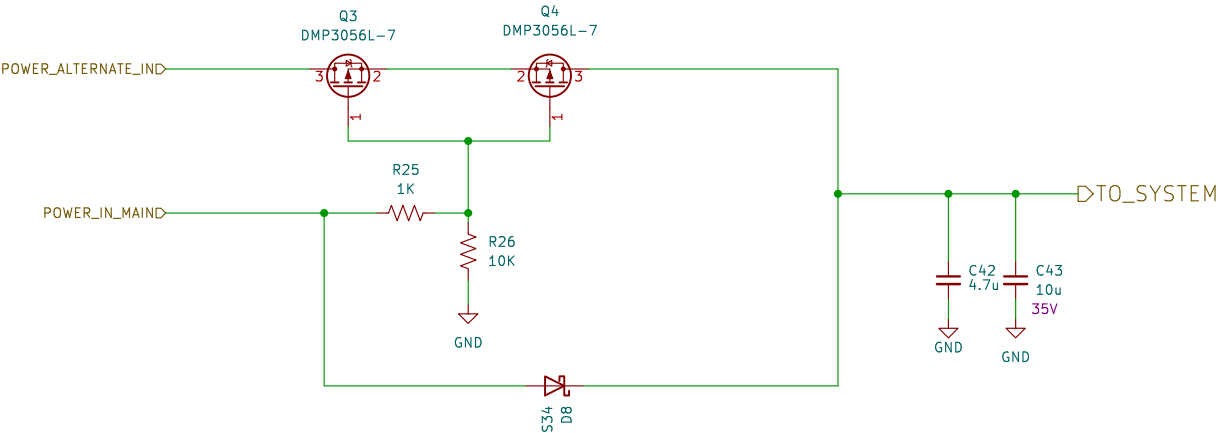
ELIESTAR		
Designed By: Robert Mutura		
Reviewed By: Timoty Kyalo		
GEVITON		
Sheet: /MULTIPLEXER_SWITCH_WAS3157B-6/		
File: MULTIPLEXER_SWITCH_WAS3157B-6.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 8/16

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	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 8/16

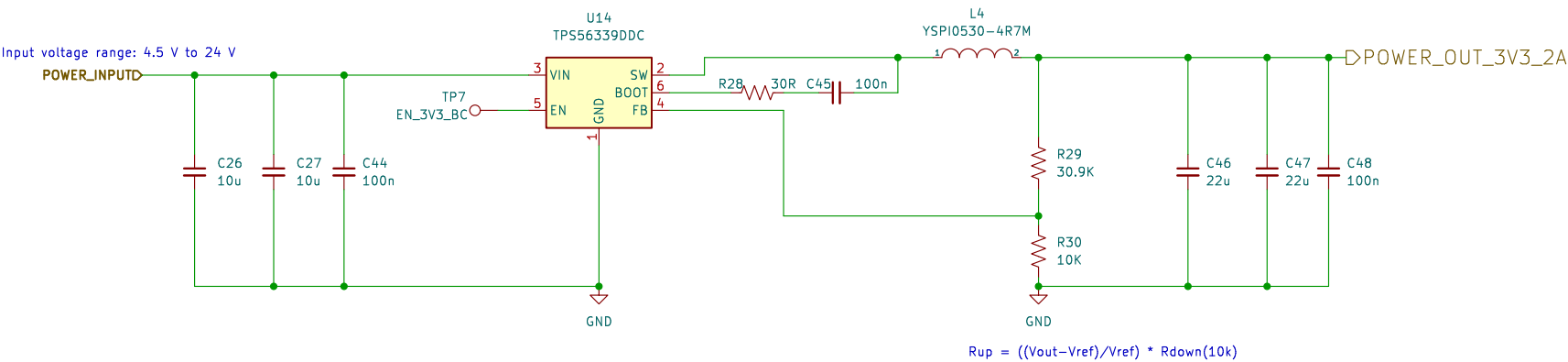
POWER PATH SELECTOR WITH LOW QUIESCENT/LEAKAGE CURRENT



