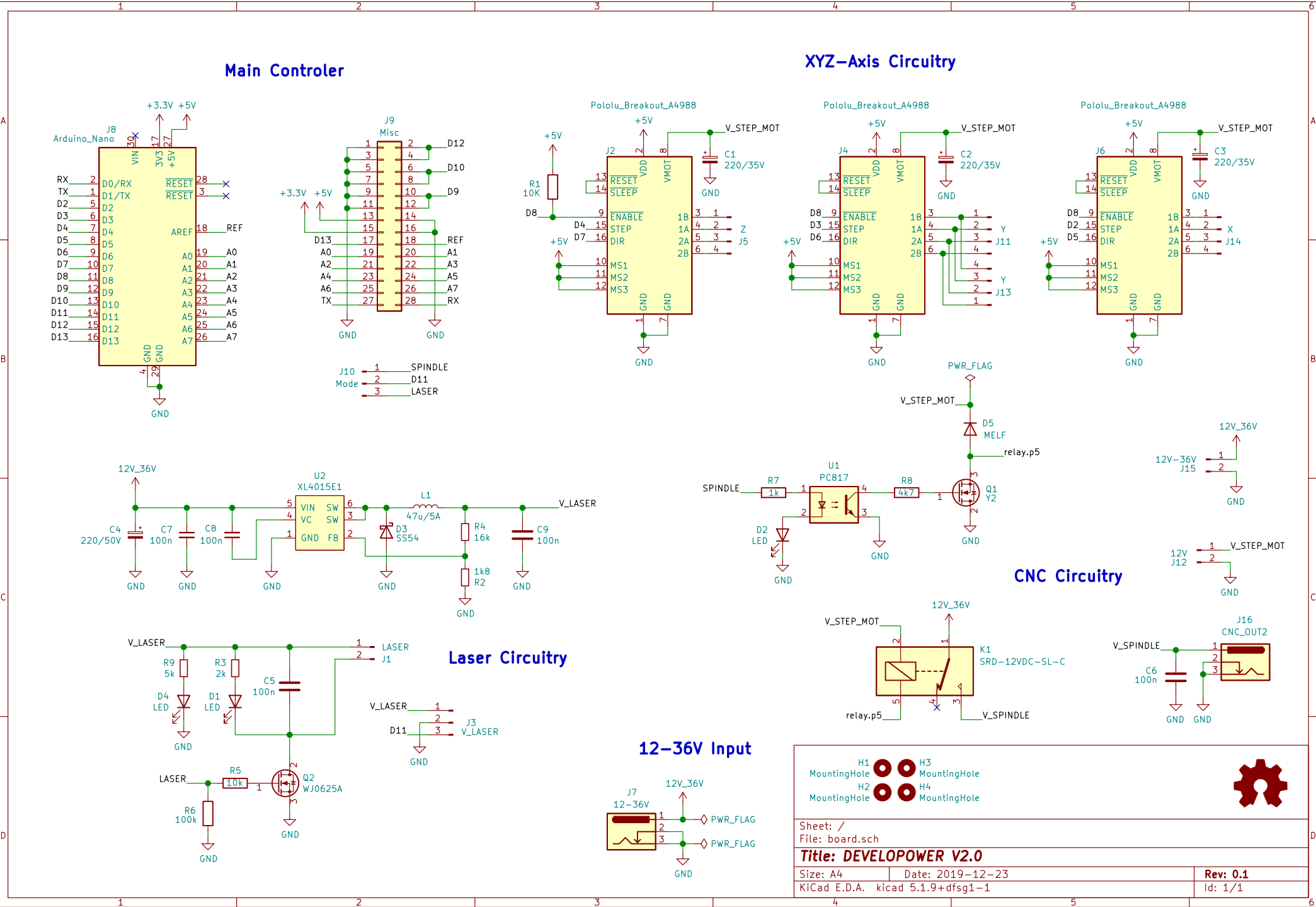
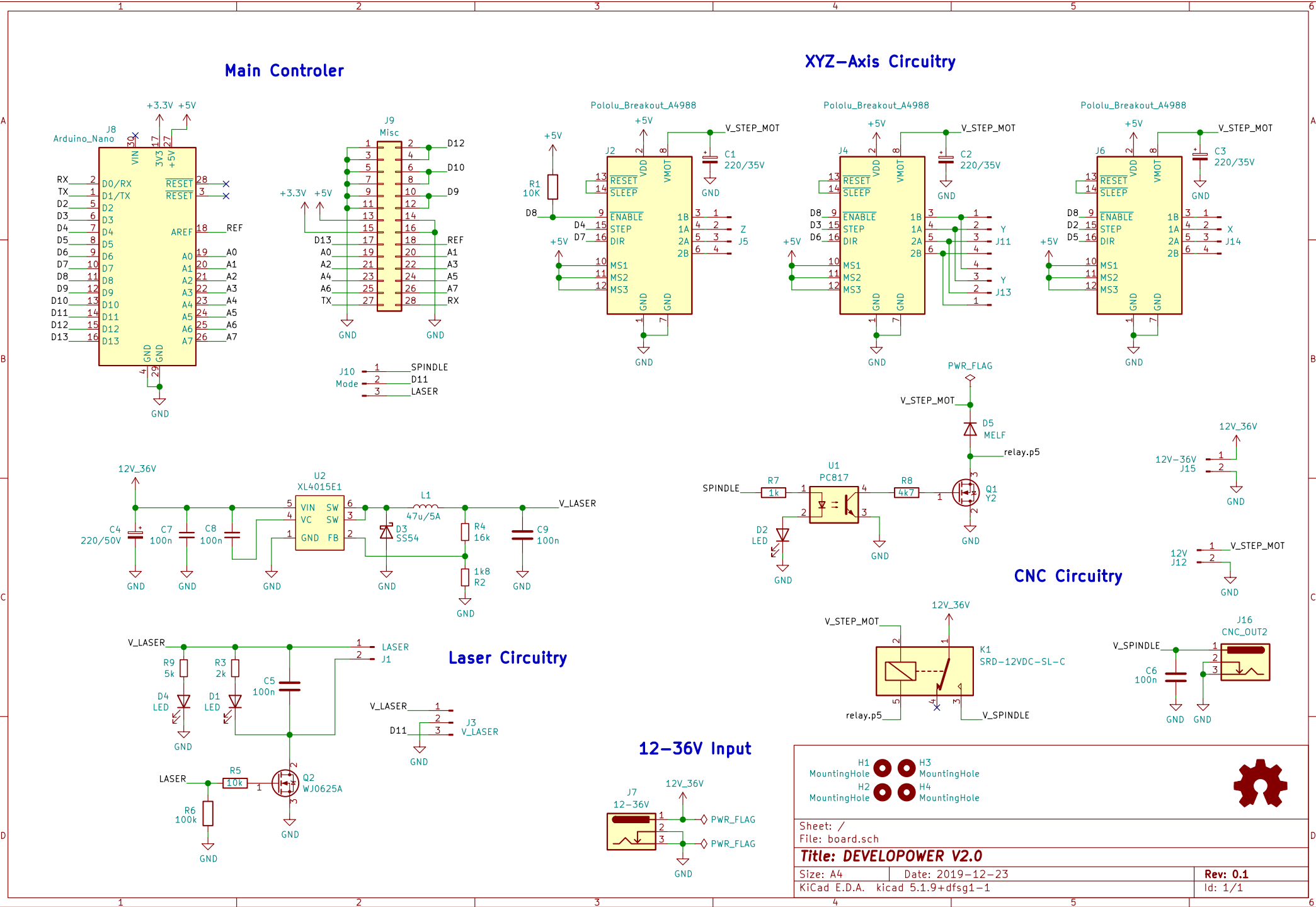
