Battery Input

Estimated BOM cost: $0.50
($0.10 without ideal diode controller)

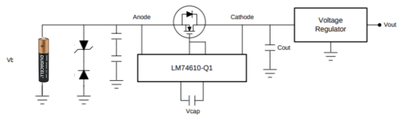


Figure 20. Typical Application without Positive Voltage Clamping

V_BAT

Battery Input

BatteryInput.sch

Power rails OR'd
in the sub-sheets

External Input

Estimated BOM cost: $0.03

V_ALT

Alt Power Input

ExternalInput.sch

USB Input

Estimated BOM cost: $1.00
($0.02 without serial to usb)

V_USB

USB Input
(Power/serial)

USB_Input.sch

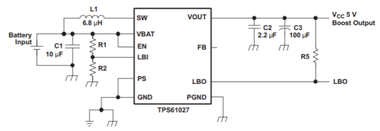
Boost Converters

Estimated BOM cost: $0.60

V_BAT

V_ALT

V_USB



List of Components:
U1 = TPS61027DRC
L1 = EPCOS B82462-G4682
C1, C2 = X7R,X5R Ceramic
C3 = Low ESR Tantalum

Figure 24. Power Supply Solution for Maximum Output Power Operating From a Single Alkaline Cell

Power Conversion

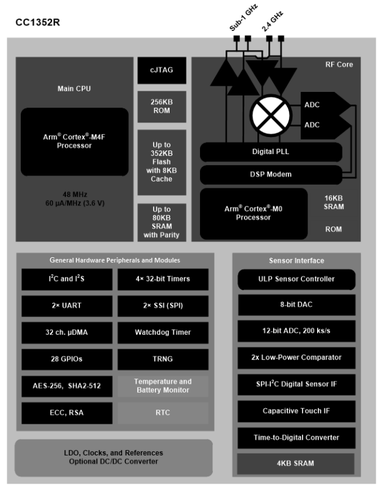
5V_REG
5V_CTRL
5V_EN
3V3_REG

Boost.sch

RF

Estimated BOM cost: $1.27

3V3
5V_CTRL
5V_EN



SWDIO
SWCLK
RESET_N

RF and Processor

RF.sch

AN_MB1
RST
CS_MB1
SCLK
MISO
MOSI
PWM_MB1
INT_MB1
MICRO_TX_MB1_RX
MICRO_RX_MB1_TX
SDA
SCL
RST_MB1

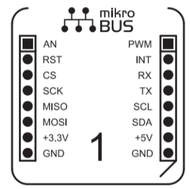
AN_MB2
CS_MB2
PWM_MB2
INT_MB2
MICRO_RX_MB2_TX
MICRO_TX_MB2_RX
RST_MB2

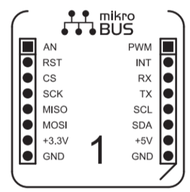
2.4G_LED
900MHz_LED
Power_LED
Click1_LED
Click2_LED
User_LED

