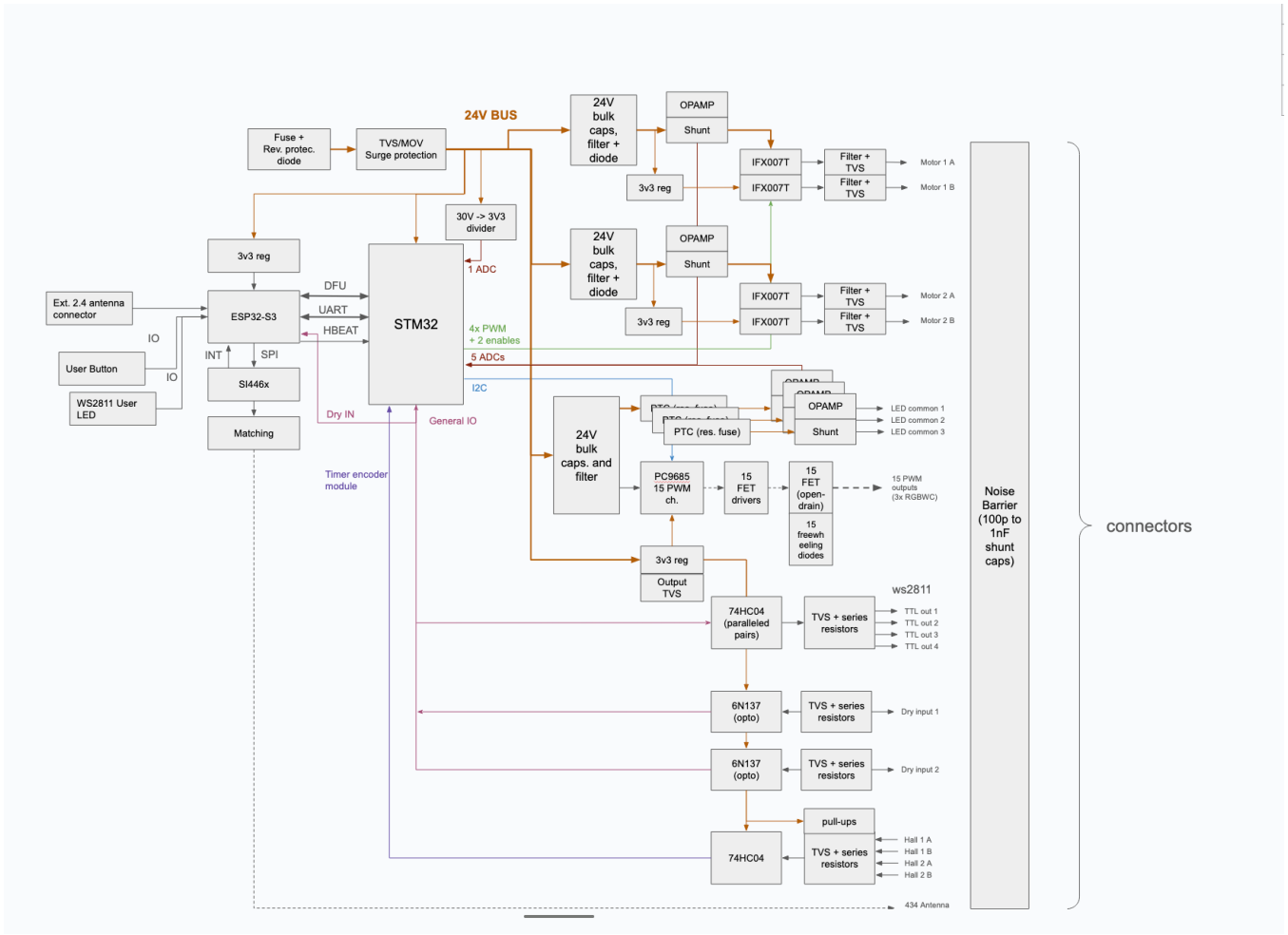
Linear Motor Controller

TODO – This is an example of todo notes
Design Notes – This is an example of design notes
Layout notes – This is an example of layout notes
Comments – This is an example of comments