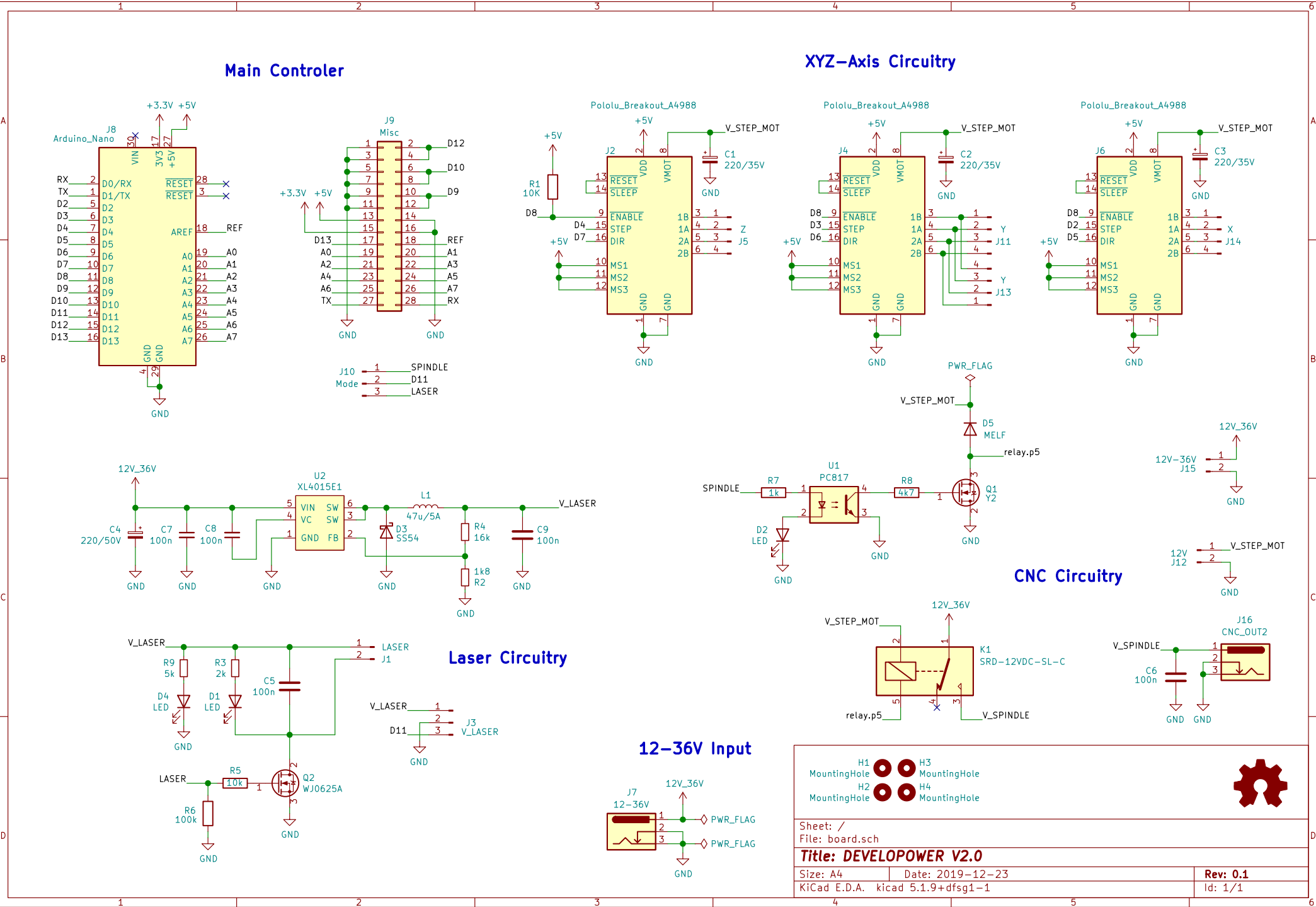