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

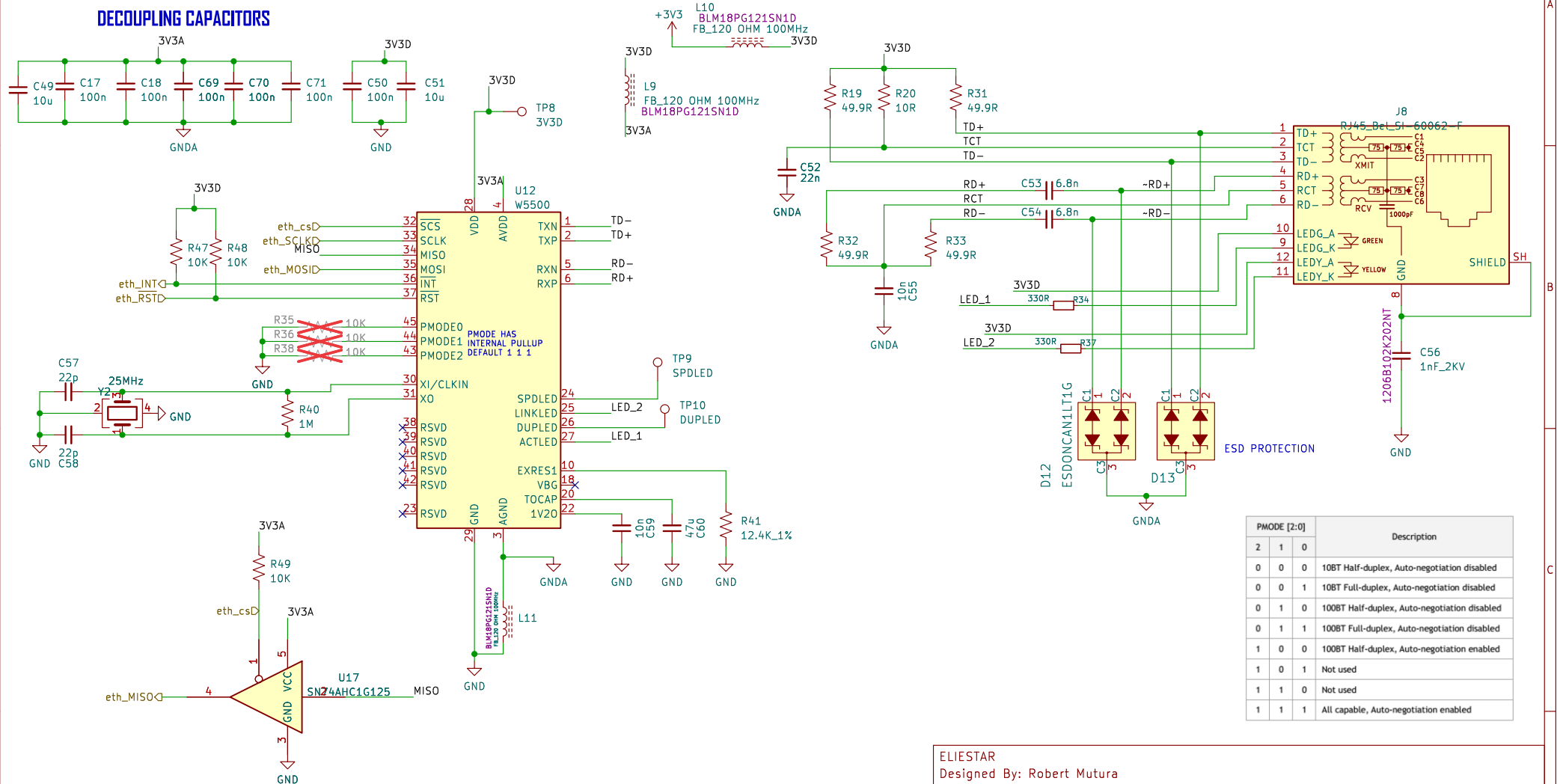
KiCad E.D.A. kicad 7.0.2

Rev: 2.0

Id: 9/16

ETHERNET TO SPI INTERFACE ID W5500

DECOUPLING CAPACITORS



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

