

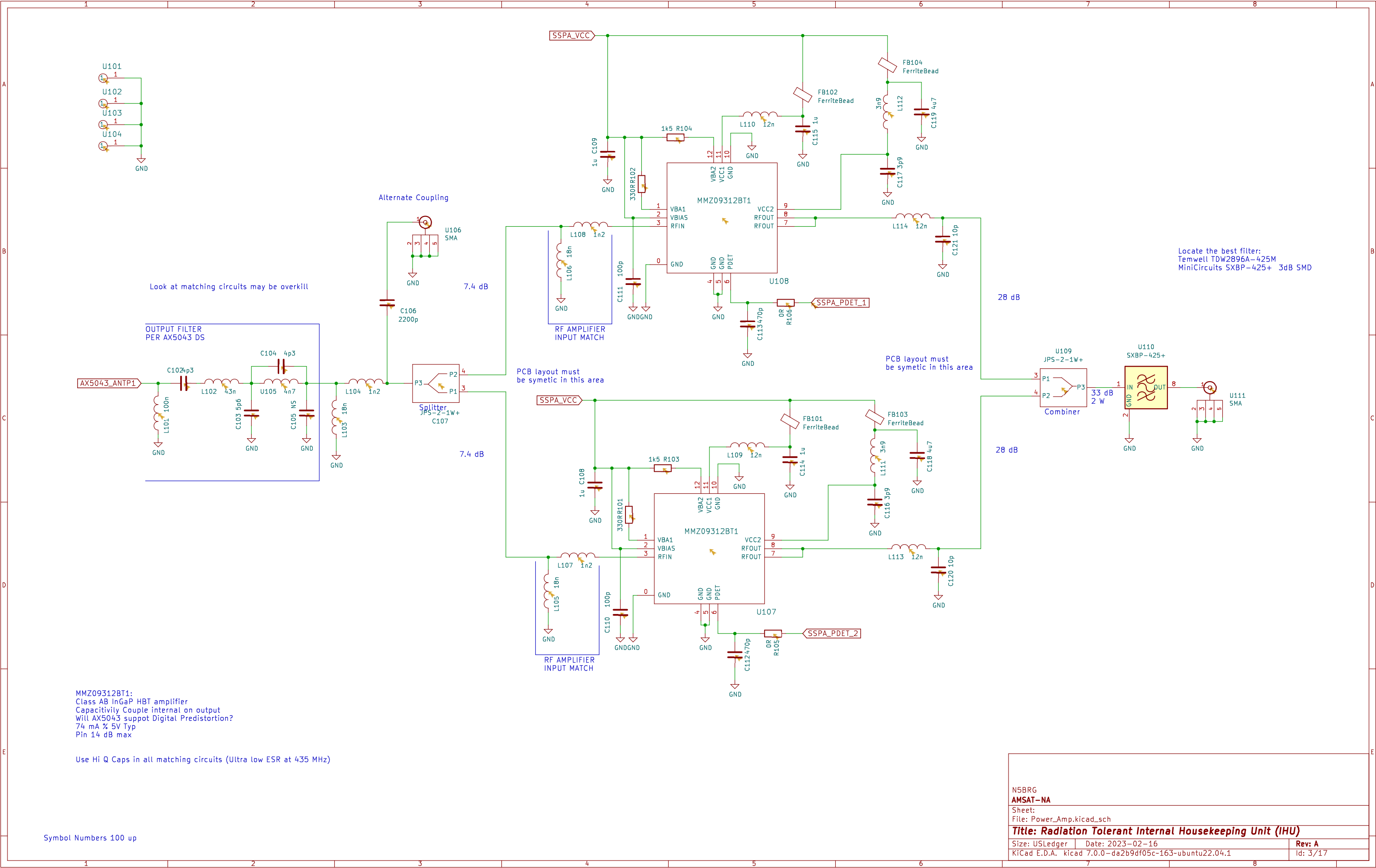
Note A:
Tune resistor for best gain and lowest current.

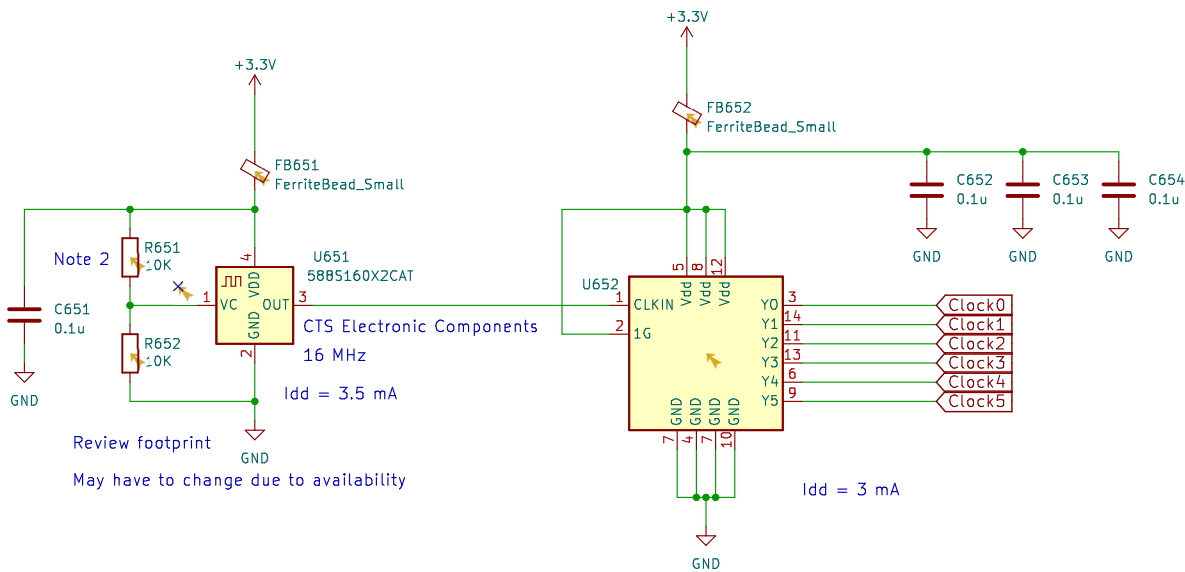
N5BRG
AMSAT-NA
Sheet:
File: Power_Divider.kicad_sch

Title: Radiation Tolerant Internal Housekeeping Unit (IHU)

Size: USLedger	Date: 2023-02-16
KiCad E.D.A. kicad 7.0.0-da2b9df05c-163-ubuntu22.04.1	