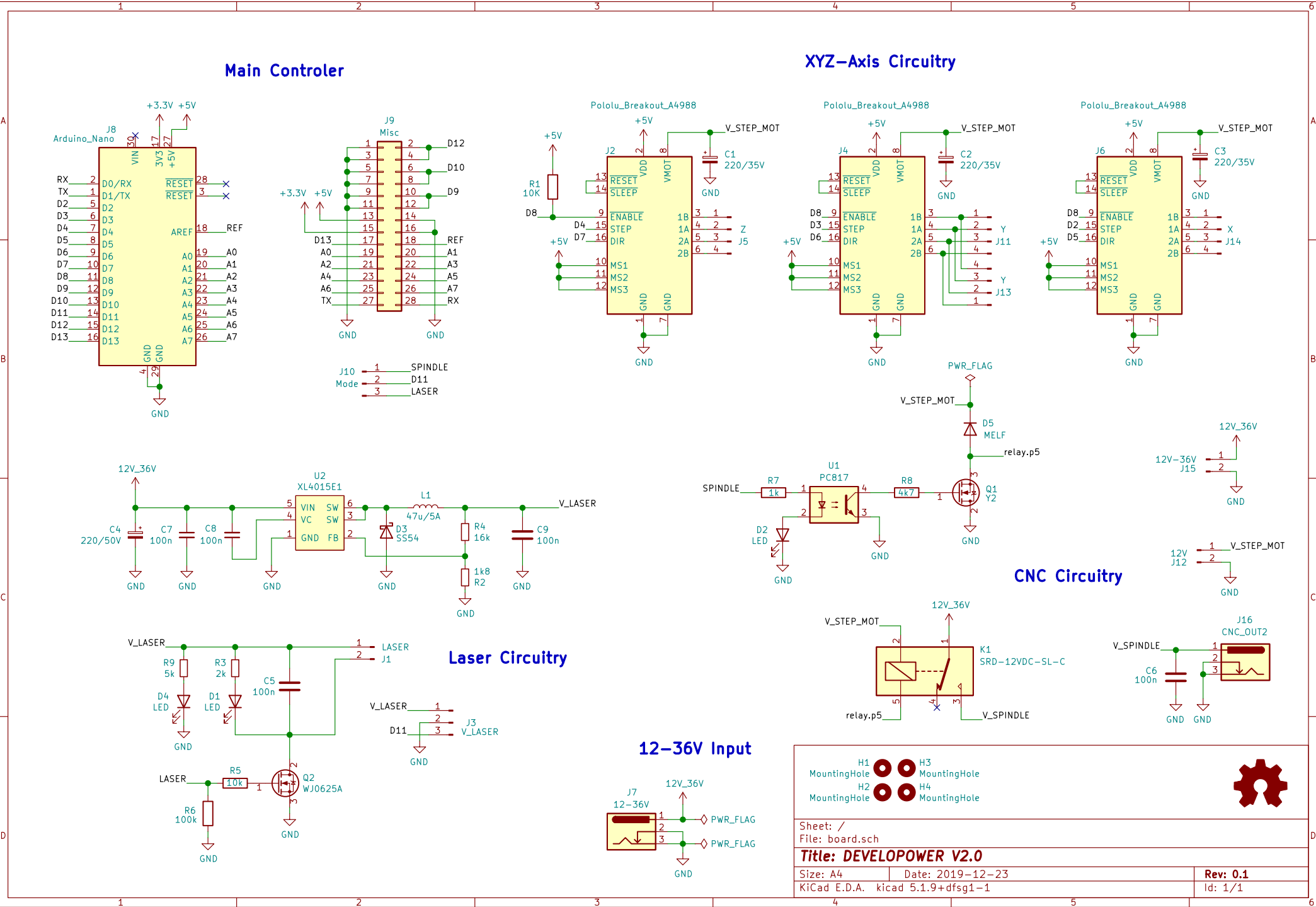
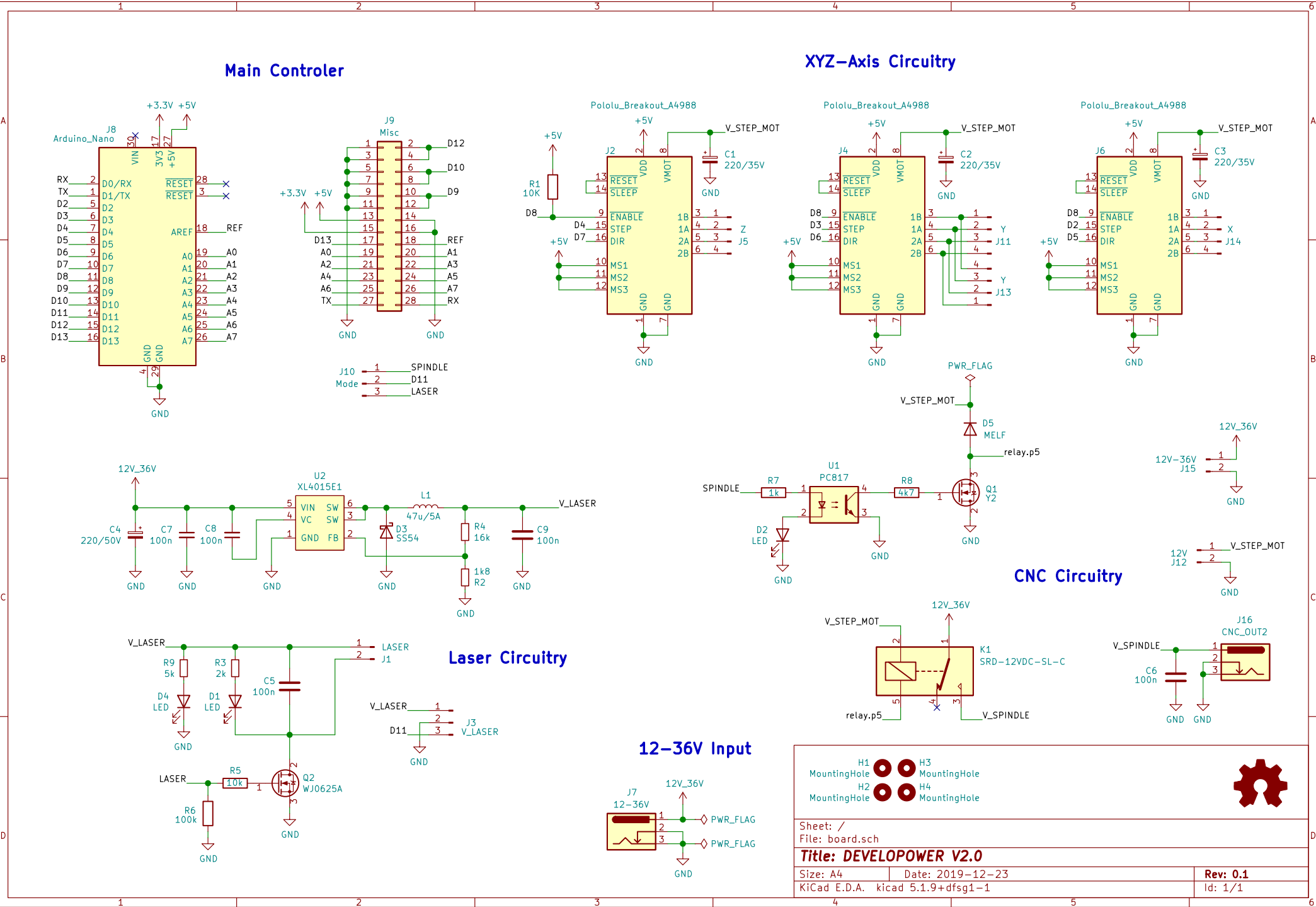