Olibra LLC
Sheet: /
File: lmc.kicad_sch
Title: Linear Motor Controller
Size: A4 | Date: 2025-12-08 | Rev: 0.1
KiCad E.D.A. 9.0.0 | Id: 1/27

Block Diagram
File: block_diagram.kicad_sch

Project Architecture
File: project_architecture.kicad_sch



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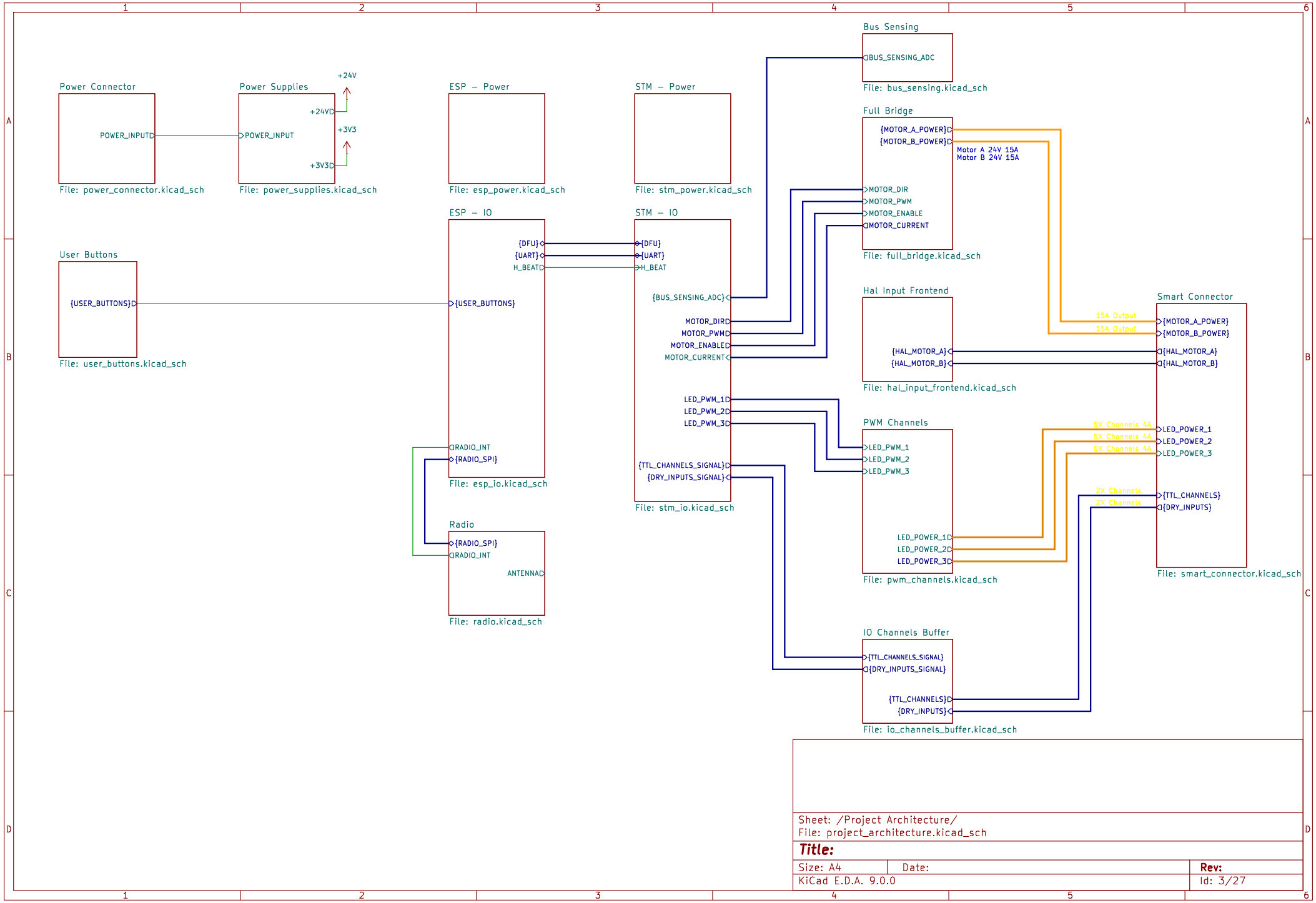
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 2/27