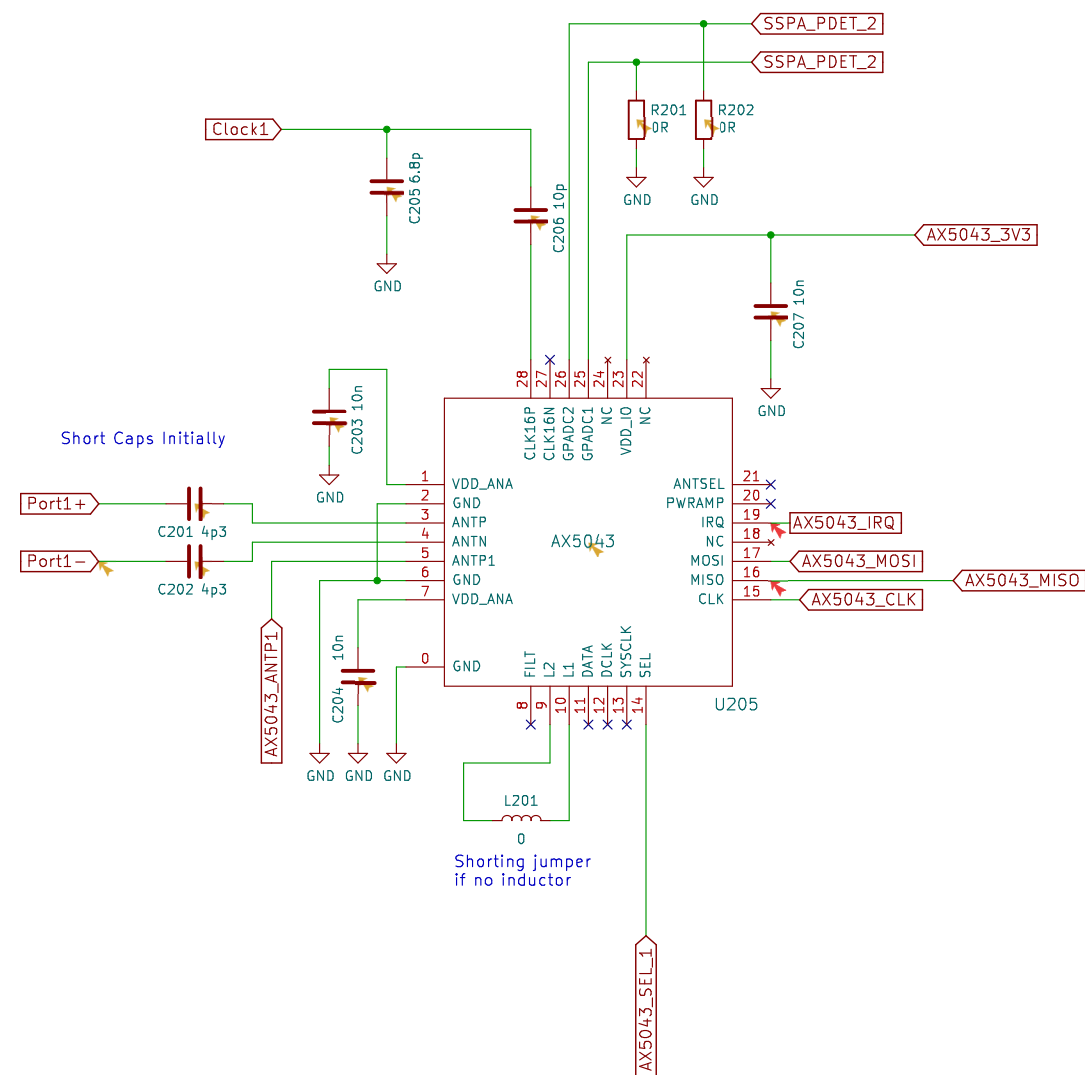
Rev: A
d: 2/17





Note:

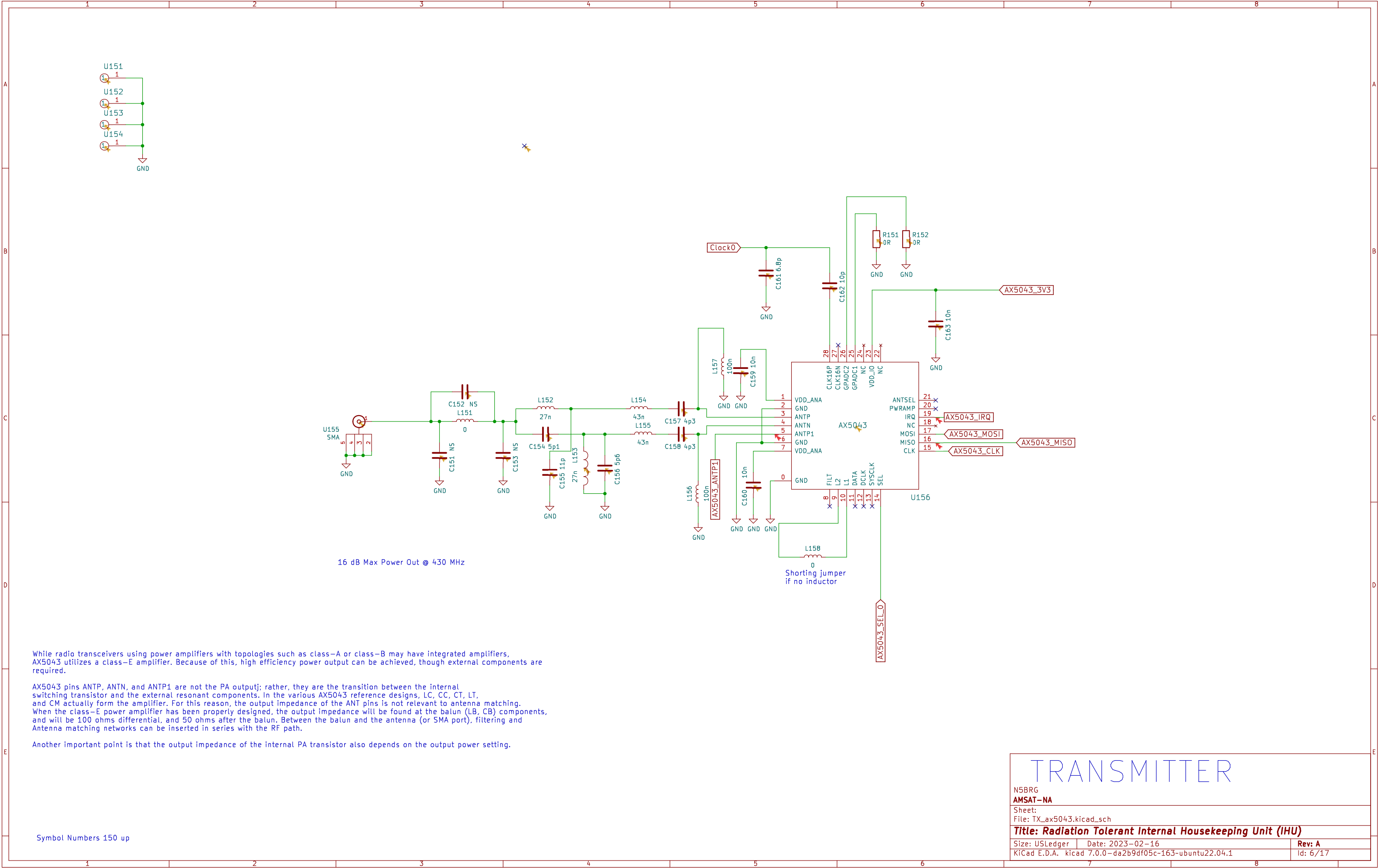
1. Review FILT voltage node and adjust current if needed per ap note AND9315–D.PDF
2. Seletec best resitor values after assembly and use one percent resistors to put frequency at 16 MHz.