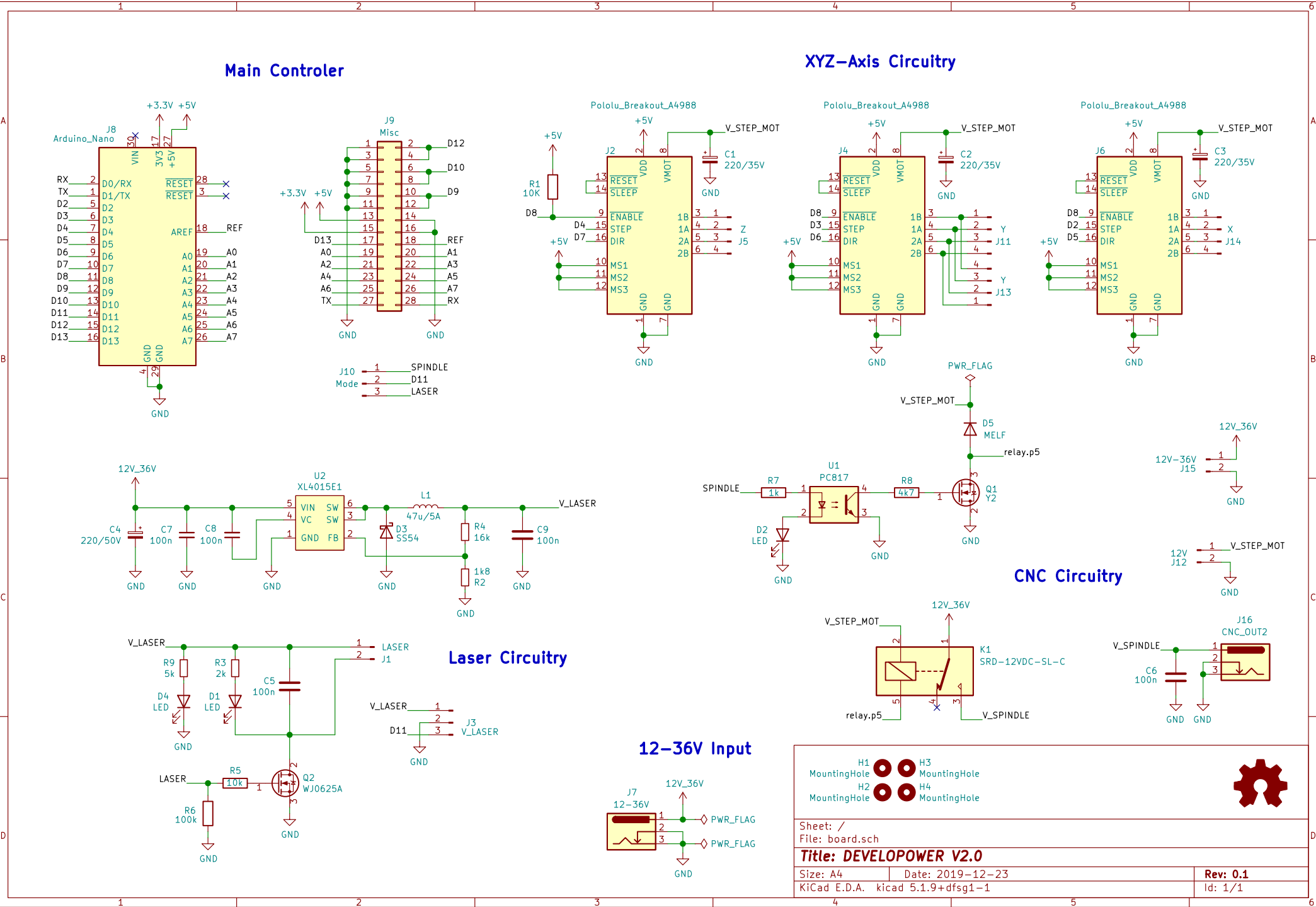
