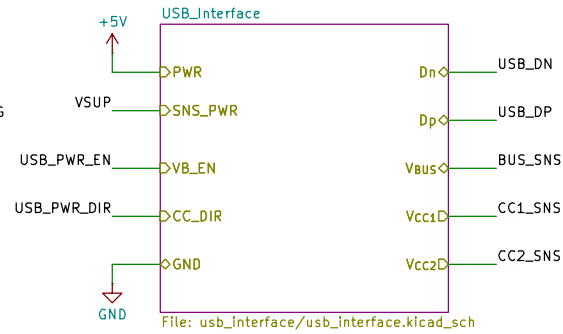
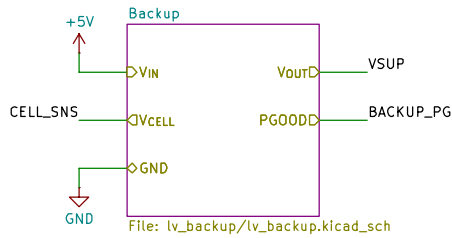
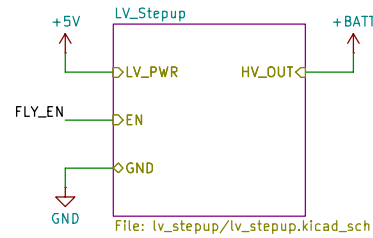
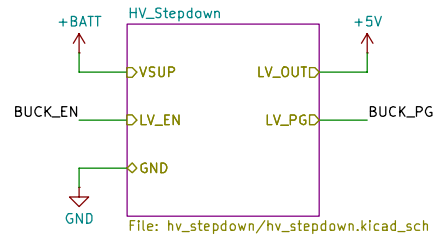
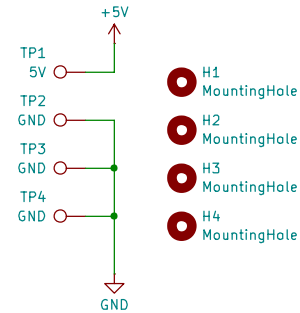


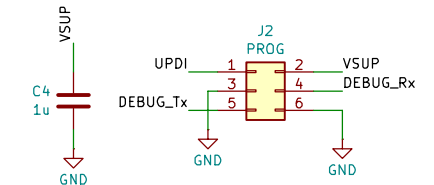
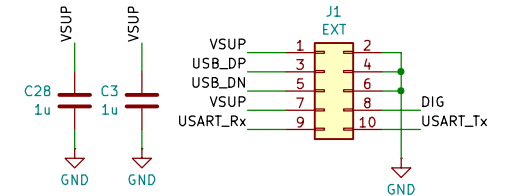
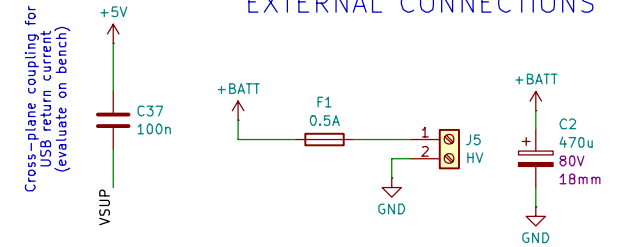
SUBSYSTEMS