Shorting jumper
if no inductor

RECEIVER 1

Rev: A
d: 5/17



While radio transceivers using power amplifiers with topologies such as class-A or class-B may have integrated amplifiers, AX5043 utilizes a class-E amplifier. Because of this, high efficiency power output can be achieved, though external components are required.

AX5043 pins ANTP, ANTN, and ANTP1 are not the PA output; rather, they are the transition between the internal switching transistor and the external resonant components. In the various AX5043 reference designs, LC, CC, CT, LT, and CM actually form the amplifier. For this reason, the output impedance of the ANT pins is not relevant to antenna matching. When the class-E power amplifier has been properly designed, the output impedance will be found at the balun (LB, CB) components, and will be 100 ohms differential, and 50 ohms after the balun. Between the balun and the antenna (or SMA port), filtering and Antenna matching networks can be inserted in series with the RF path.

Another important point is that the output impedance of the internal PA transistor also depends on the output power setting.

TRANSMITTER

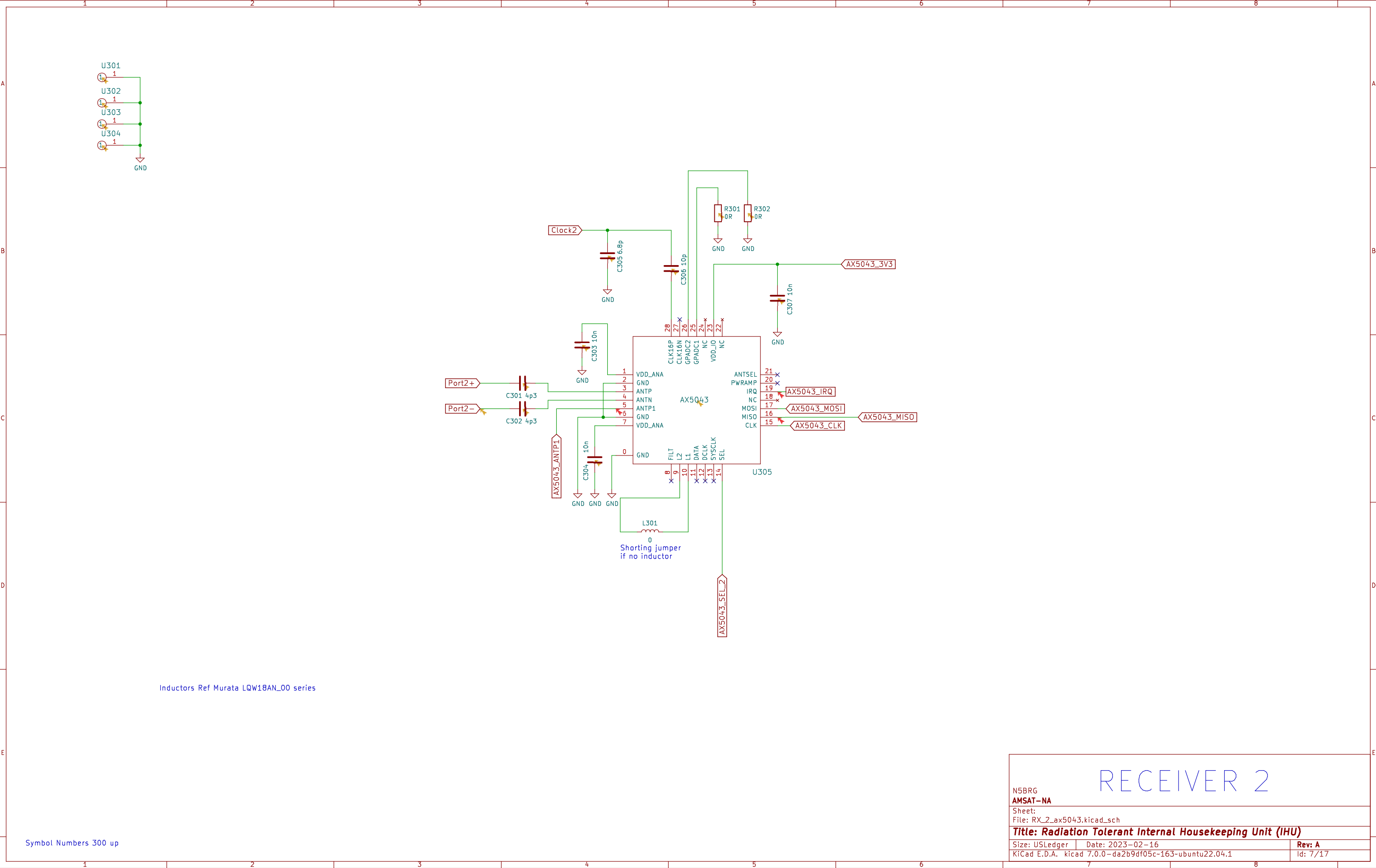
N5BRG

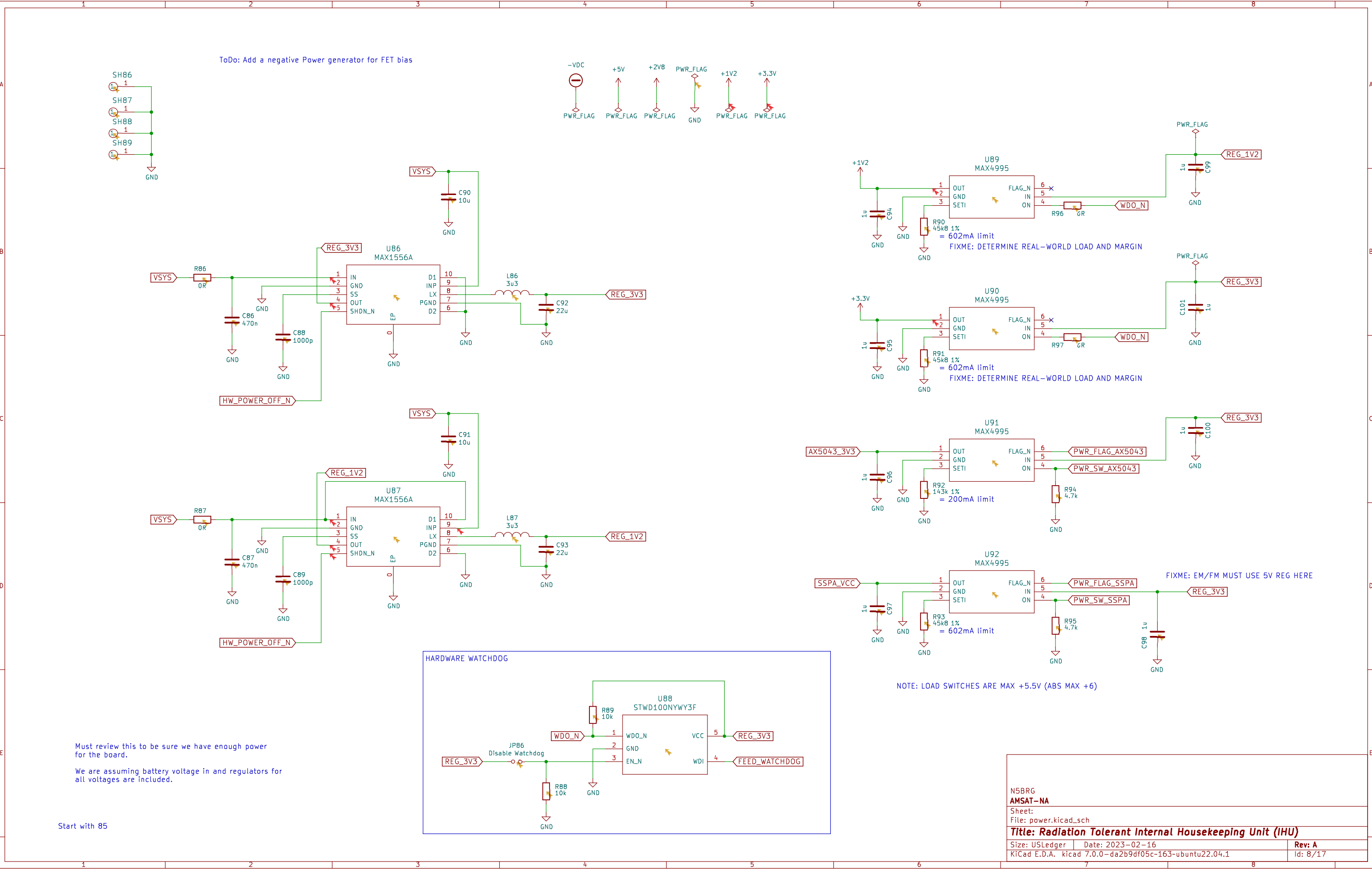
AMSAT-NA

Sheet:
File: TX_ax5043.kicad_sch

Title: Radiation Tolerant Internal Housekeeping Unit (IHU)

Size: USLedger	Date: 2023-02-16	Rev: A
KiCad E.D.A. kicad	7.0.0-da2b9df05c-163-ubuntu22.04.1	Id: 6/17





ToDo: Add a negative Power generator for FET bias

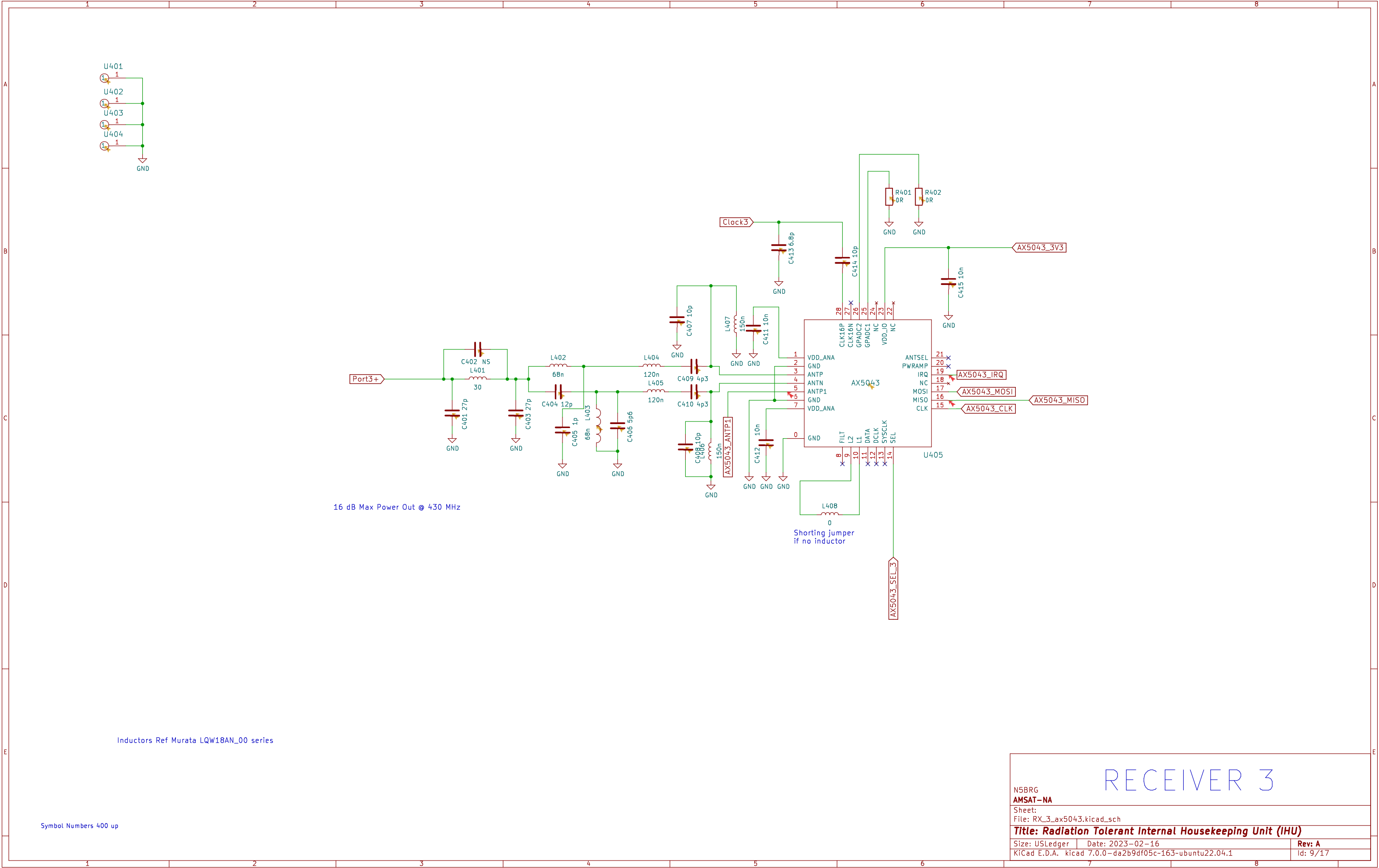
Must review this to be sure we have enough power for the board.

We are assuming battery voltage in and regulators for all voltages are included.

Start with 85

NOTE: LOAD SWITCHES ARE MAX +5.5V (ABS MAX +6)

N5BRG		
AMSAT-NA		
Sheet:		
File: power.kicad_sch		
Title: Radiation Tolerant Internal Housekeeping Unit (IHU)		
Size: USLedger	Date: 2023-02-16	Rev: A
KiCad E.D.A. kicad 7.0.0-da2b9df05c-163-ubuntu22.04.1		Id: 8/17