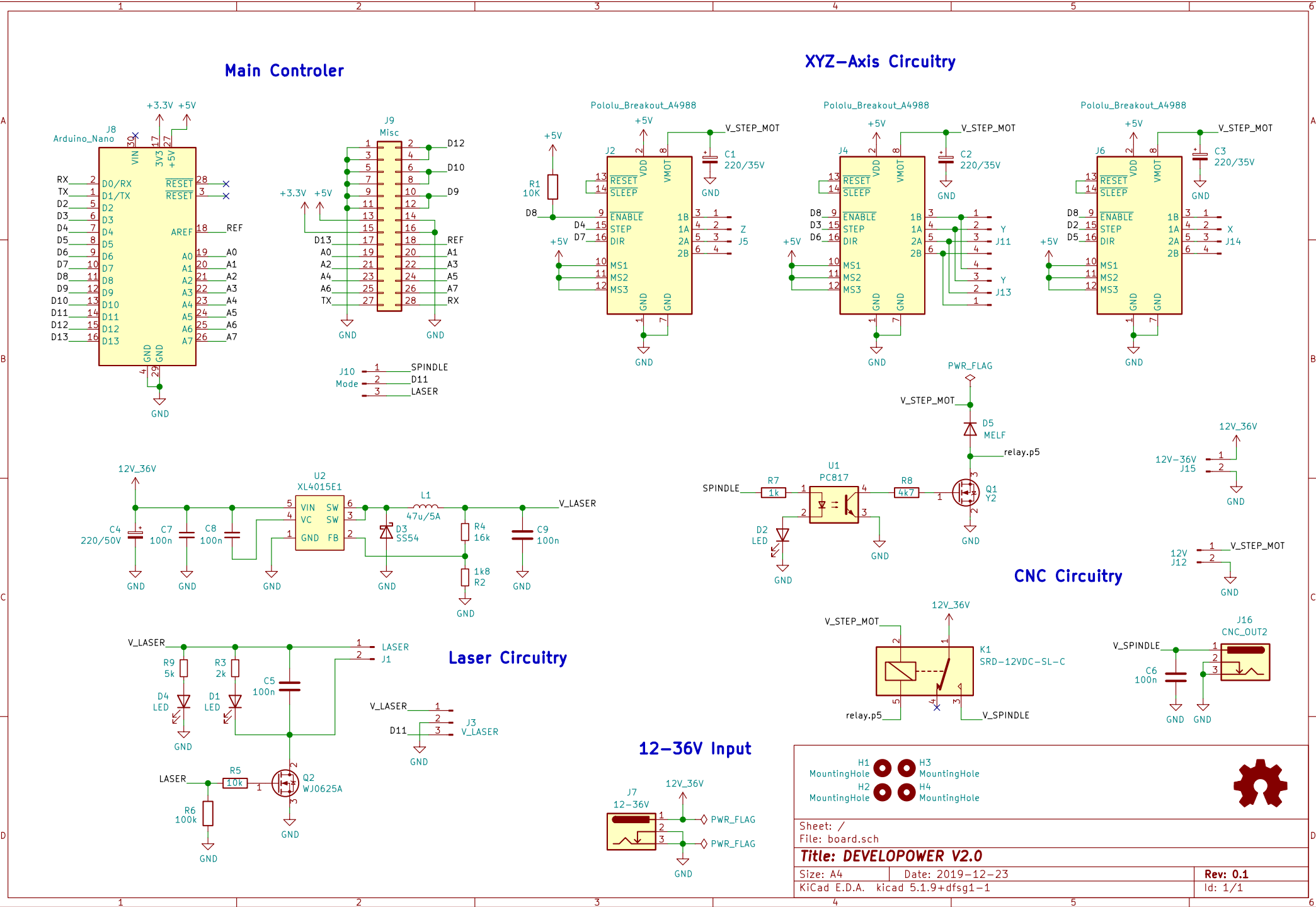
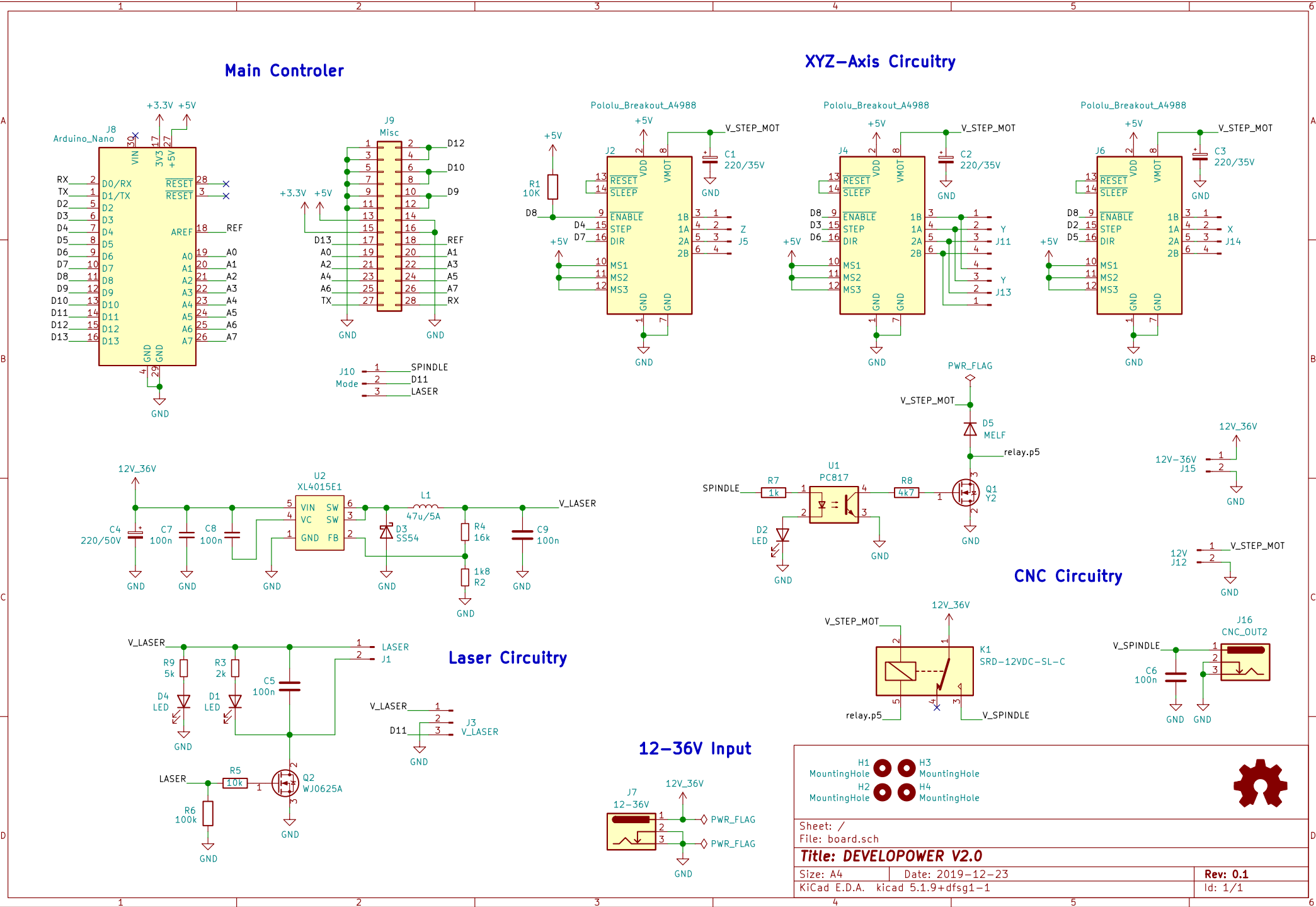