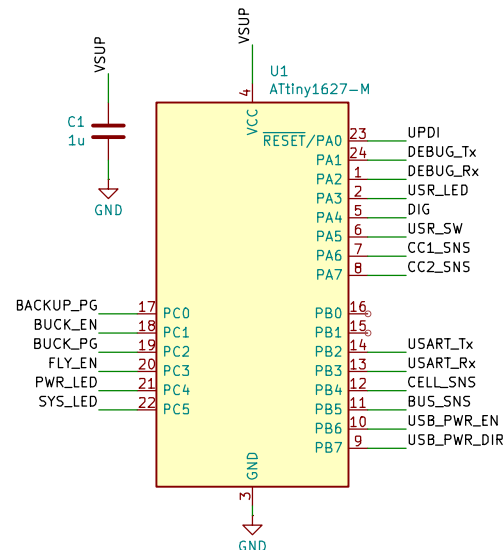
MECHANICAL



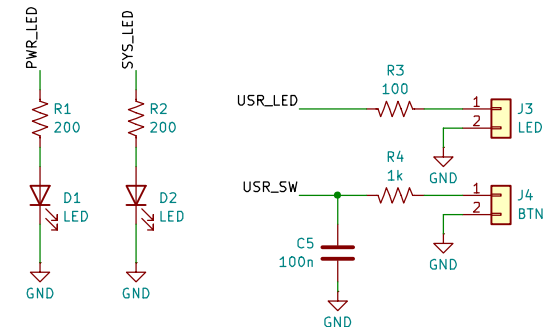
EXTERNAL CONNECTIONS



MICROCONTROLLER



USER INTERFACE

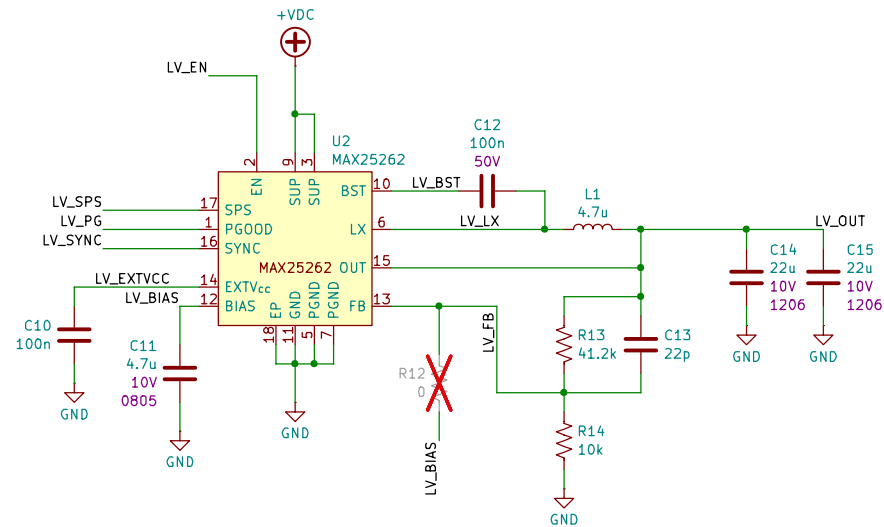
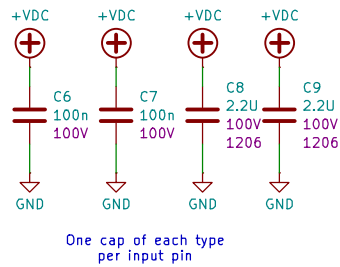


Project: Low Voltage Power System
Schematic: Root
All resistors 0603 1% 0.1W unless noted All capacitors 0603 16V 10% X5R unless noted
Date: 2025-07-16 Rev: 0 page: 1/5



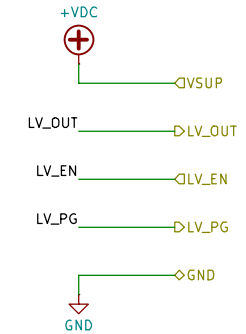
HV STEP-DOWN REGULATOR

BYPASSING

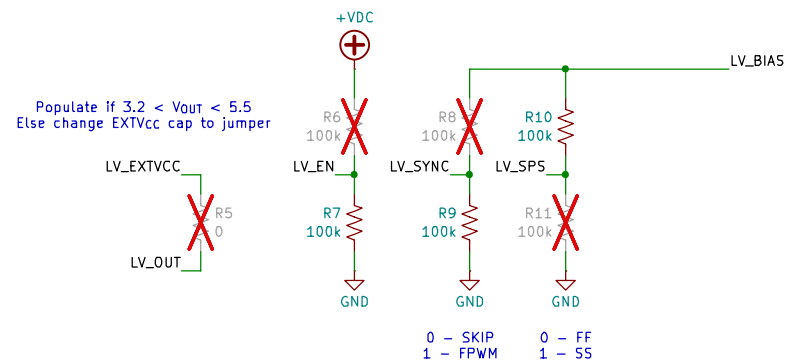


Short FB to BIAS for fixed output
Otherwise, use formula for output:
 $V_{out} = (R_t/R_b + 1)$