RECEIVER 3

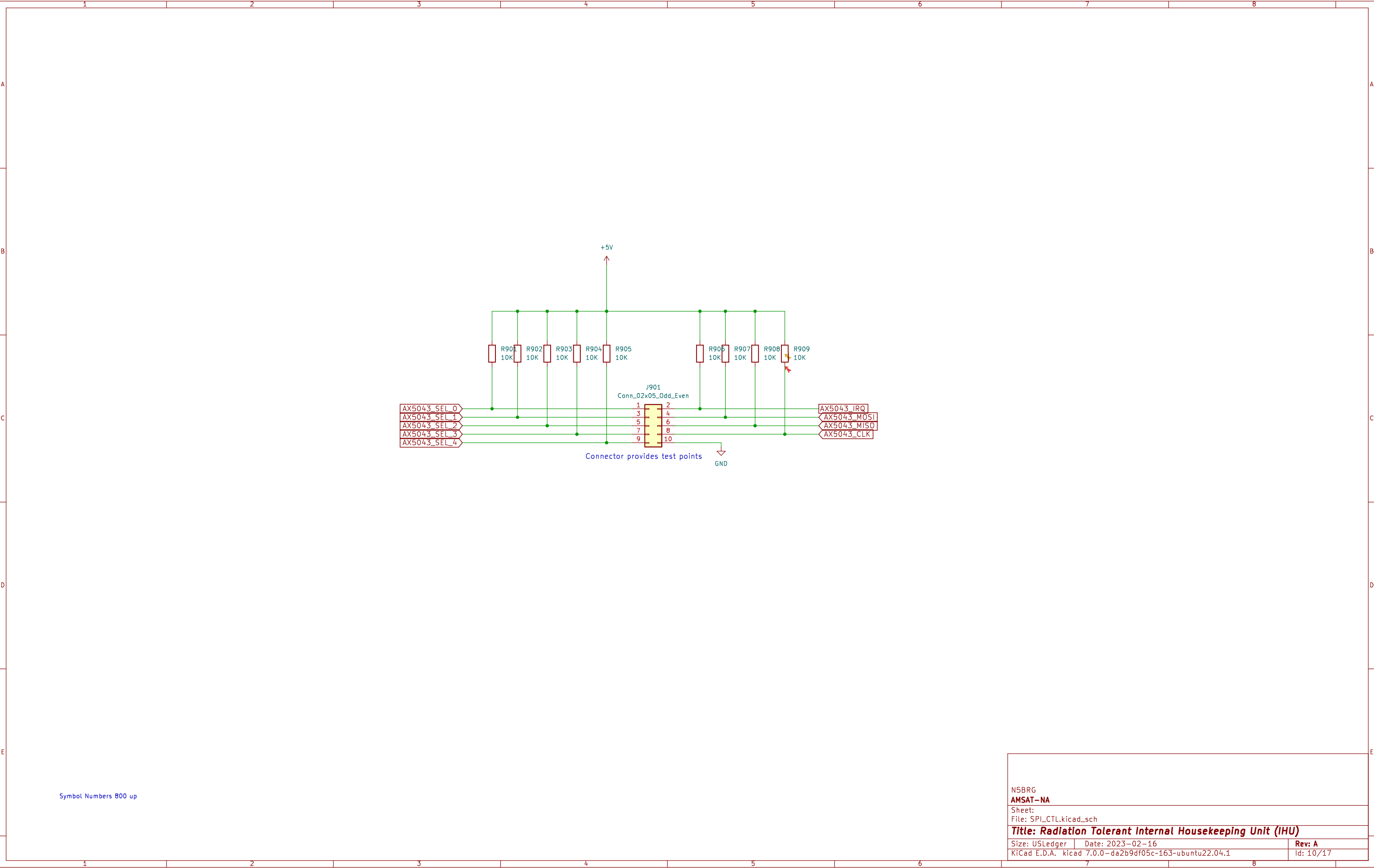
N5BRG
AMSAT-NA

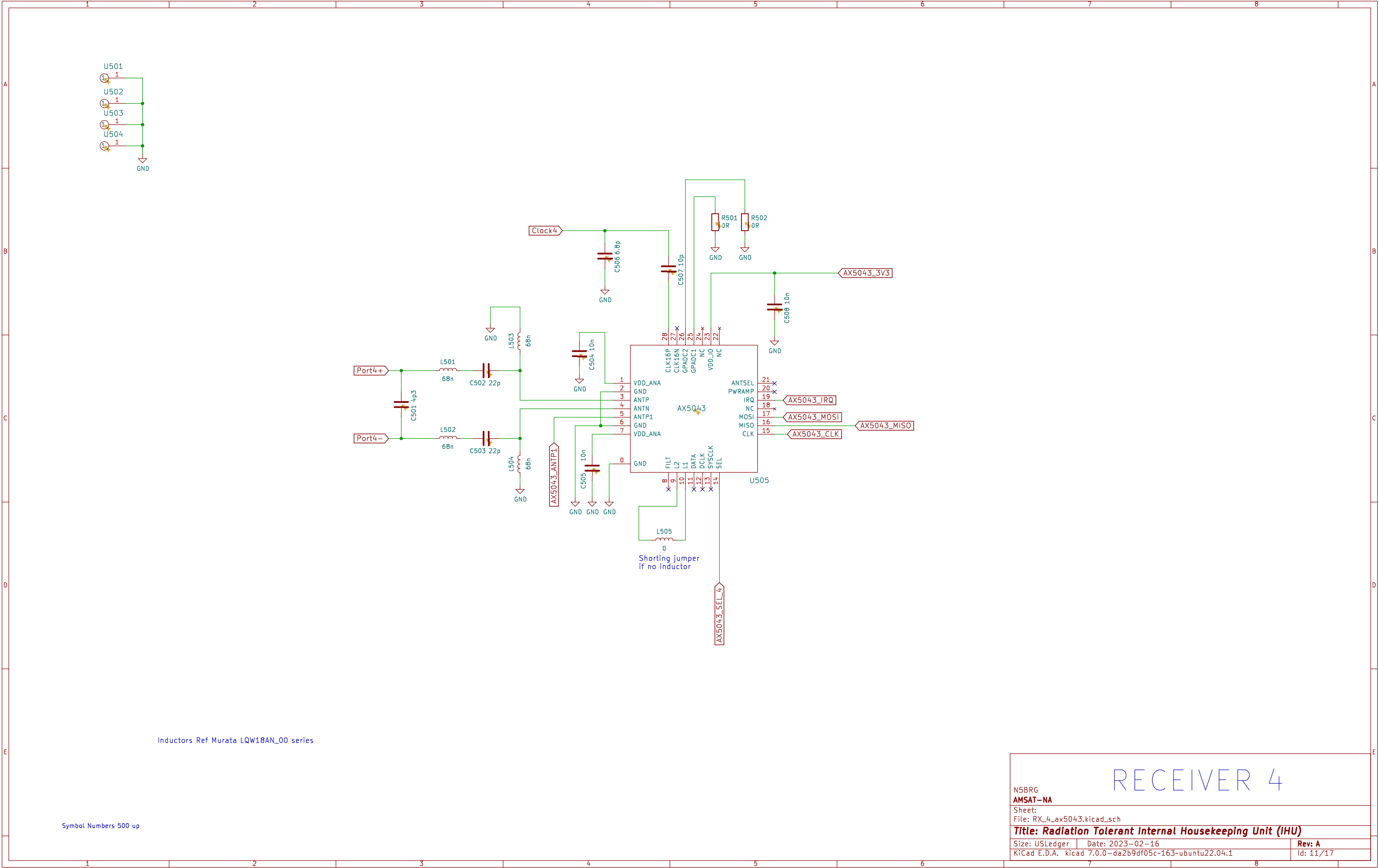
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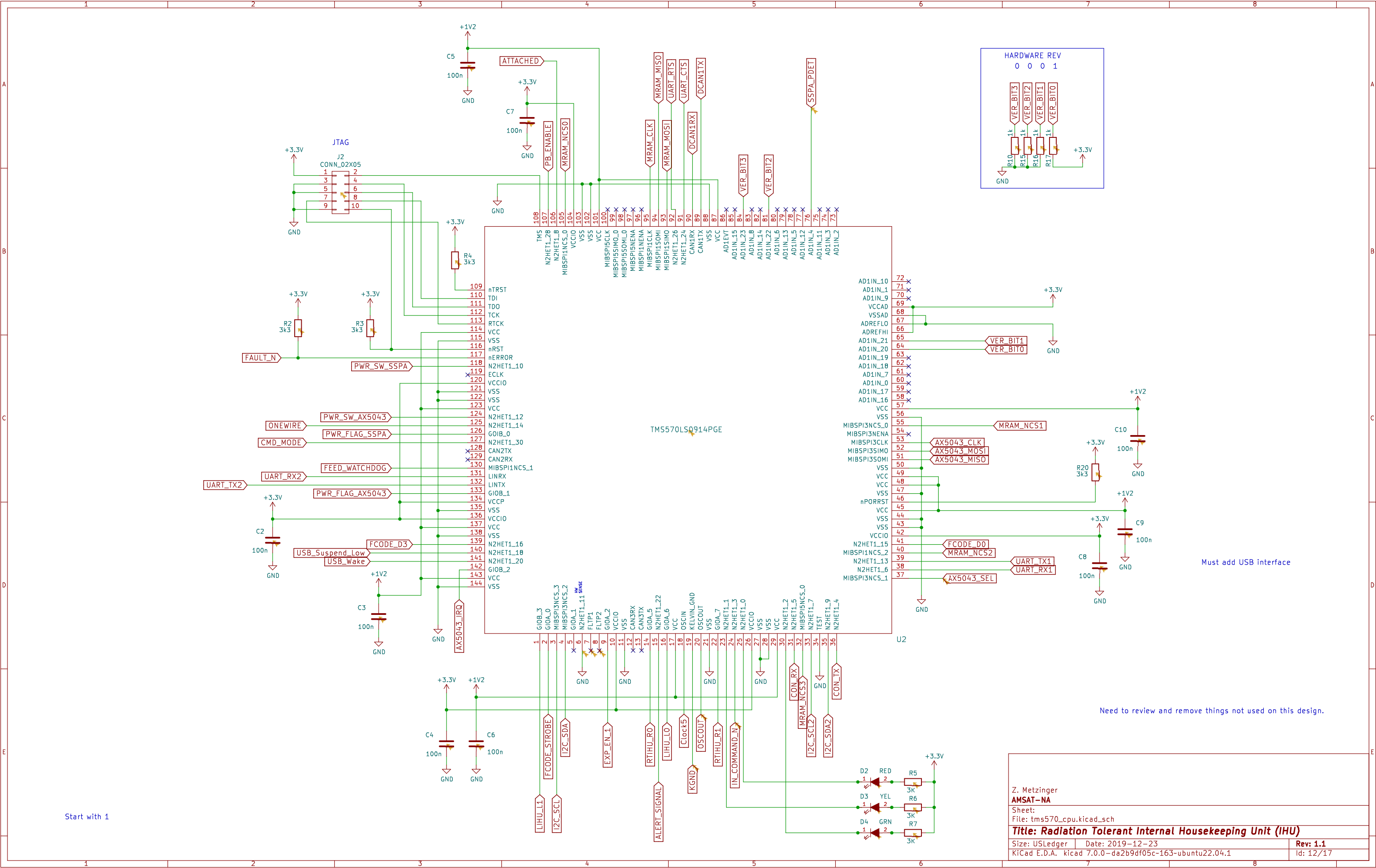
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Size: USLedger Date: 2023-02-16
KiCad E.D.A. kicad 7.0.0-da2b9df05c-163-ubuntu22.04.1