Power Connector
POWER_INPUT
File: power_connector.kicad_sch
Power Supplies
POWER_INPUT
+24V
+24VD
+3V3
+3V3D
File: power_supplies.kicad_sch
ESP – Power
File: esp_power.kicad_sch
STM – Power
File: stm_power.kicad_sch
Bus Sensing
BUS_SENSING_ADC
File: bus_sensing.kicad_sch
Full Bridge
{MOTOR_A_POWER}
{MOTOR_B_POWER}
Motor A 24V 15A
Motor B 24V 15A
MOTOR_DIR
MOTOR_PWM
MOTOR_ENABLE
MOTOR_CURRENT
File: full_bridge.kicad_sch
User Buttons
{USER_BUTTONS}
File: user_buttons.kicad_sch
ESP – IO
{DFU}
{UART}
H_BEAT
{USER_BUTTONS}
RADIO_INT
{RADIO_SPI}
File: esp_io.kicad_sch
STM – IO
{DFU}
{UART}
H_BEAT
{BUS_SENSING_ADC}
MOTOR_DIR
MOTOR_PWM
MOTOR_ENABLE
MOTOR_CURRENT
LED_PWM_1
LED_PWM_2
LED_PWM_3
{TTL_CHANNELS_SIGNAL}
{DRY_INPUTS_SIGNAL}
File: stm_io.kicad_sch
Hal Input Frontend
{HAL_MOTOR_A}
{HAL_MOTOR_B}
File: hal_input_frontend.kicad_sch
Smart Connector
15A Output
15A Output
{MOTOR_A_POWER}
{MOTOR_B_POWER}
{HAL_MOTOR_A}
{HAL_MOTOR_B}
5X Channels 4A
5X Channels 4A
5X Channels 4A
LED_POWER_1
LED_POWER_2
LED_POWER_3
2X Channels
2X Channels
{TTL_CHANNELS}
{DRY_INPUTS}
File: smart_connector.kicad_sch
PWM Channels
LED_PWM_1
LED_PWM_2
LED_PWM_3
LED_POWER_1
LED_POWER_2
LED_POWER_3
File: pwm_channels.kicad_sch
Radio
{RADIO_SPI}
RADIO_INT
ANTENNA
File: radio.kicad_sch
IO Channels Buffer
{TTL_CHANNELS_SIGNAL}
{DRY_INPUTS_SIGNAL}
{TTL_CHANNELS}
{DRY_INPUTS}
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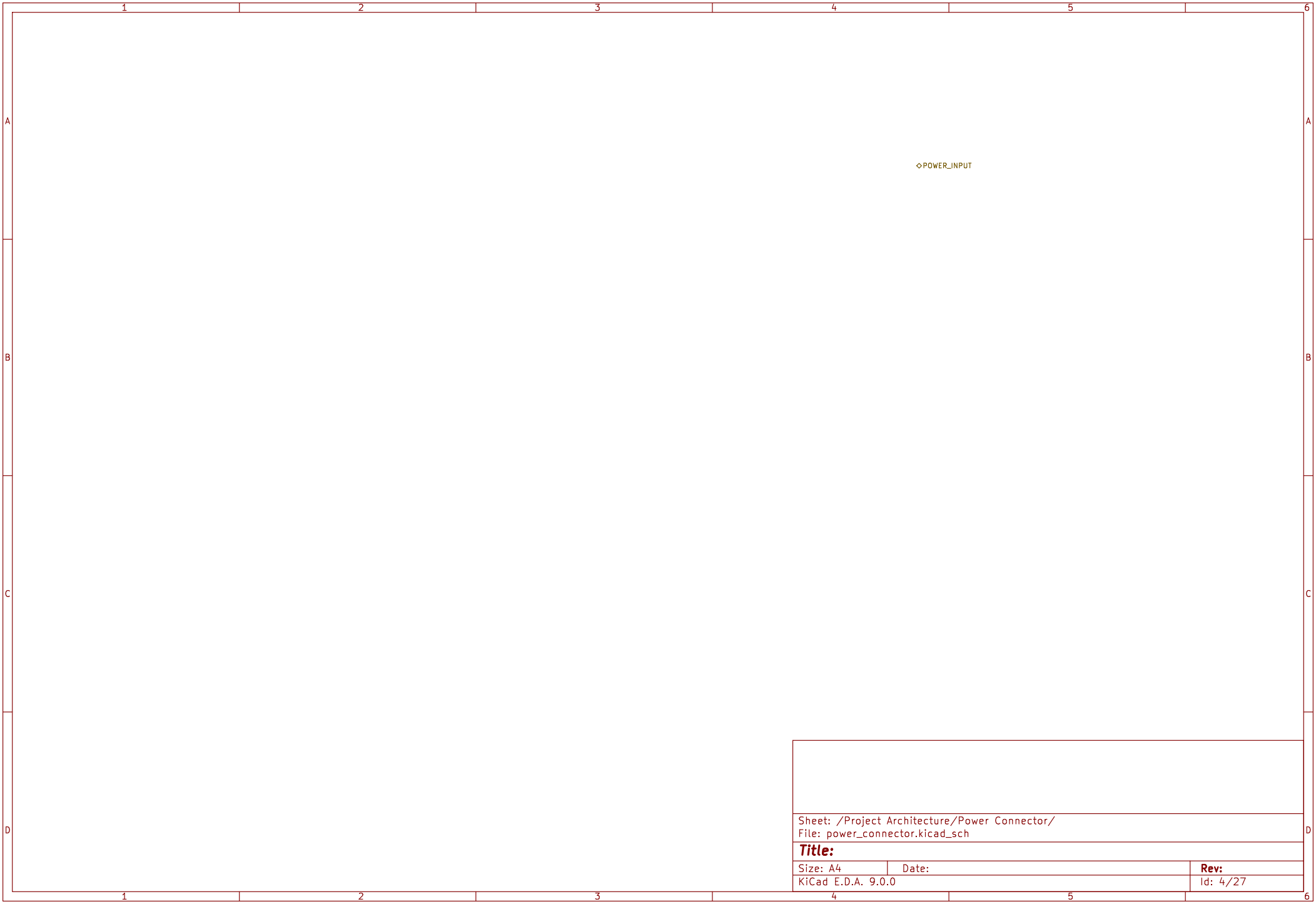
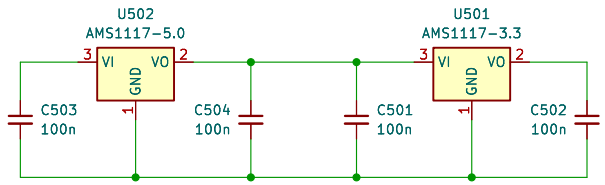
Sheet: /Project Architecture/
File: project_architecture.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 9.0.0
Id: 3/27