MikroBus Click

Estimated BOM cost: $0.15

5V
3V3





MikroBus Headers

MikroBusClick.sch

Sheet5D099F01

Estimated BOM cost: $0.03

2.4G
900MHz
Power
User
Click1
Click2

Indicators

Indicators.sch

User Input/Output

Estimated BOM cost: $0.05

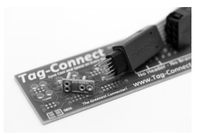
BTN1
BTN2

User I/O

UserInputOutput.sch

Programming

Estimated BOM cost: $0.00



Programming

Programming.sch

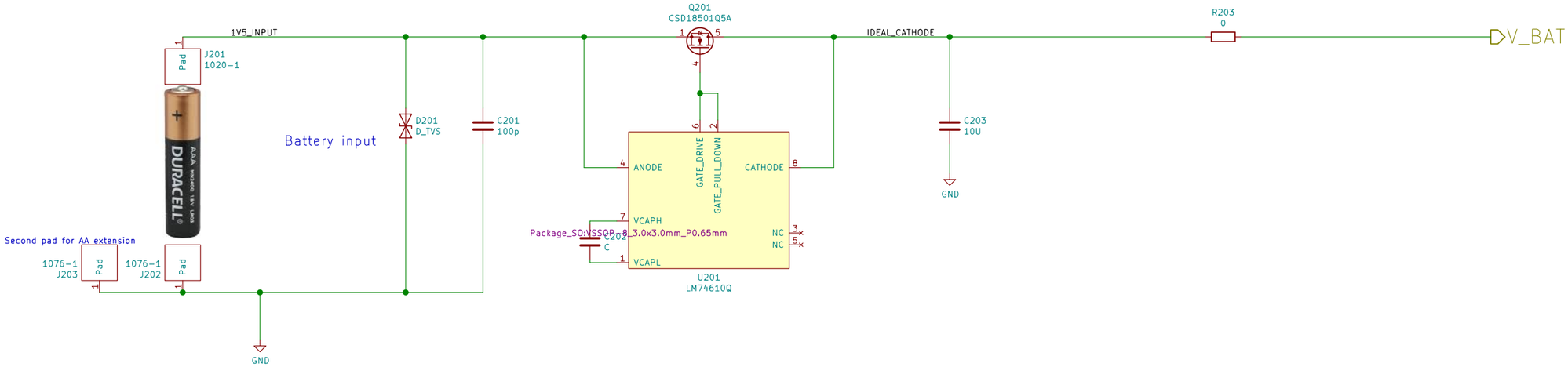
BTN1
BTN2

Schematic designed by Analog Life, LLC
Beagleboard.org

Sheet: /
File: LeashPCB.sch

Title: BeagleDust Leash PCB

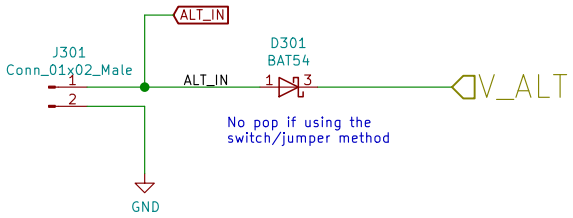
Size: C	Date: 2019-06-12	**Rev: 1**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 1/10



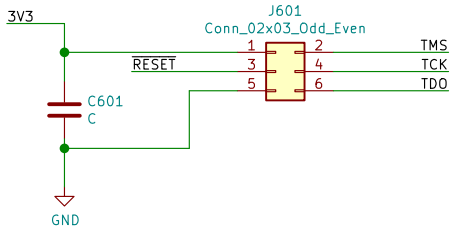
Sheet: /Battery Input/
File: BatteryInput.sch

Title:

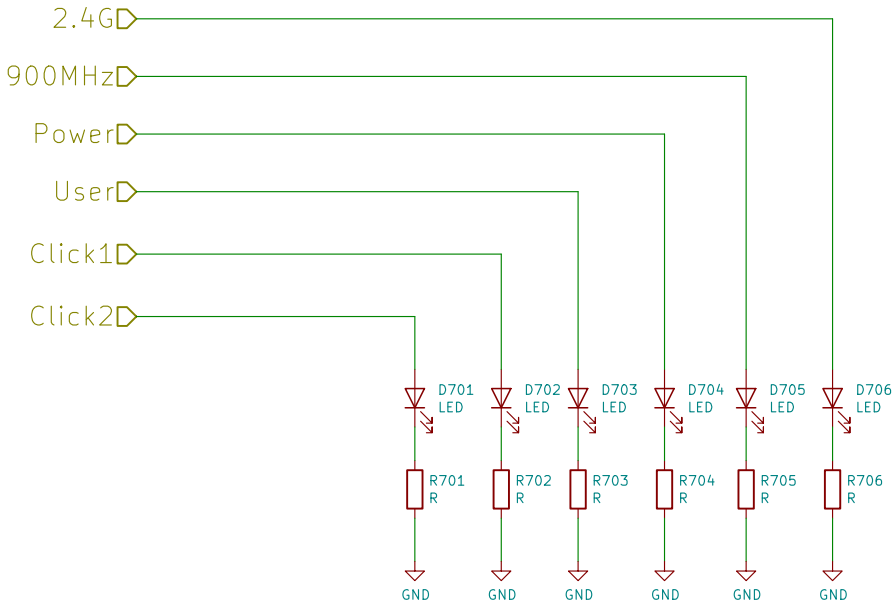
Size: B	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 2/10



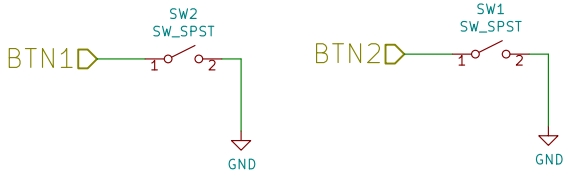
Sheet: /External Input/ File: ExternalInput.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 3/10



