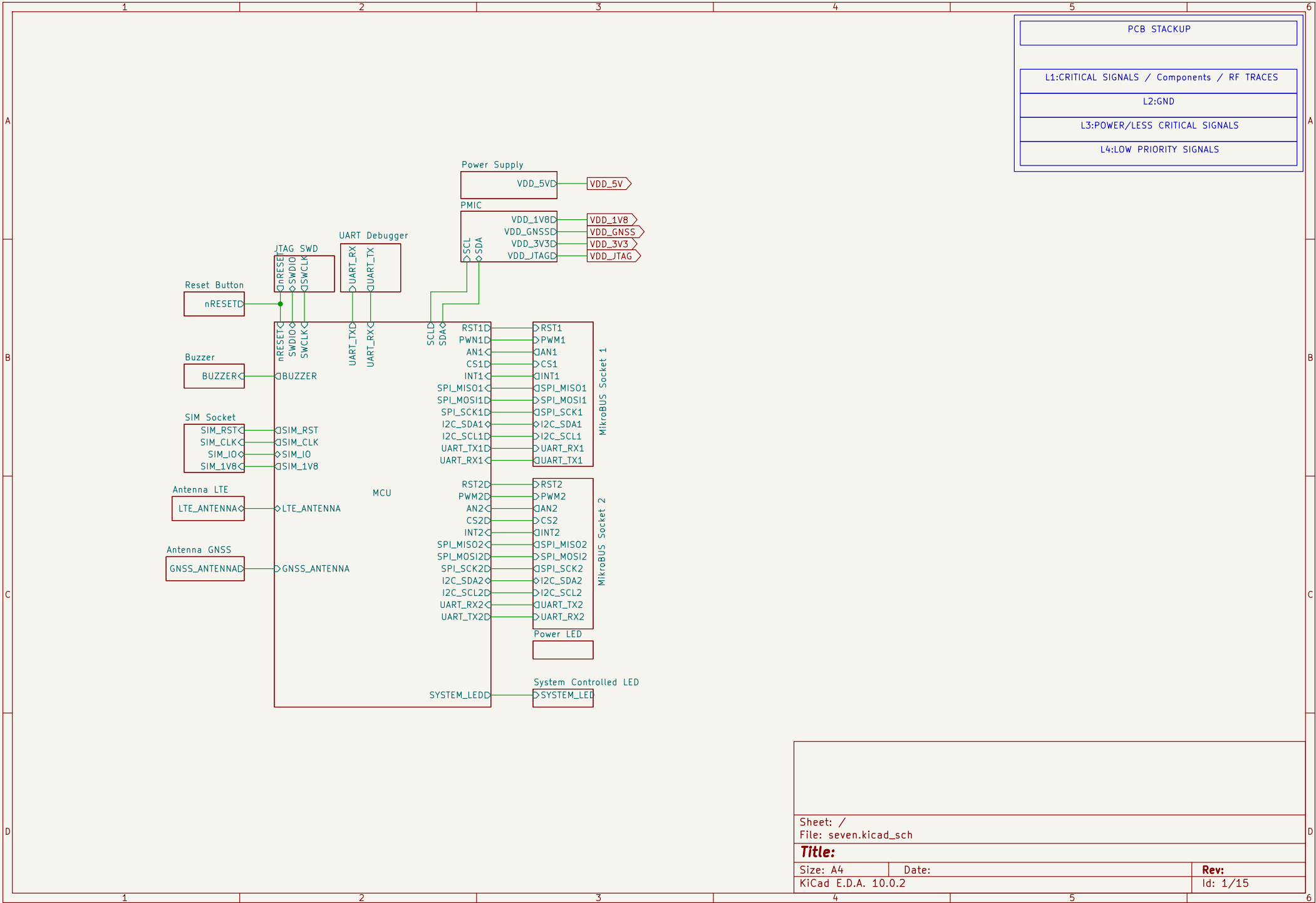
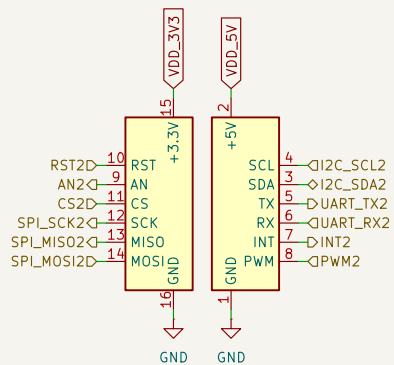




Note: Be cautious of all Clicker Board sizes when placing the footprint.