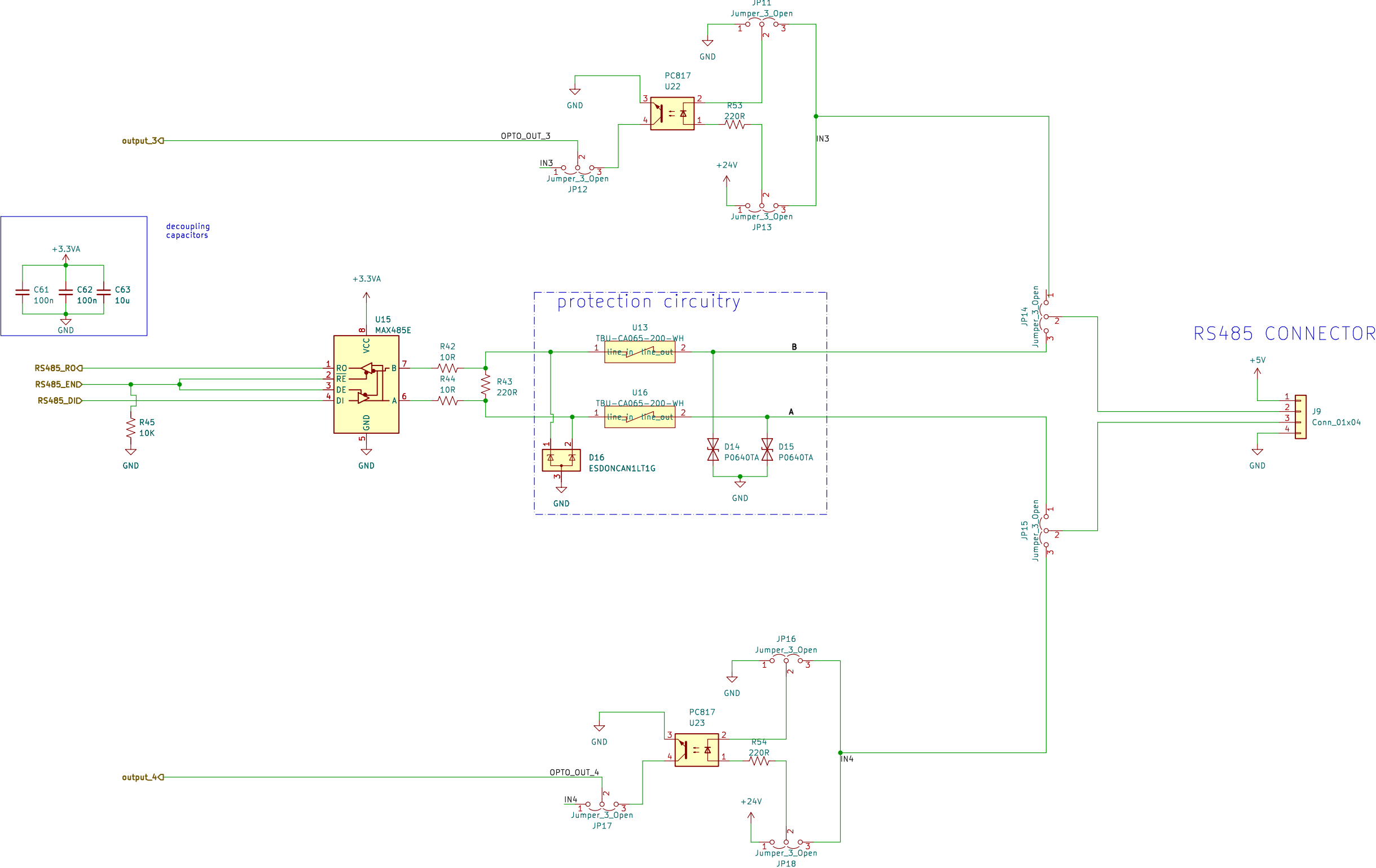
Date: 2023-06-20

KiCad E.D.A. kicad 7.0.2

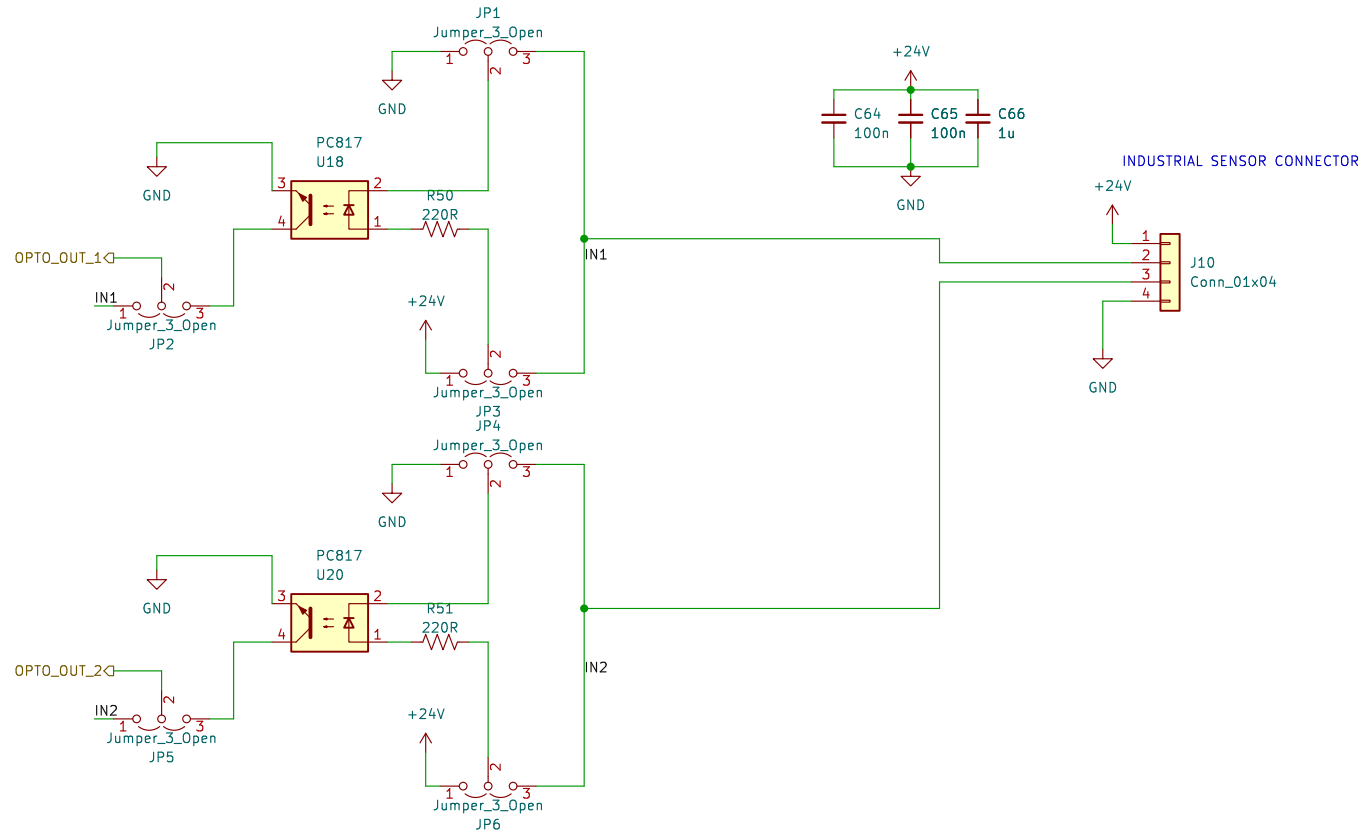
Rev: 2.0

Id: 10/16

RS485 COMMUNICATION INTERFACE WITH PROTECTION CIRCUIT



OPTO ISOLATOR INPUT



ELIESTAR
Designed By: Robert Mutura