Sheet: /Programming/	
File: Programming.sch	
Title:	
Size: A4	Date:
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1	**Rev:** Id: 4/10

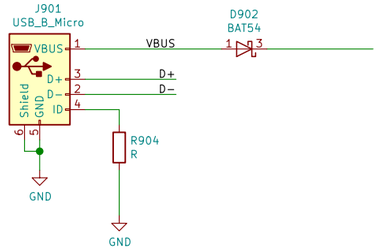


Sheet: /Sheet5D099F01/		
File: Indicators.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 5/10



Sheet: /User Input/Output/ File: UserInputOutput.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 6/10

USB Micro input

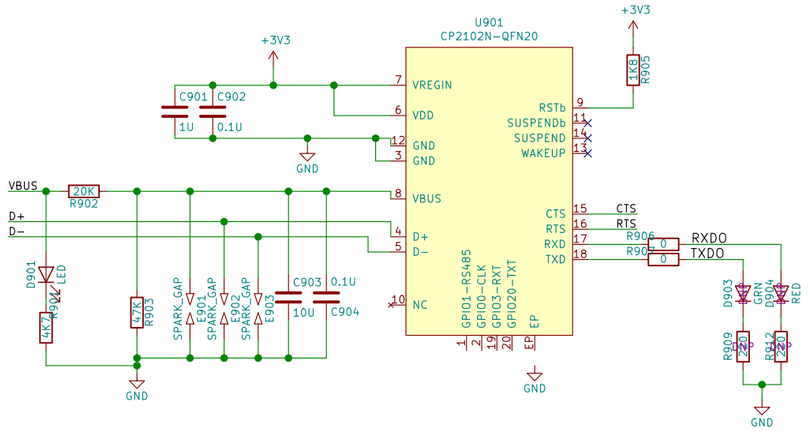


V_USB

TXDO — MICRO_RX_SERIALDEBUG_TX

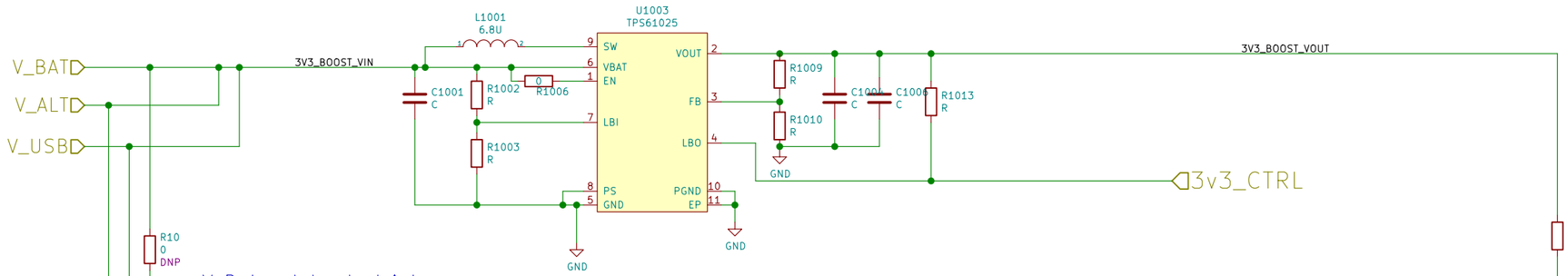