Rev: A
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Z. Metzinger

AMSAT-NA

Sheet:

File: tms570_cpu.kicad_sch

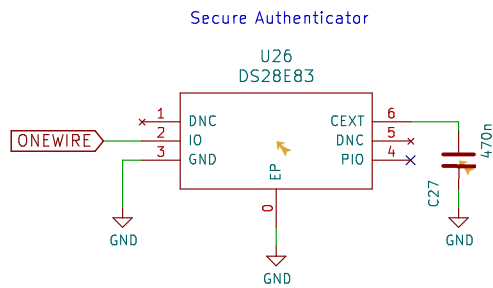
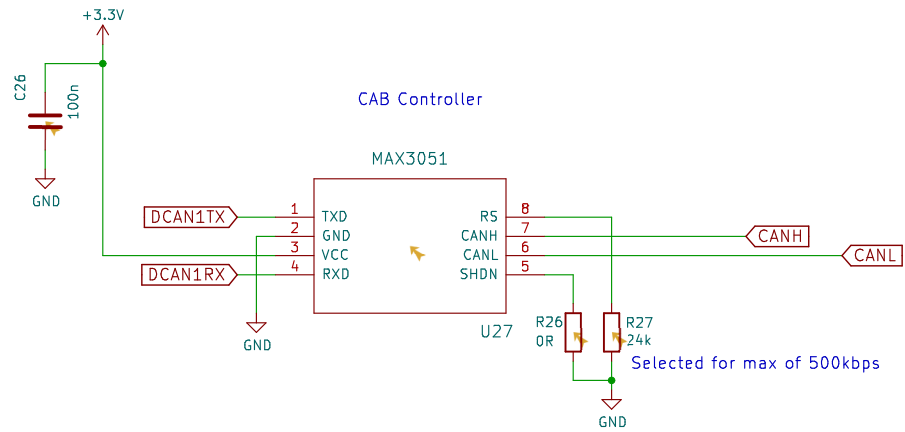
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Size: USLedger Date: 2019-12-23

KiCad E.D.A. kicad 7.0.0-da2b9df05c-163-ubuntu22.04.1

Rev: 1.1

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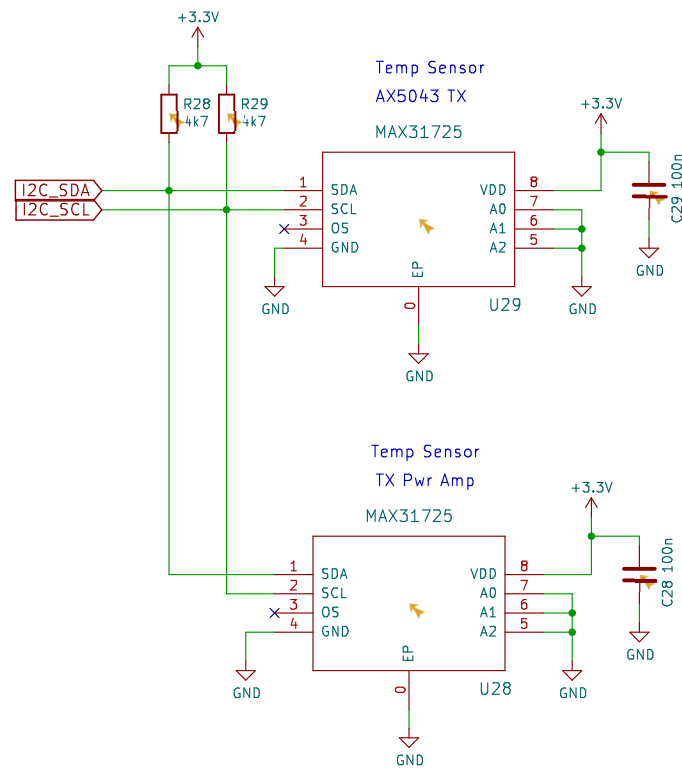


USB_IO

USB interface
Development Only !!!