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Main Controller

Arduino_Nano J8
VIN 30X
+3.3V +5V
D0/RX 2
D1/TX 1
D2 5
D3 6
D4 7
D5 8
D6 9
D7 10
D8 11
D9 12
D10 13
D11 14
D12 15
D13 16
RESET 28
AREF 18
A0 19
A1 20
A2 21
A3 22
A4 23
A5 24
A6 25
A7 26
GND 4
GND 29
GND

J9 Misc
D12 2
D10 6
D9 8
REF 16
A1 18
A3 20
A5 22
A7 24
RX 28
GND 1
GND 3
SPINDLE Mode 1
D11 2
LASER 3

XYZ-Axis Circuitry

Pololu_Breakout_A4988 J2
+5V
VDD 2
VMOT 8
RESET 13
SLEEP 14
ENABLE 9
STEP 15
DIR 16
MS1 10
MS2 11
MS3 12
GND 1
GND 7
1B 3
1A 4
2A 5
2B 6
Z J5

Pololu_Breakout_A4988 J4
+5V
VDD 2
VMOT 8
RESET 13
SLEEP 14
ENABLE 9
STEP 15
DIR 16
MS1 10
MS2 11
MS3 12
GND 1
GND 7
1B 3
1A 4
2A 5
2B 6
Y J11
Y J13

Pololu_Breakout_A4988 J6
+5V
VDD 2
VMOT 8
RESET 13
SLEEP 14
ENABLE 9
STEP 15
DIR 16
MS1 10
MS2 11
MS3 12
GND 1
GND 7
1B 3
1A 4
2A 5
2B 6
X J14

Laser Circuitry

U2 XL4015E1
VIN 5
VC 4
SW 6
FB 1
GND 2
L1 47uH/5A
D3 SS54
R4 16k
C9 100n
V_LASER
GND

12-36V Input

J7 12-36V
PWR_FLAG 1
PWR_FLAG 2
GND 3

CNC Circuitry

U1 PC817
R7 1k
D2 LED
Q1 Y2
R8 4k7
V_STEP_MOT
relay.p5
J15 12V-36V
J12 12V
V_STEP_MOT
J16 CNC_OUT2
K1 SRD-12VDC-SL-C
V_SPINDLE
C6 100n

Title Block:

| | | | |
|--------------------------------|---------------------|-----------------|--|
| Sheet: / | | File: board.sch | |
| Title: DEVELOPOWER V2.0 | | | |
| Size: A4 | Date: 2019-12-23 | Rev: 0.1 | |
| KiCad E.D.A. | kicad 5.1.9+dfsg1-1 | Id: 1/1 | |

Main Controller

Arduino_Nano (J8) is connected to the Main Controller. The board includes a 3.3V regulator (U1) and a 5V regulator (U2). The Main Controller is connected to the XYZ-Axis Circuitry via J9 and J10.

XYZ-Axis Circuitry

Three Pololu_Breakout_A4988 stepper motor drivers (J2, J4, J6) are connected to the Main Controller. Each driver is powered by a 5V regulator (U3, U4, U5) and a 220/35V capacitor (C1, C2, C3). The drivers are connected to the XYZ-Axis Circuitry via J11, J12, and J13.

Laser Circuitry

The Laser Circuitry includes a laser driver (U4) and a laser diode (D1). The laser is powered by a 12V-36V input (J7) and a 10k resistor (R5). The laser is connected to the Laser Circuitry via J1 and J3.