SHEET INTERFACES

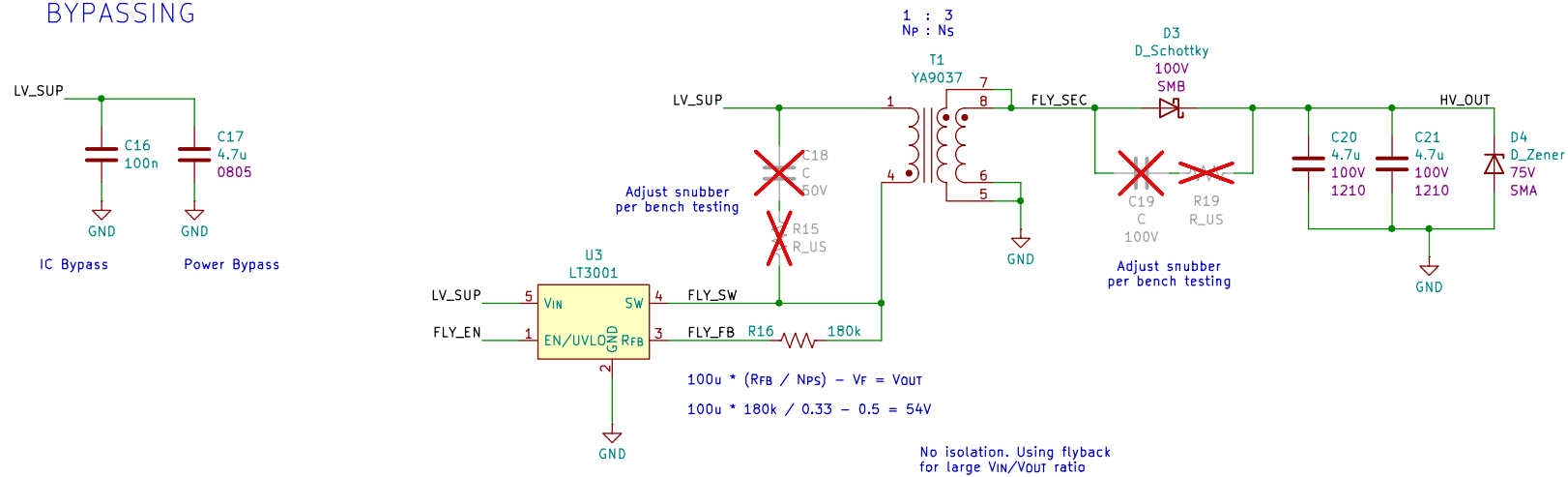


CONFIGURATION

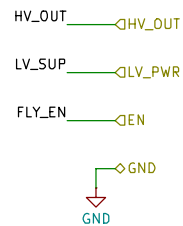


FLYBACK REGULATOR

BYPASSING



SHEET INTERFACES



Project: LV Step-Up (Flyback) Regulator

Schematic: LV_Stepup

All resistors 0603 1% 0.1W unless noted
All capacitors 0603 16V 10% X5R unless noted