Reviewed By: Timoty Kyalo

GEVITON

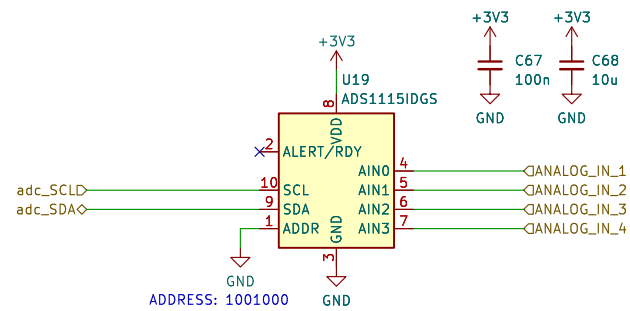
Sheet: /NPN_PNP_ISOLATED_INPUT/
File: NPN_ISOLATED_INPUT.kicad_sch

Title: ELIESTAR

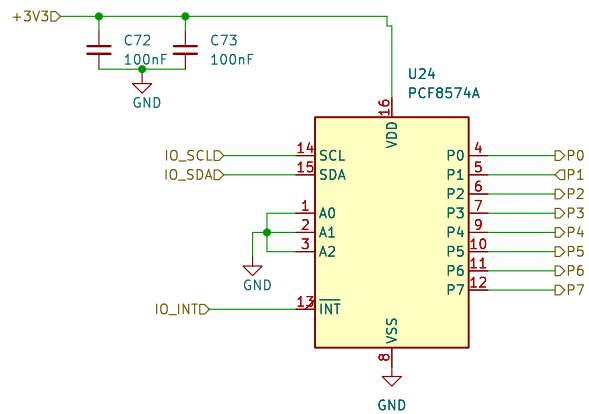
Size: A4 Date: 2023-06-20
KiCad E.D.A. kicad 7.0.2