Note: Click boards come in S, M, and L sizes. The L size should be accounted for in the PCB design, with a length of 57 mm.

mikroBUS Socket 2 Circuit Description

This circuit implements a MikroBUS expansion interface, a standardized connectivity interface for embedded add-on boards. It exposes power rails and several MCU communication signals to allow connection of MikroBUS-compatible peripheral modules.

Component Description

J4 – MikroBUS Socket

Standard MikroBUS expansion connector

Provides SPI interface (MOSI, MISO, SCK, CS)

Provides UART interface (TX, RX)

Provides I²C interface (SDA, SCL)

Additional control signals (INT, RST, PWM, AN)

Power rails +5 V and +3.3 V

GND reference for connected modules

Sheet: /MikroBUS Socket 2/
File: mikroBUS_2.kicad_sch

Title:

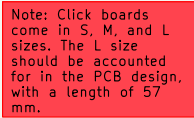
Size: A4

Date:

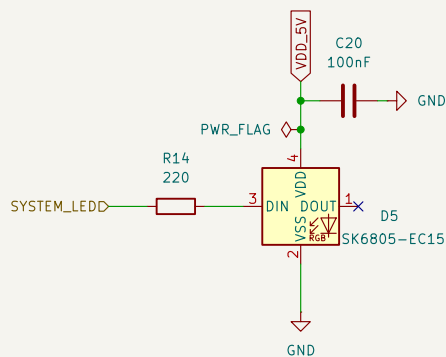
KiCad E.D.A. 10.0.2

Rev:

Id: 3/15



Rev:
Id: 4/15



System Controlled RGB LED

Circuit Description

This circuit implements a digitally controlled RGB status LED (NeoPixel-compatible) powered from the 5 V supply. The LED is controlled through a single-wire data signal from the MCU, allowing programmable color and brightness for system status indication.

Component Description

D5 – SK6805-EC15

Addressable RGB LED with integrated driver

WS2812 / NeoPixel-compatible control protocol

Single-wire digital data input (DIN)