Date: 2025-07-16 Rev: 0 page: 3/5



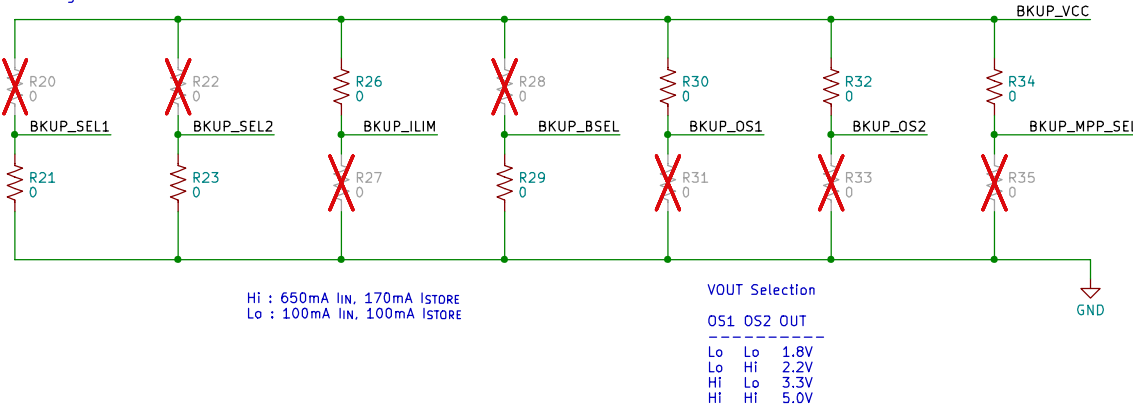
Pin Configuration Options

OV/UV Settings (Rechargeable)

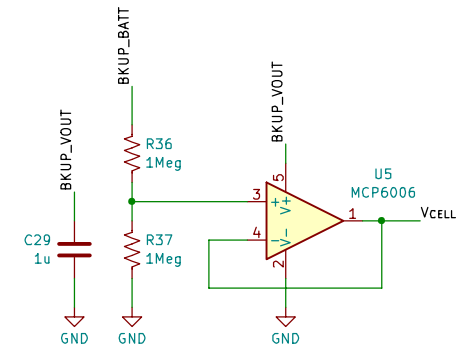
SEL1	SEL2	OV	UV
Low	Low	4.00	2.78
Low	High	2.90	1.90
High	Low	3.00	2.15
High	High	4.00	3.00

Hi : Primary Batt
Lo : Rechargeable

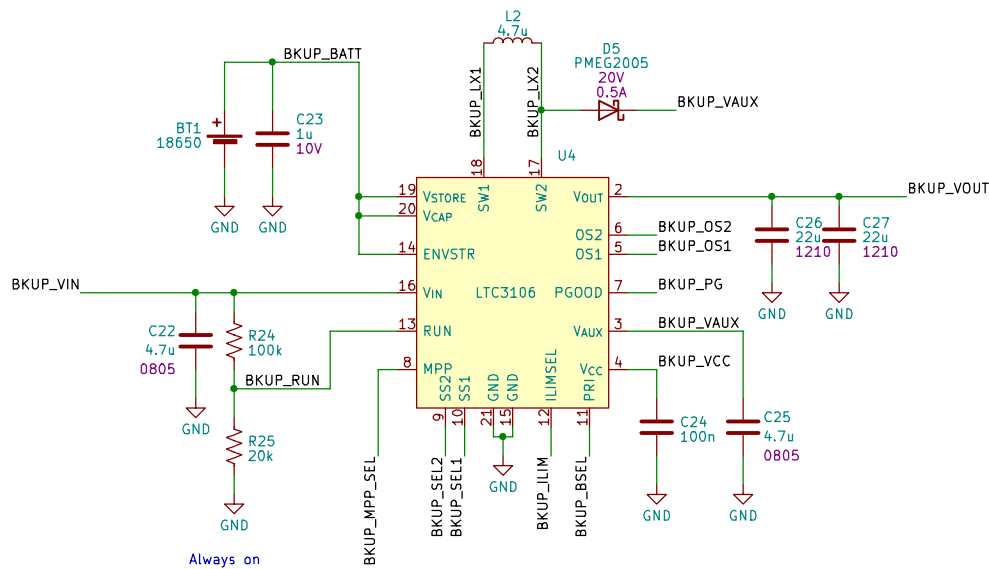
Hi : MPP Disabled
R to GND : $V_{MPP} = 1.5\mu A * R$ (Megohm)