RXDO — MICRO_TX_SERIALDEBUG_RX

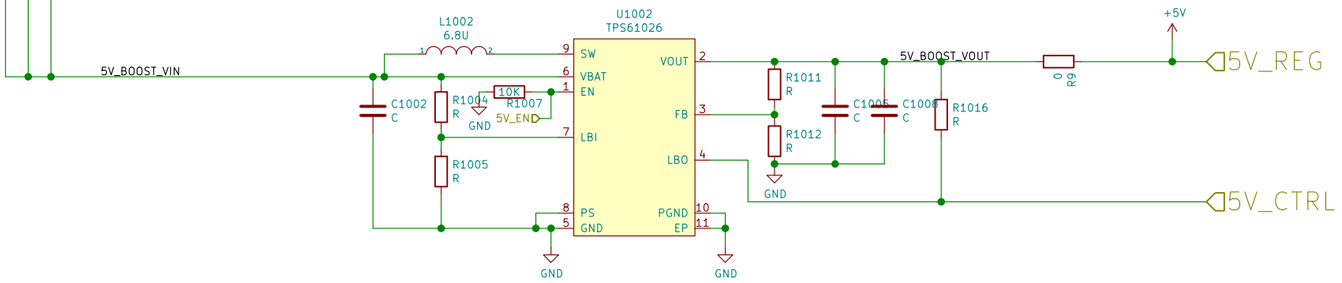
USB to Serial Converter

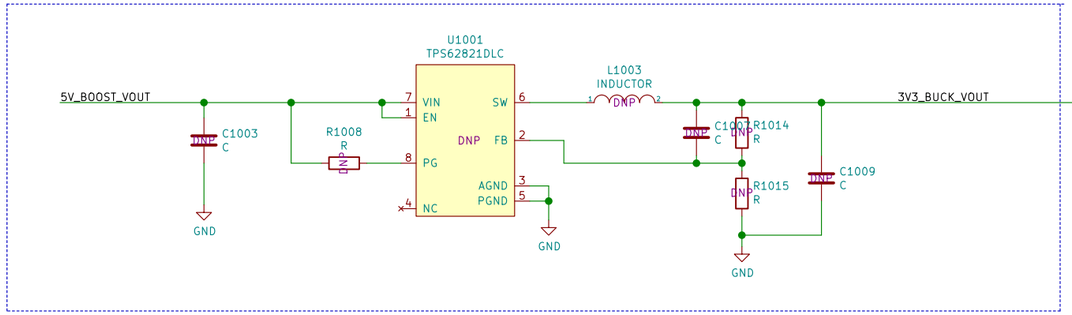


Sheet: /USB Input/		
File: USB_Input.sch		
Title:		
Size: B	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 7/10

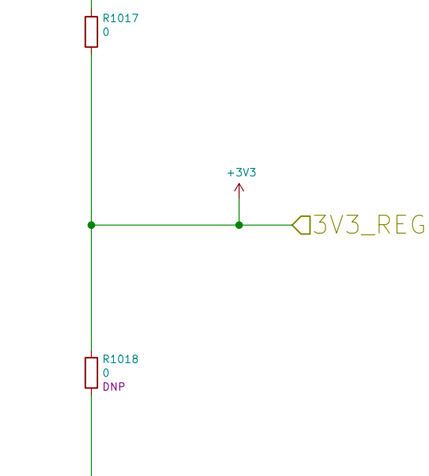
CONFIG 1: All power inputs go into 3V3 boost, ALT and USB go into the 5V boost
CONFIG 2: All power inputs go into 3V3 boost, all go into the 5V boost
CONFIG 3: All power inputs go into 5V boost, 5V is bucked down to 3V3