1
2
3
4
5
6
A
B
C
D
◇POWER_INPUT
Sheet: /Project Architecture/Power Connector/
File: power_connector.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 9.0.0
Id: 4/27

POWER_INPUT



+24V

+3V3

Sheet: /Project Architecture/Power Supplies/
File: power_supplies.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 5/27

Sheet: /Project Architecture/ESP – Power/
File: esp_power.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 6/27

Sheet: /Project Architecture/STM – Power/
File: stm_power.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 7/27

{USER_BUTTONS}

{DFU}

{UART}

H_BEAT

{RADIO_SPI}

RADIO_INT

Sheet: /Project Architecture/ESP – IO/
File: esp_io.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 8/27

{BUS_SENSING_ADC}

MOTOR_DIR
MOTOR_PWM
MOTOR_ENABLE

MOTOR_CURRENT

{DFU}
{UART}
H_BEAT

{TTL_CHANNELS_SIGNAL}

{DRY_INPUTS_SIGNAL}

LED_PIN_1.R
LED_PIN_1.G
LED_PIN_1.B
LED_PIN_1.W
LED_PIN_1{R G B W Y} LED_PWM_1

LED_PIN_1.R
LED_PIN_1.G
LED_PIN_1.B
LED_PIN_1.W
LED_PIN_2{R G B W Y} LED_PWM_2

LED_PIN_1.R
LED_PIN_1.G
LED_PIN_1.B
LED_PIN_1.W
LED_PIN_3{R G B W Y} LED_PWM_3

Sheet: /Project Architecture/STM – IO/
File: stm_io.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 9/27