File: usb_io.kicad_sch

Idd 2.5 uA/600 uA



N5BRG
AMSAT-NA

Sheet:
File: BUS_IO_Interface.kicad_sch

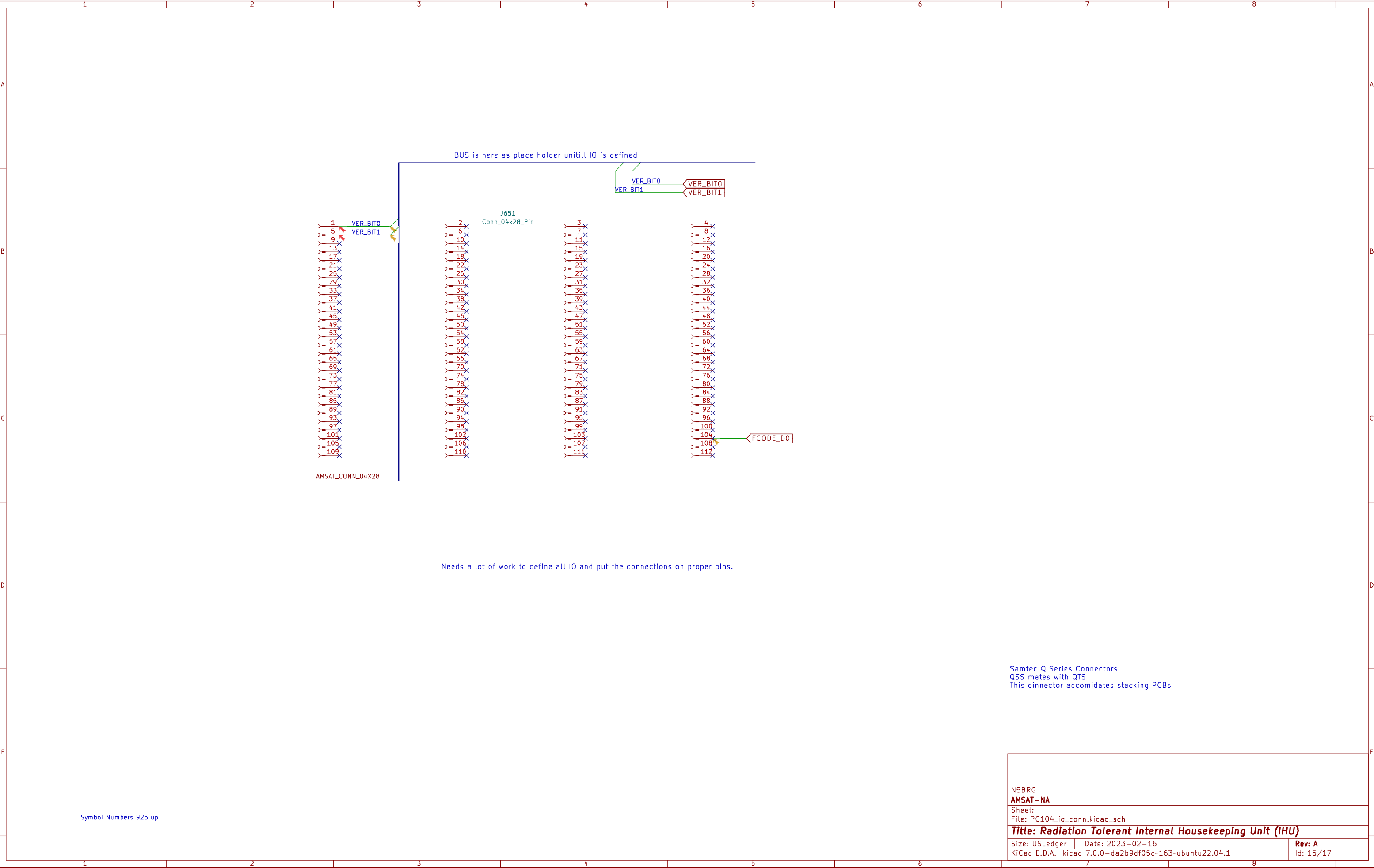
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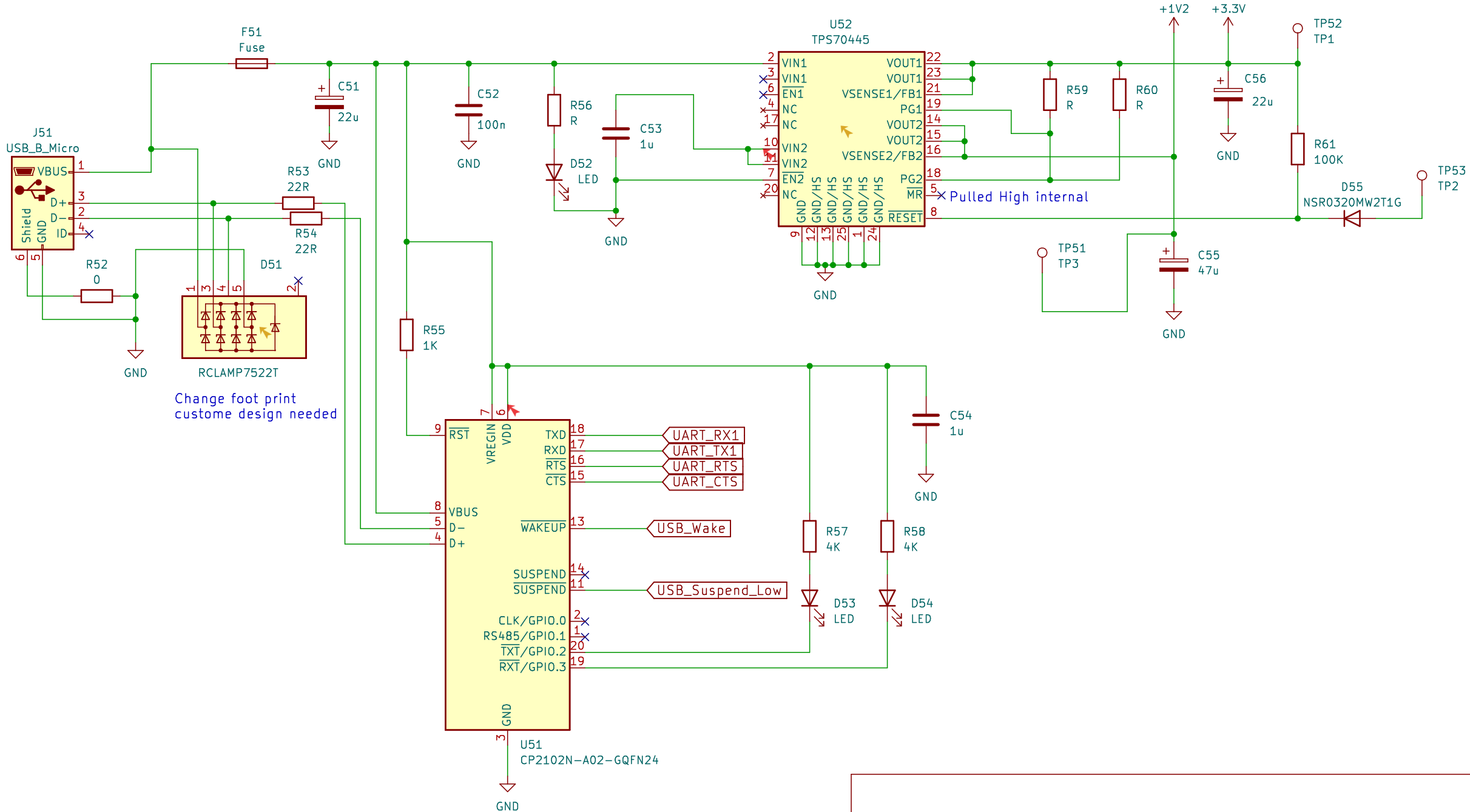
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Rev: 1.1

Id: 13/17





Note:

Make sure CP2102N-A02-GQFN24 CLK output does not need to be terminated.
ADD RS485 if required.