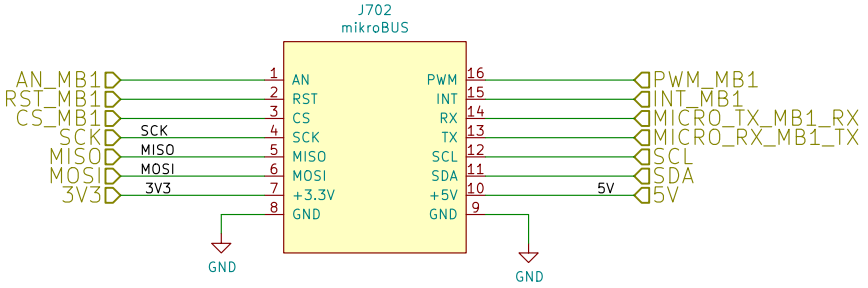


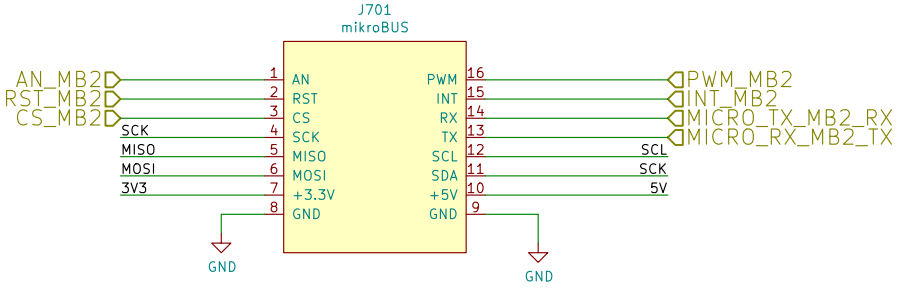


Not normally populated

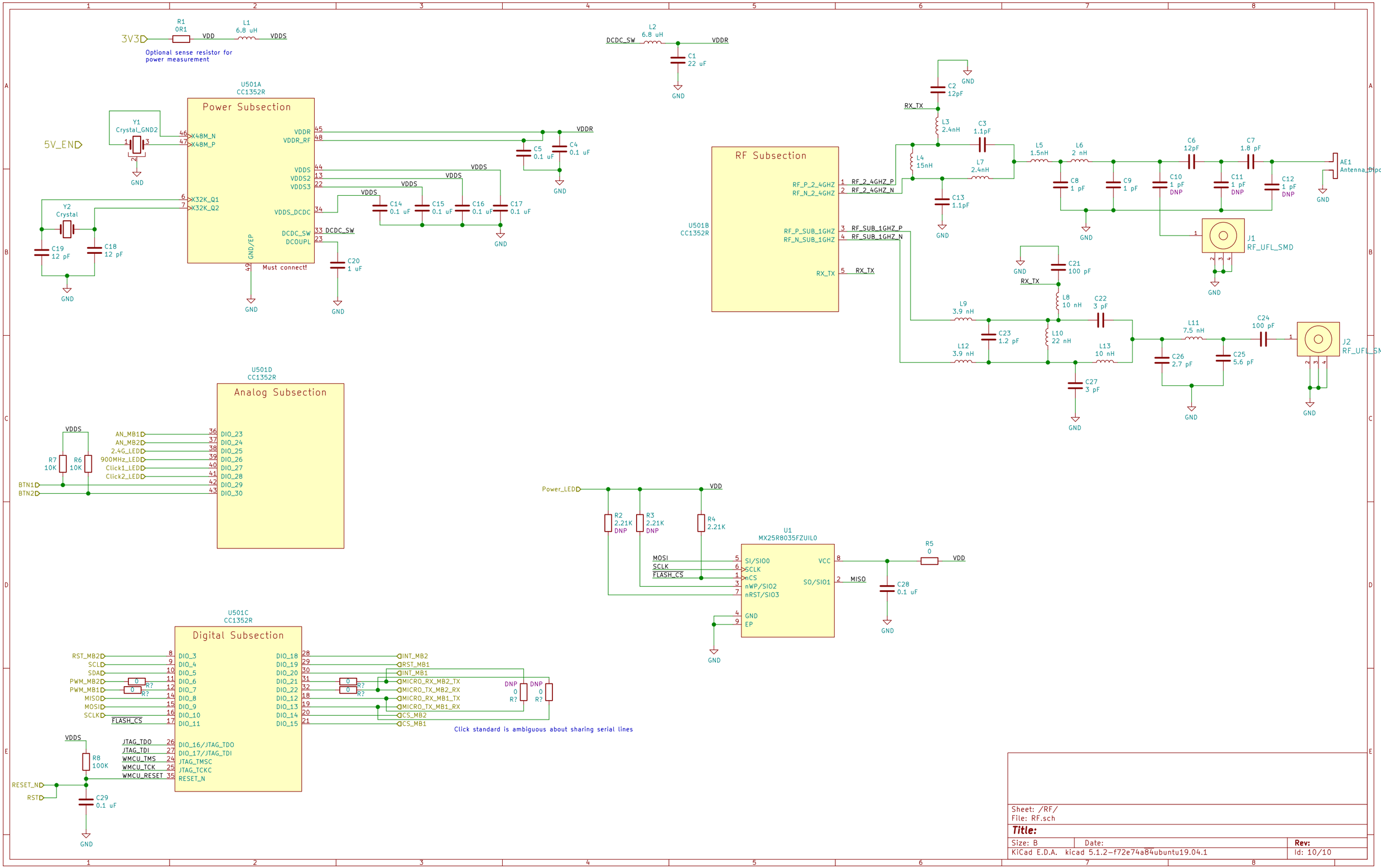


Sheet: /Boost Converters/		
File: Boost.sch		
Title:		
Size: B	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 8/10





Sheet: /MikroBus Click/		
File: MikroBusClick.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 9/10



Sheet: /RF/
File: RF.sch

Title:

Size: B	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu19.04.1		Id: 10/10