▷{USER_BUTTONS}

Sheet: /Project Architecture/User Buttons/
File: user_buttons.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 10/27

{RADIO_SPI}

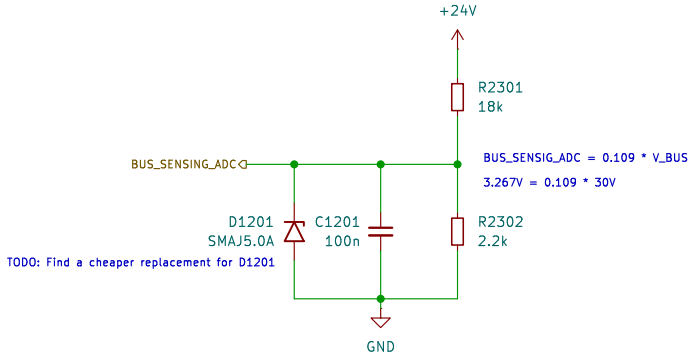
RADIO_INT

ANTENNA

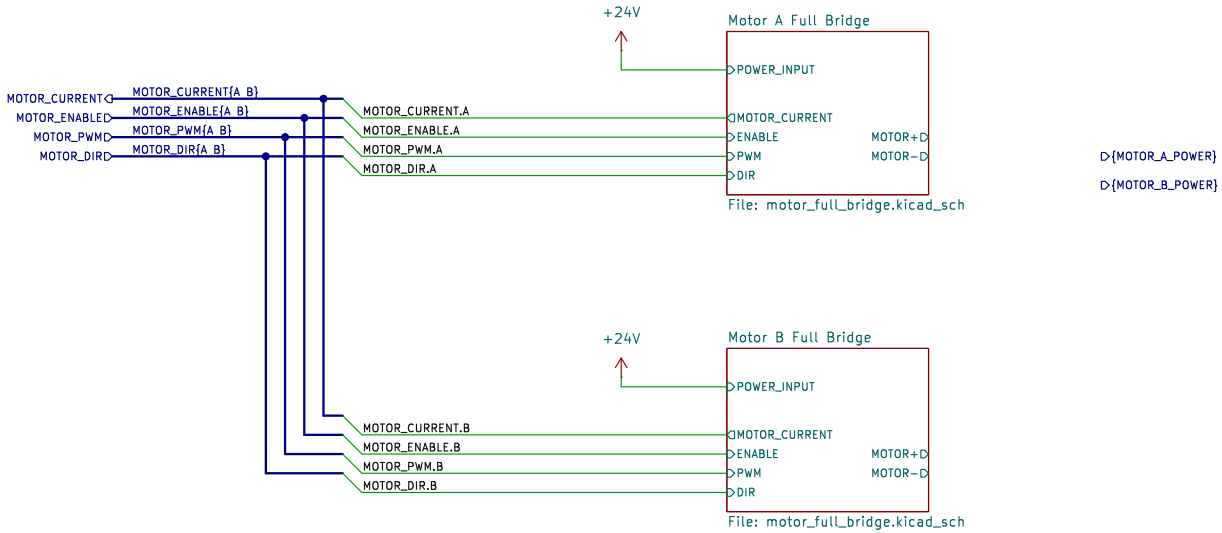
Sheet: /Project Architecture/Radio/
File: radio.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 11/27



Sheet: /Project Architecture/Bus Sensing/ File: bus_sensing.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 12/27



Sheet: /Project Architecture/Full Bridge/
File: full_bridge.kicad_sch

Title:

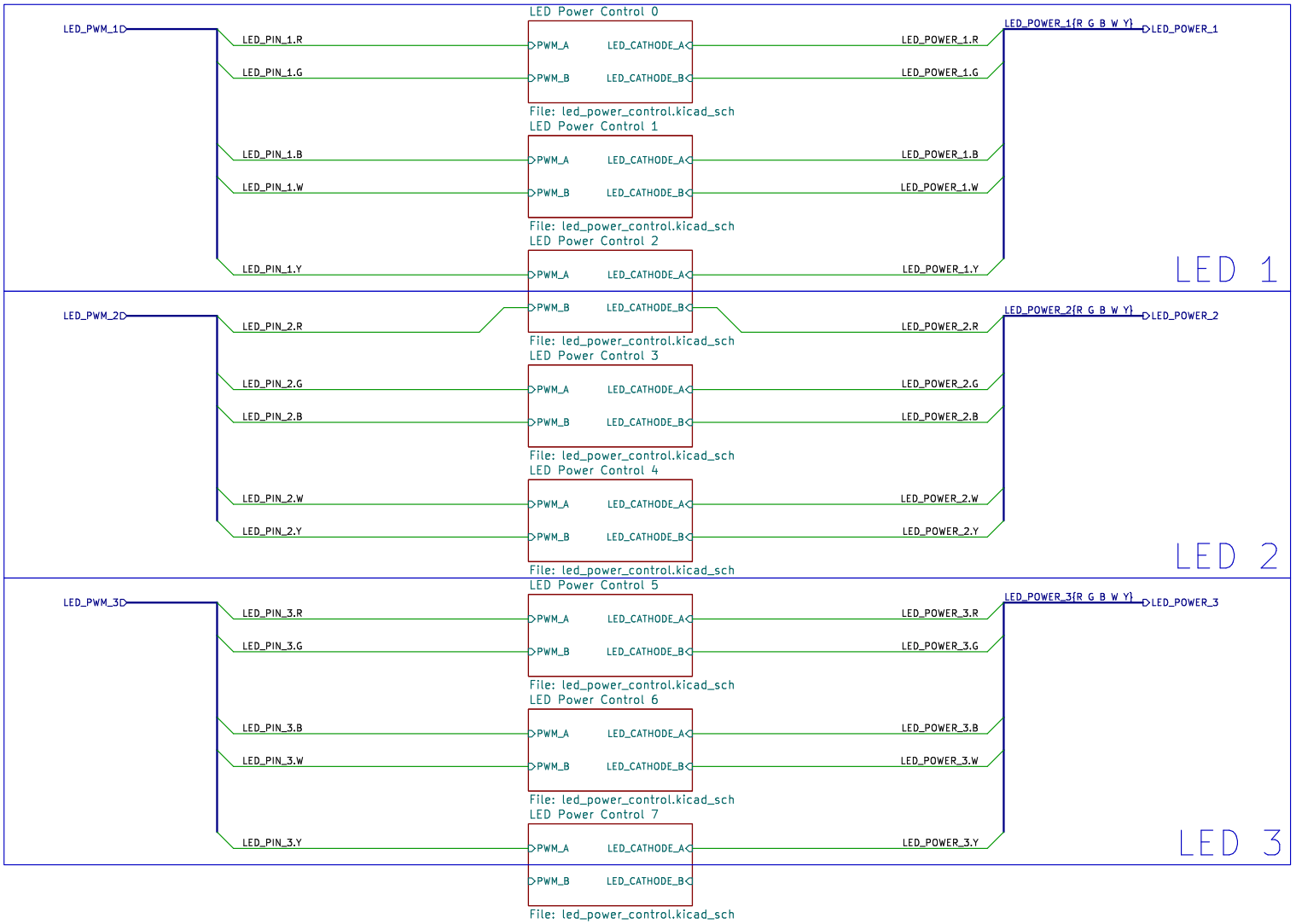
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 13/27

{HAL_MOTOR_A}
{HAL_MOTOR_B}

Sheet: /Project Architecture/Hal Input Frontend/
File: hal_input_frontend.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 14/27



Sheet: /Project Architecture/PWM Channels/
File: pwm_channels.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 15/27

{TTL_CHANNELS_SIGNAL}

{DRY_INPUTS_SIGNAL}

{TTL_CHANNELS}

{DRY_INPUTS}

Sheet: /Project Architecture/IO Channels Buffer/
File: io_channels_buffer.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 16/27