12-36V Input

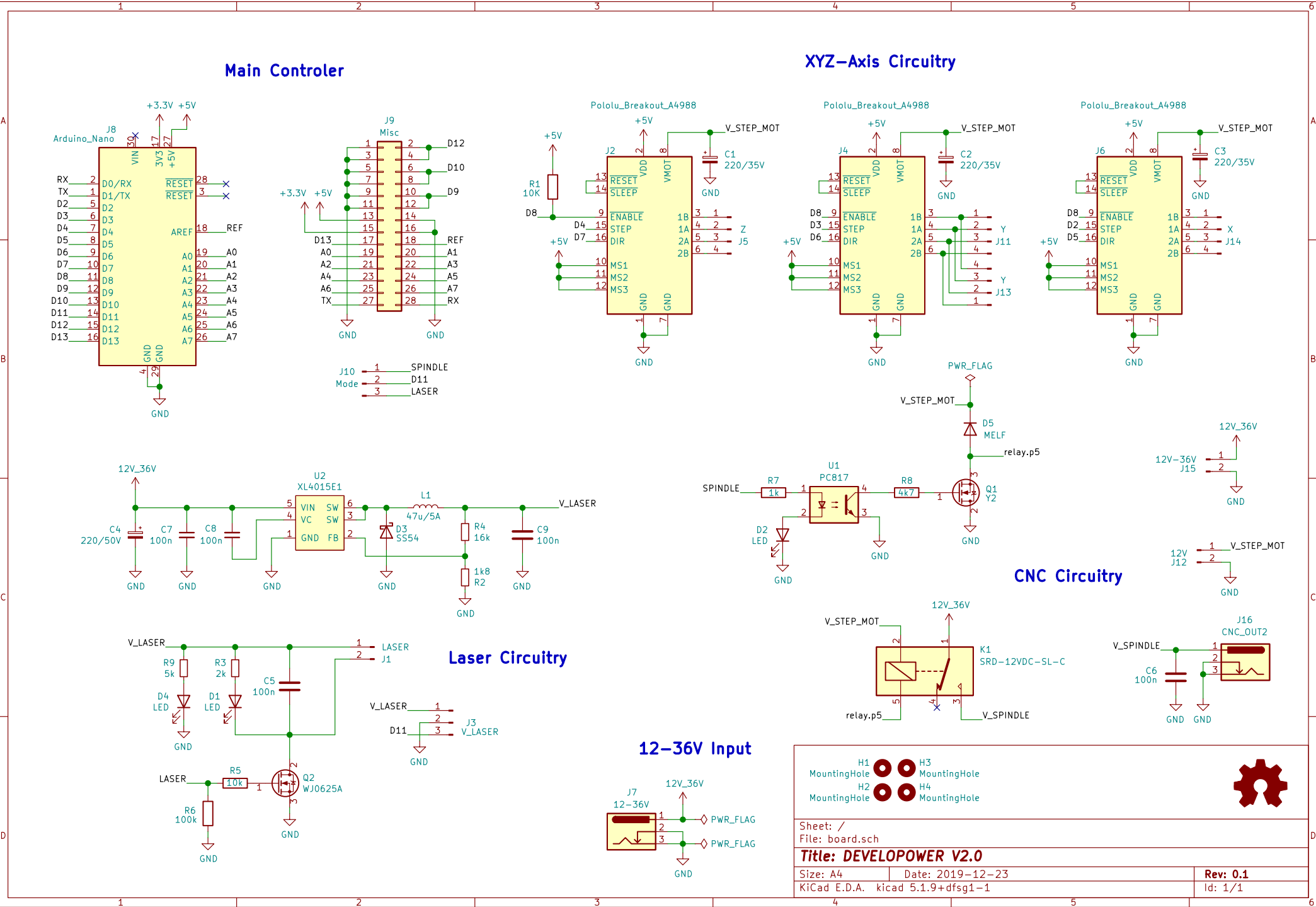
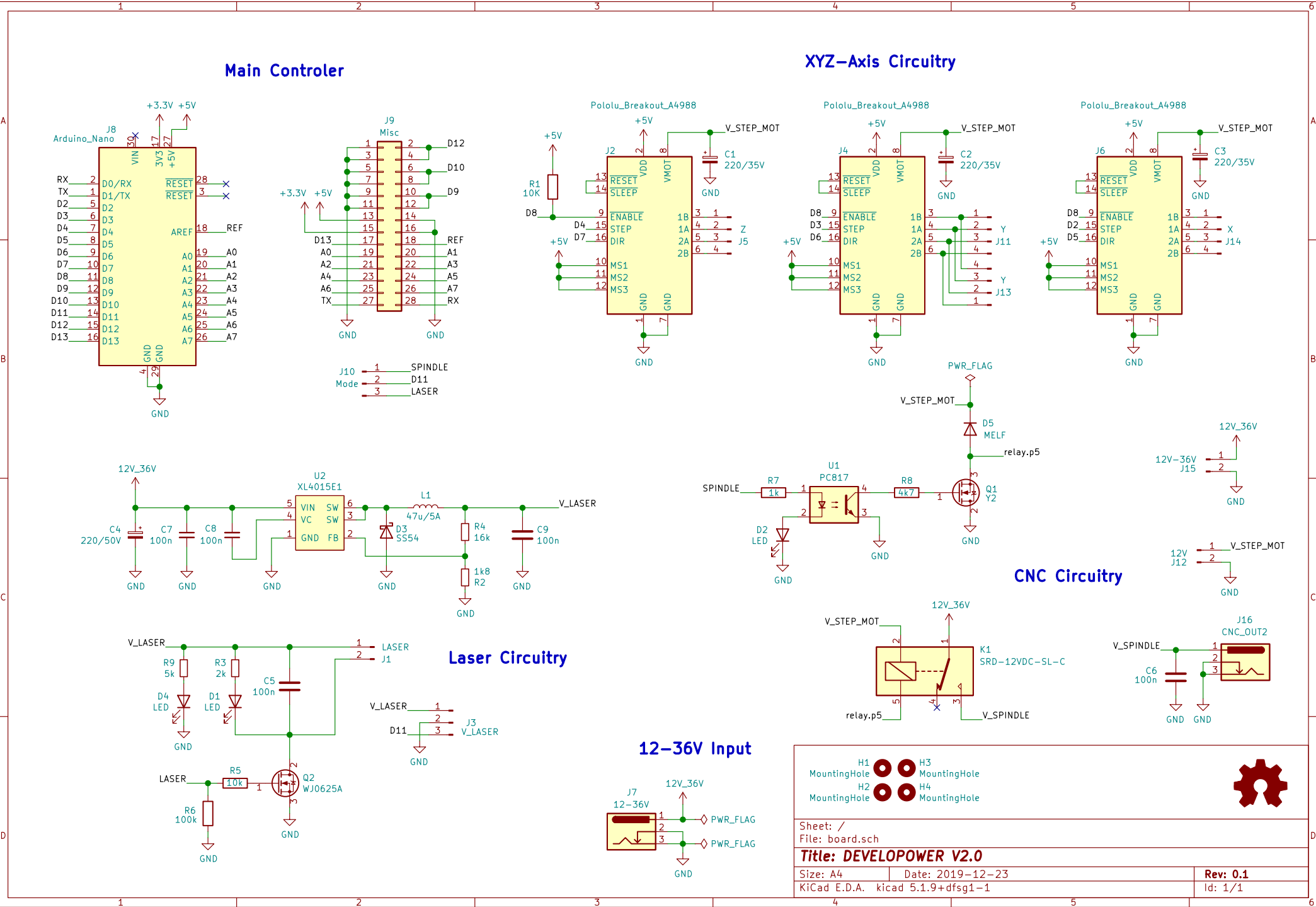
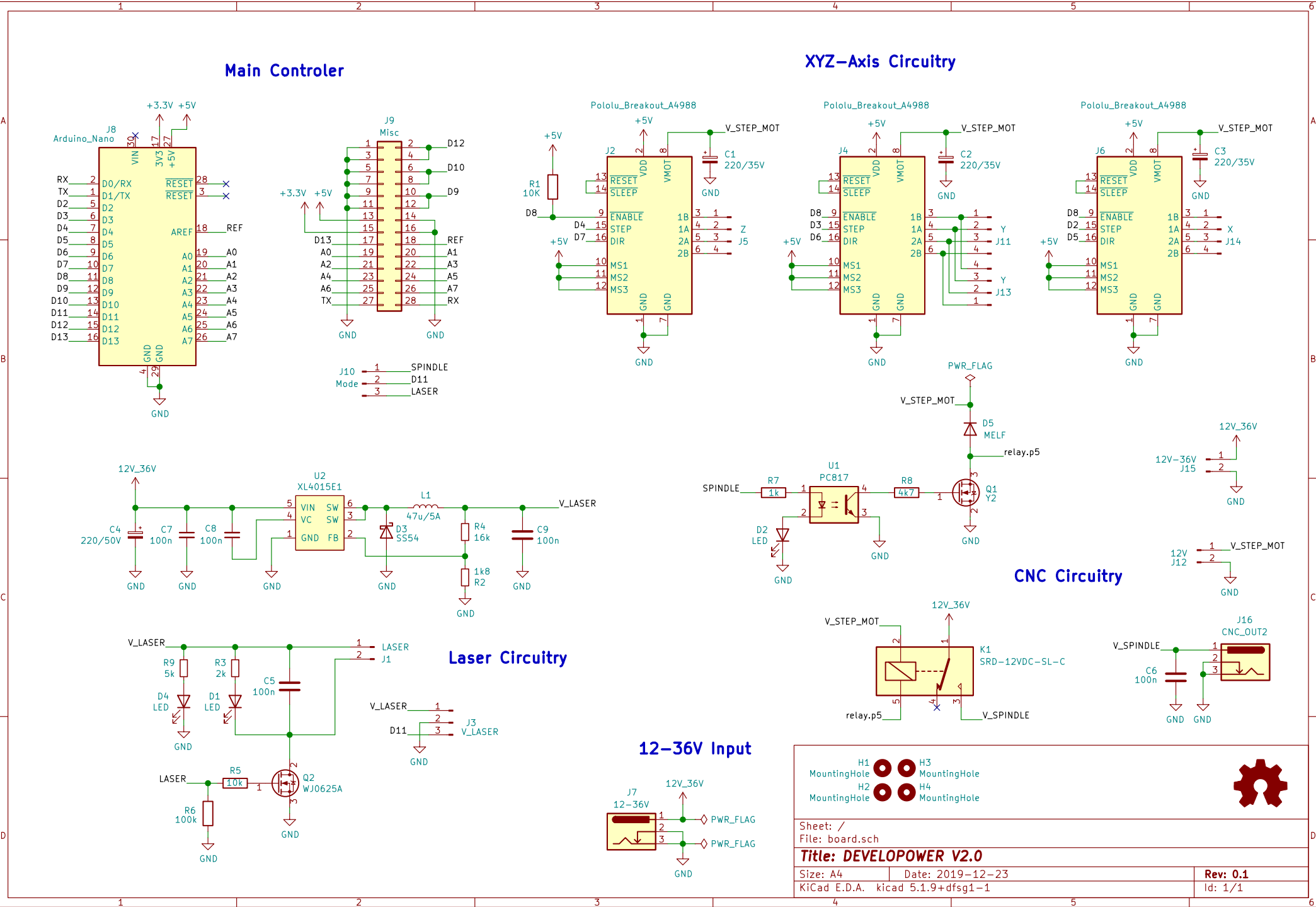
The 12-36V Input section includes a 12V-36V input (J7) and a 10k resistor (R5). The input is connected to the Laser Circuitry via J1 and J3.