DOUT for LED chaining

Individually controllable red, green, and blue channels

Powered from 5 V

Sheet: /System Controlled LED/
File: system_LED.kicad_sch

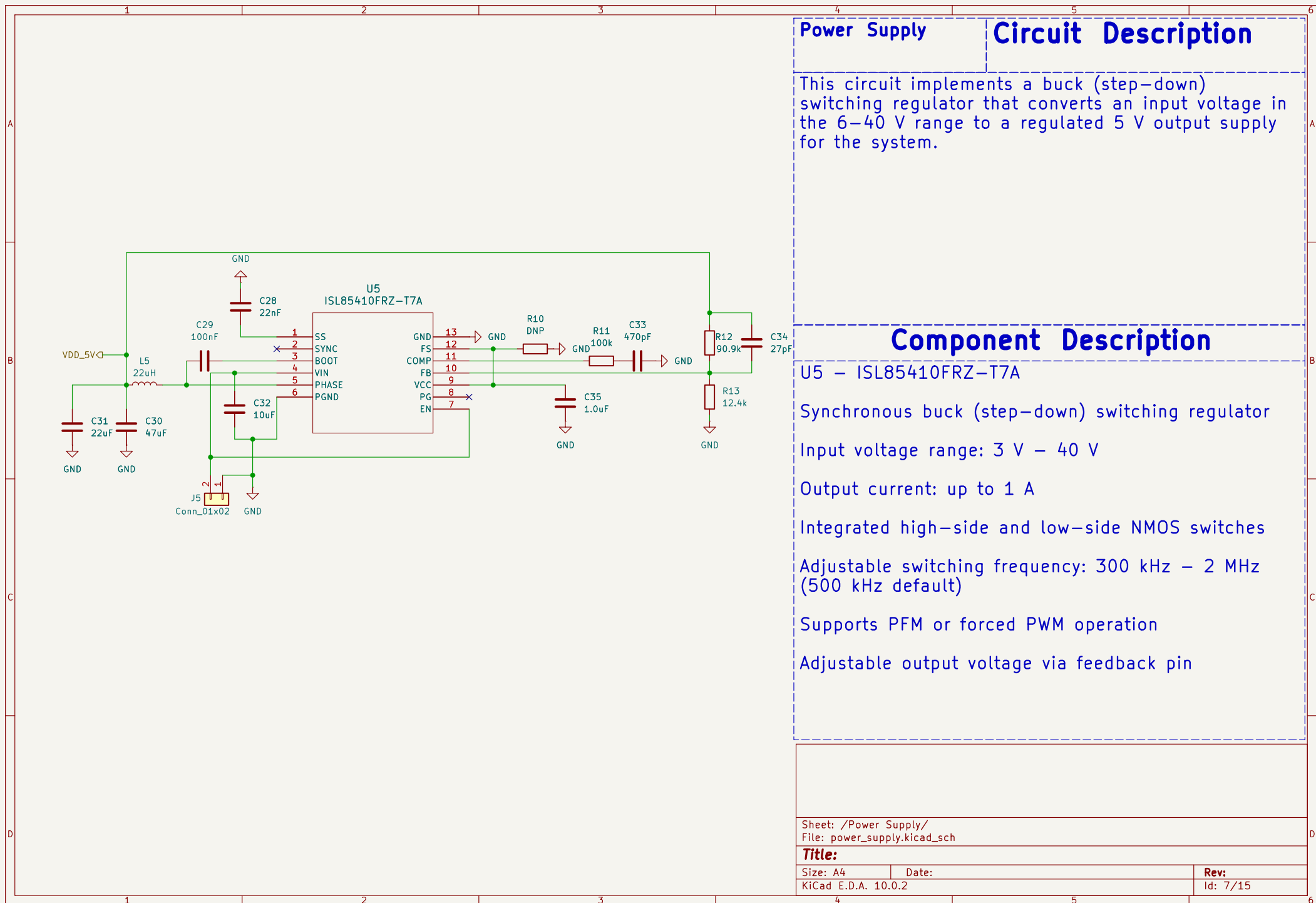
Title:

Size: A4
KiCad E.D.A. 10.0.2

Date:

Rev:

Id: 6/15



Power Supply

Circuit Description

This circuit implements a buck (step-down) switching regulator that converts an input voltage in the 6–40 V range to a regulated 5 V output supply for the system.

Component Description

U5 – ISL85410FRZ–T7A

Synchronous buck (step-down) switching regulator

Input voltage range: 3 V – 40 V

Output current: up to 1 A

Integrated high-side and low-side NMOS switches

Adjustable switching frequency: 300 kHz – 2 MHz
(500 kHz default)

Supports PFM or forced PWM operation

Adjustable output voltage via feedback pin

Sheet: /Power Supply/
File: power_supply.kicad_sch

Title:

Size: A4
KiCad E.D.A. 10.0.2

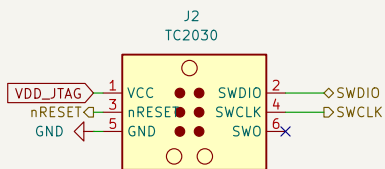
Date:

Rev:

Id: 7/15

JTAG SWD TC2030 Circuit Description

This circuit provides a Tag-Connect TC2030 programming and debugging interface for the MCU. It exposes the SWD (Serial Wire Debug) signals and power reference required to program and debug the device.



Sheet: /JTAG SWD/
File: JTAG.kicad_sch

Title:

Size: A4

Date:

KiCad E.D.A. 10.0.2

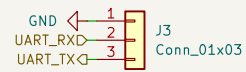
Rev:

Id: 8/15

UART Debugger

Circuit Description

This circuit provides a UART debug interface that allows serial communication between the MCU and an external device such as a PC or USB-to-UART adapter.