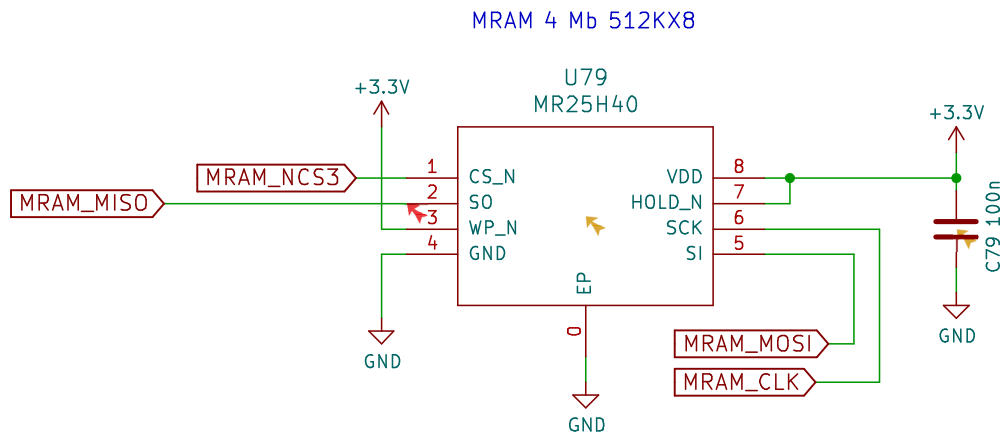
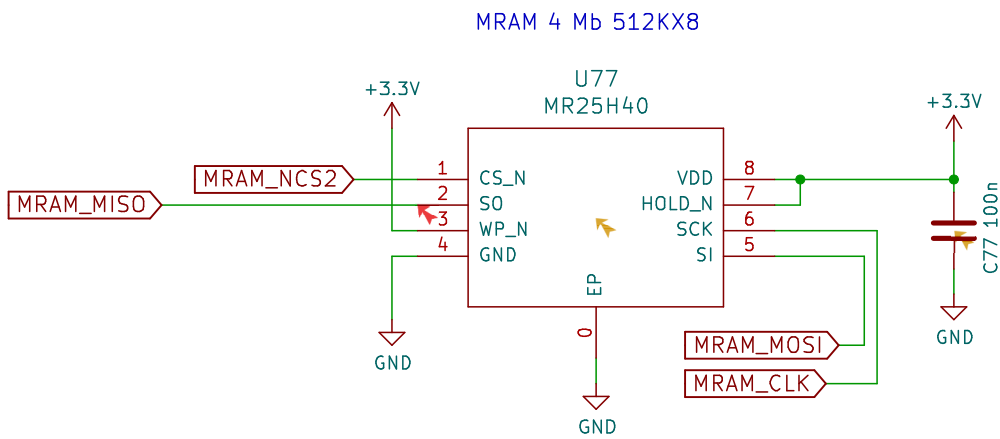
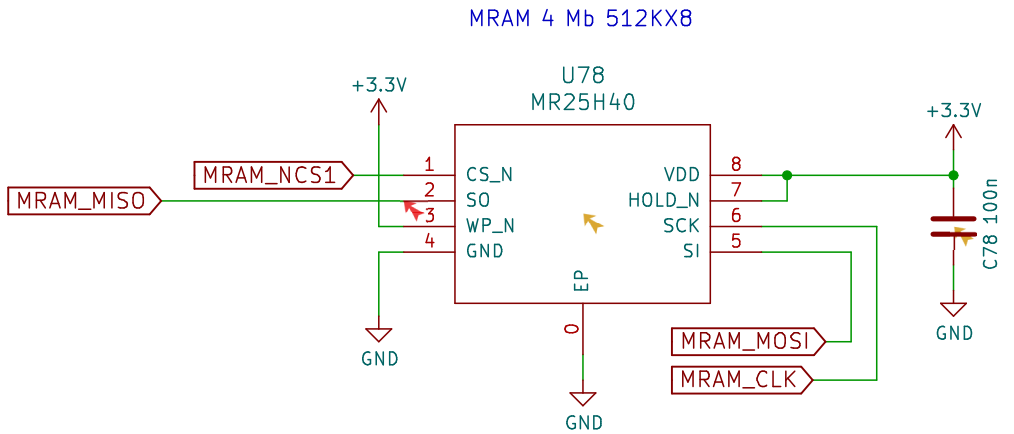
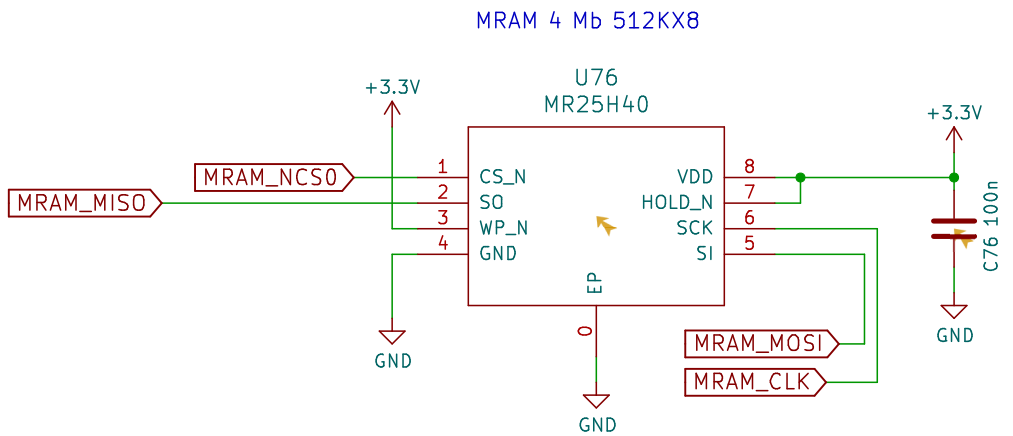
Start with 50

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Title:

Size: A4 Date:
KiCad E.D.A. kicad 7.0.0-da2b9df05c-163-ubuntu22.04.1

Rev:
Id: 16/17



Memory Chips
400 uA standby
11 to 18.5 mA active

Start with 75

Sheet:
File: memorg.kicad_sch

Title:

Size: A4

Date:

Rev:

KiCad E.D.A. kicad 7.0.0-da2b9df05c-163-ubuntu22.04.1

Id: 17/17