CNC Circuitry

The CNC Circuitry includes a relay (K1) and a 12V-36V input (J7). The relay is connected to the XYZ-Axis Circuitry via J11, J12, and J13.

Title Block

H1 MountingHole
 H2 MountingHole
 H3 MountingHole
 H4 MountingHole
 Sheet: /
 File: board.sch
Title: DEVELOPOWER V2.0
 Size: A4 Date: 2019-12-23
 KiCad E.D.A. kicad 5.1.9+dfsg1-1
 Rev: 0.1
 Id: 1/1



Main Controller

Arduino_Nano (J8) is connected to the Main Controller. The board includes a 3.3V regulator (U1) and a 5V regulator (U2). The Main Controller is connected to the XYZ-Axis Circuitry via J9 and J10.

XYZ-Axis Circuitry

Three Pololu_Breakout_A4988 stepper motor drivers (J2, J4, J6) are connected to the Main Controller. Each driver is powered by a 5V regulator (U3, U4, U5) and a 220/35V capacitor (C1, C2, C3). The drivers are connected to the XYZ-Axis Circuitry via J11, J12, and J13.

Laser Circuitry

The Laser Circuitry includes a laser driver (U4) and a laser diode (D1). The laser is powered by a 12V-36V input (J7) and a 10k resistor (R5). The laser is connected to the Laser Circuitry via J1 and J3.

12-36V Input

The 12-36V Input section includes a 12V-36V input (J7) and a 10k resistor (R5). The input is connected to the Laser Circuitry via J1 and J3.

CNC Circuitry

The CNC Circuitry includes a relay (K1) and a 12V-36V input (J7). The relay is connected to the XYZ-Axis Circuitry via J11, J12, and J13.

Title Block

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