{MOTOR_A_POWER}
{MOTOR_B_POWER}

{HAL_MOTOR_B}
{HAL_MOTOR_A}

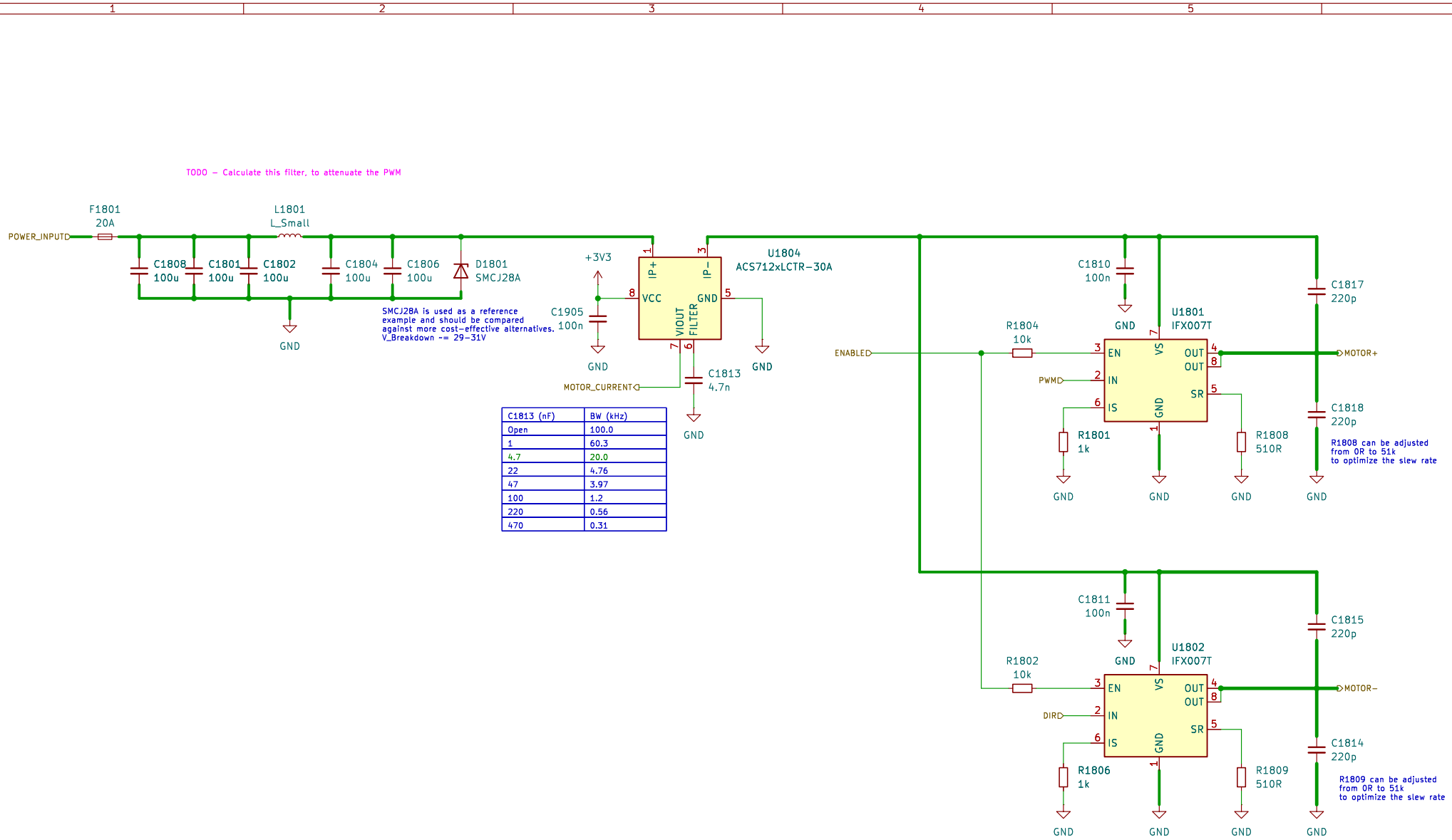
LED_POWER_1
LED_POWER_2
LED_POWER_3

{TTL_CHANNELS}
{DRY_INPUTS}

Sheet: /Project Architecture/Smart Connector/
File: smart_connector.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 17/27