Rev: 2.0
Id: 12/16

16BIT DIGITAL TO ANALOG CONVERTER

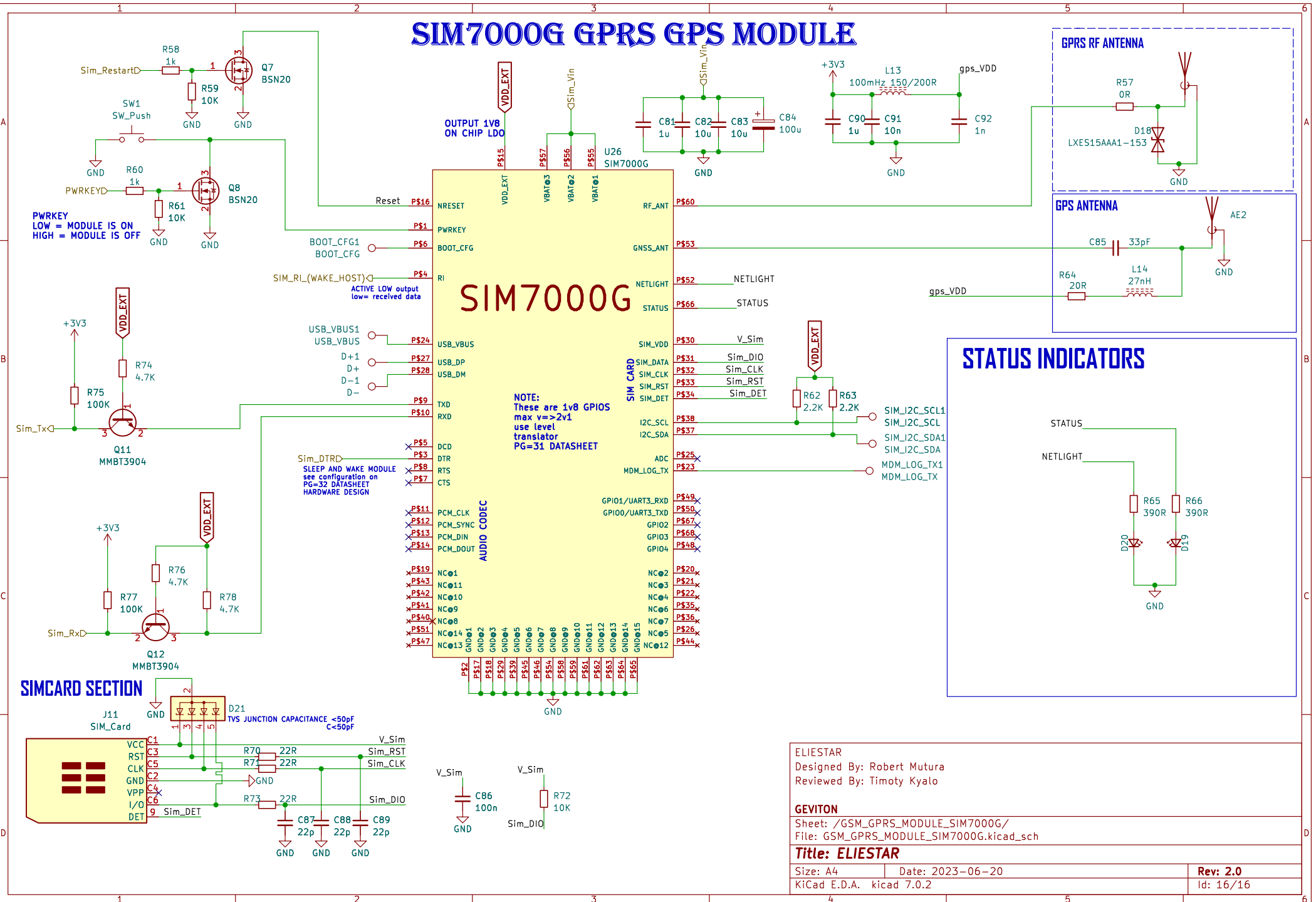


ELIESTAR		
Designed By: Robert Mutura		
Reviewed By: Timoty Kyalo		
GEVITON		
Sheet: /16BIT_ADC_ADS1115/		
File: 16BIT_ADC_ADS1115.kicad_sch		
Title: ELIESTAR		
Size: A4	Date: 2023-06-20	Rev: 2.0
KiCad E.D.A. kicad 7.0.2		Id: 13/16



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