Sheet: /UART Debugger/
File: uart_debugger.kicad_sch

Title:

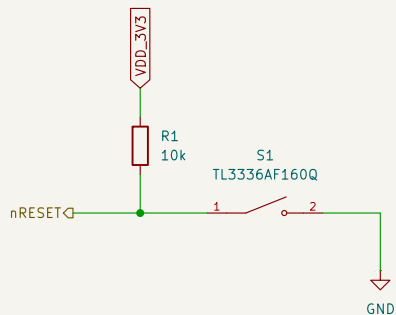
Size: A4

Date:

Rev:

SIZE: A1	5
KiCad E.D.A. 10.0.2	

Id: 9/15



Reset button

Circuit Description

This circuit implements a manual reset input for the MCU. A pushbutton allows the reset line to be pulled low to trigger a system reset.

Sheet: /Reset Button/
File: reset_button.kicad_sch

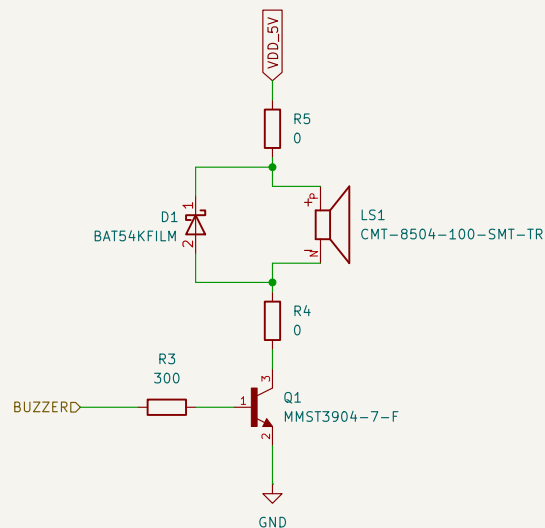
Title:

Size: A4
KiCad E.D.A. 10.0.2

Date:

Rev:

Id: 10/15



User controlled buzzer

Circuit Description

Transistor-driven buzzer driver controlled by a digital signal called BUZZER. The purpose is to allow a low-current logic output (such as from a microcontroller) to drive a magnetic buzzer/transducer that requires higher current and a 5 V supply.

Component Description

BZ1 – Buzzer

Magnetic transducer that converts the electrical signal into sound.

Q1 – NPN Transistor (MMST3904)

Acts as a low-side switch to drive the buzzer current.

R3 – Base Resistor

Limits current from the control signal into the transistor base.

D1 – Schottky Diode (BAT54)

Flyback diode protecting the transistor from voltage spikes.

Sheet: /Buzzer/
File: buzzer.kicad_sch

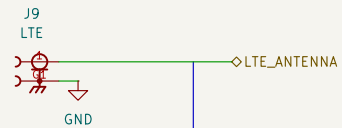
Title:

Size: A4
KiCad E.D.A. 10.0.2

Date:

Rev:

Id: 11/15



Note: Place SMA close to the nRF9151.

Note: The trace should have a characteristic impedance of $50\ \Omega$.

LTE to SMA connector

Circuit Description

This circuit provides an SMA connector for the LTE antenna, allowing connection of an external antenna to the cellular modem.

Sheet: /Antenna LTE/
File: antenna_LTE.kicad_sch

Title:

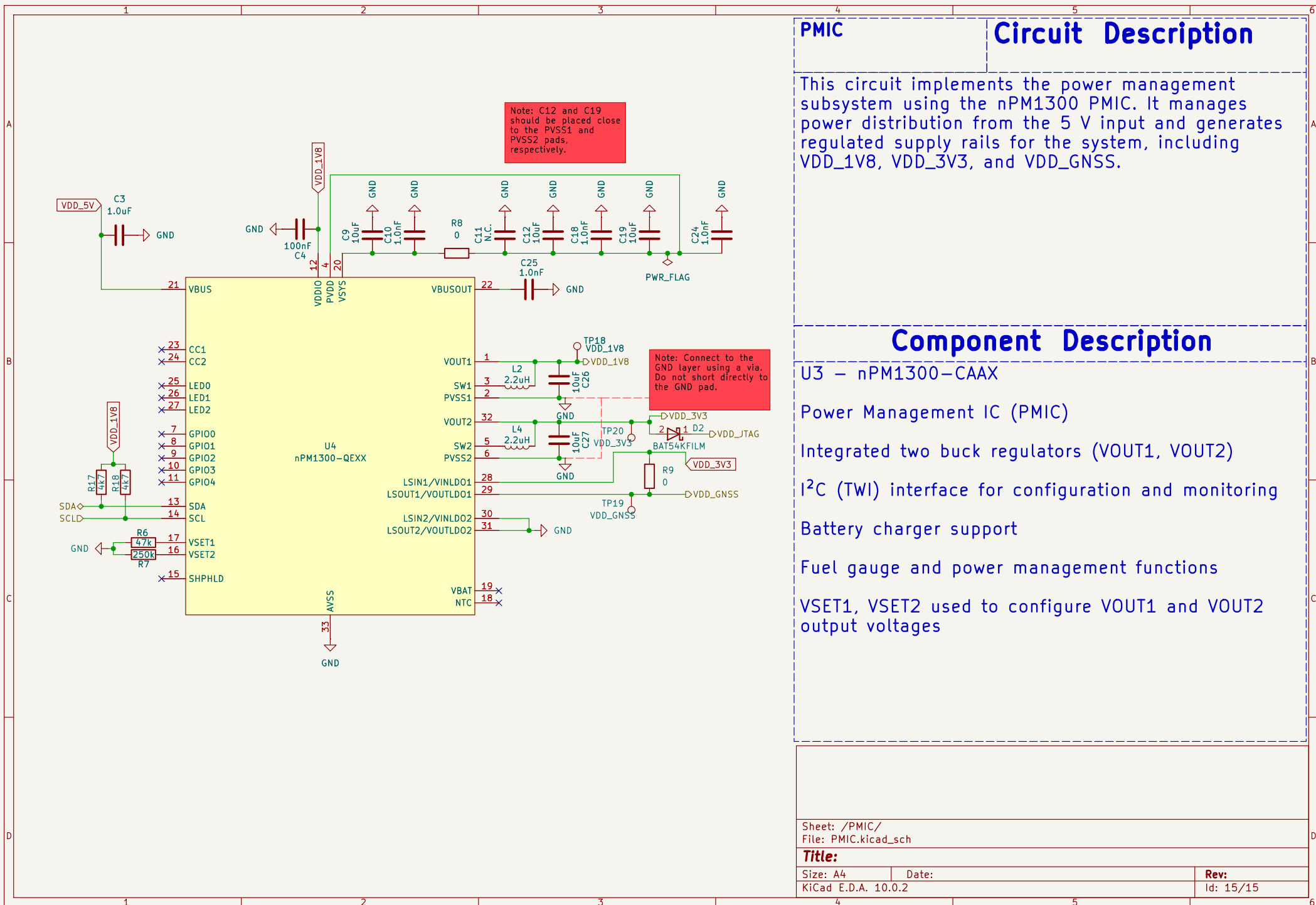
Size: A4	Date:
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SIZE: A1	5
KiCad E.D.A. 10.0.2	

Date:

Rev:

Id: 13/15



PMIC

Circuit Description

This circuit implements the power management subsystem using the nPM1300 PMIC. It manages power distribution from the 5 V input and generates regulated supply rails for the system, including VDD_1V8, VDD_3V3, and VDD_GNSS.

Component Description

U3 – nPM1300–CAAX

Power Management IC (PMIC)

Integrated two buck regulators (VOUT1, VOUT2)

I²C (TWI) interface for configuration and monitoring

Battery charger support

Fuel gauge and power management functions

VSET1, VSET2 used to configure VOUT1 and VOUT2 output voltages

Sheet: /PMIC/
File: PMIC.kicad_sch

Title:

Size: A4
KiCad E.D.A. 10.0.2

Date:

Rev:

Id: 15/15