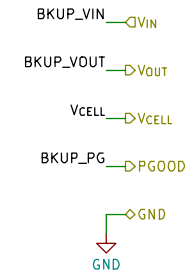
Cell Voltage Buffer



Regulator Circuit

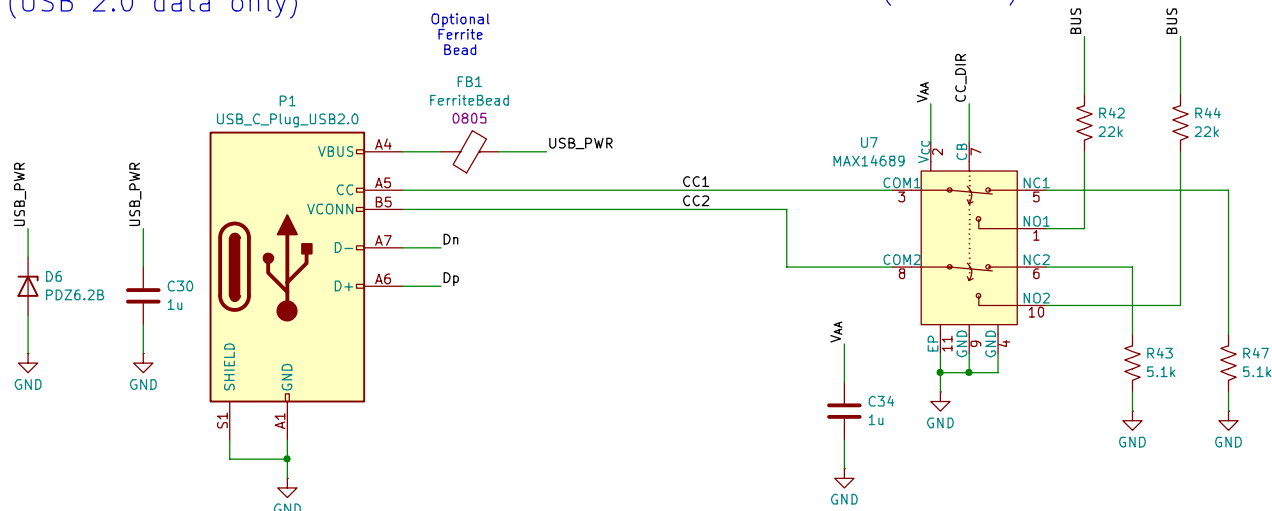


Sheet Interfaces



Pin configuration diagram for the ATmega328P microcontroller. The diagram shows 14 pins on the left and 14 pins on the right. The left pins are labeled: VBUS, VAA, BUS, VB_EN, CC_DIR, Vcc1, Vcc2, Dp, and Dn. The right pins are labeled: VBUS, SNS_PWR, PWR, VB_EN, CC_DIR, Vcc1, Vcc2, Dp, Dn, and GND. The GND pin is connected to a ground symbol labeled GND.

Analog
Switch
(CC Pins)



Vbus Power Switch

The diagram illustrates a Vbus Power Switch circuit. It includes a USB_PWR input, a BUS output, and a GND reference. The circuit features two MOSFETs, Q1 (GSFC3415) and Q2 (2N7002), and a resistor R39 (100k). A red 'X' is placed over the gate of Q1, indicating a modification or error. A capacitor C32 (1u) is connected to the BUS line. A resistor R53 (1Meg) is connected to the VB_EN input. A capacitor C31 (10n) is connected to the gate of Q1. A resistor R38 (1Meg) is connected to the gate of Q1. A resistor R39 (100k) is connected to the gate of Q2. A resistor R53 (1Meg) is connected to the VB_EN input. A capacitor C32 (1u) is connected to the BUS line.