Sheet: /Project Architecture/Full Bridge/Motor A Full Bridge/
File: motor_full_bridge.kicad_sch

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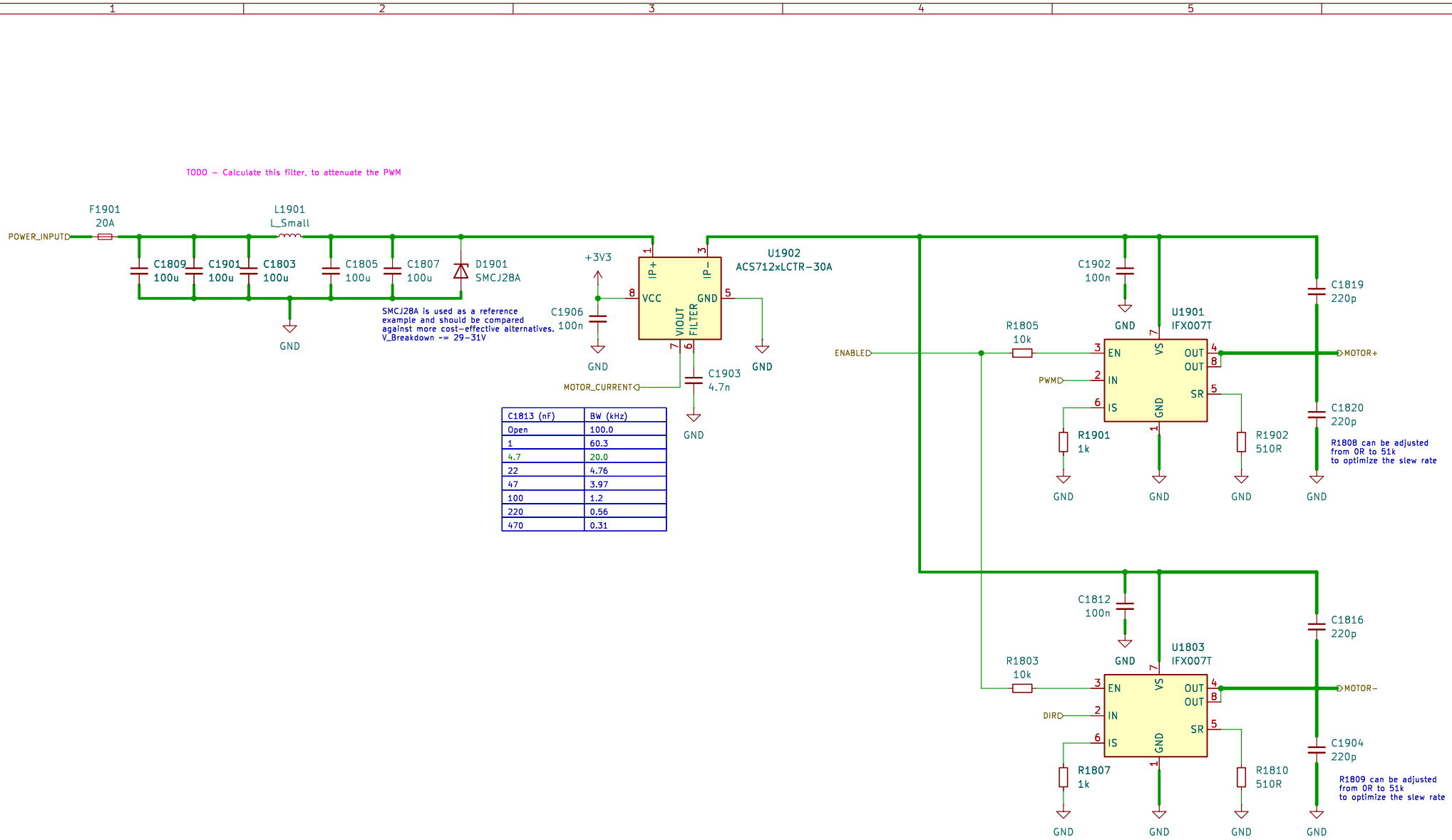
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 18/27

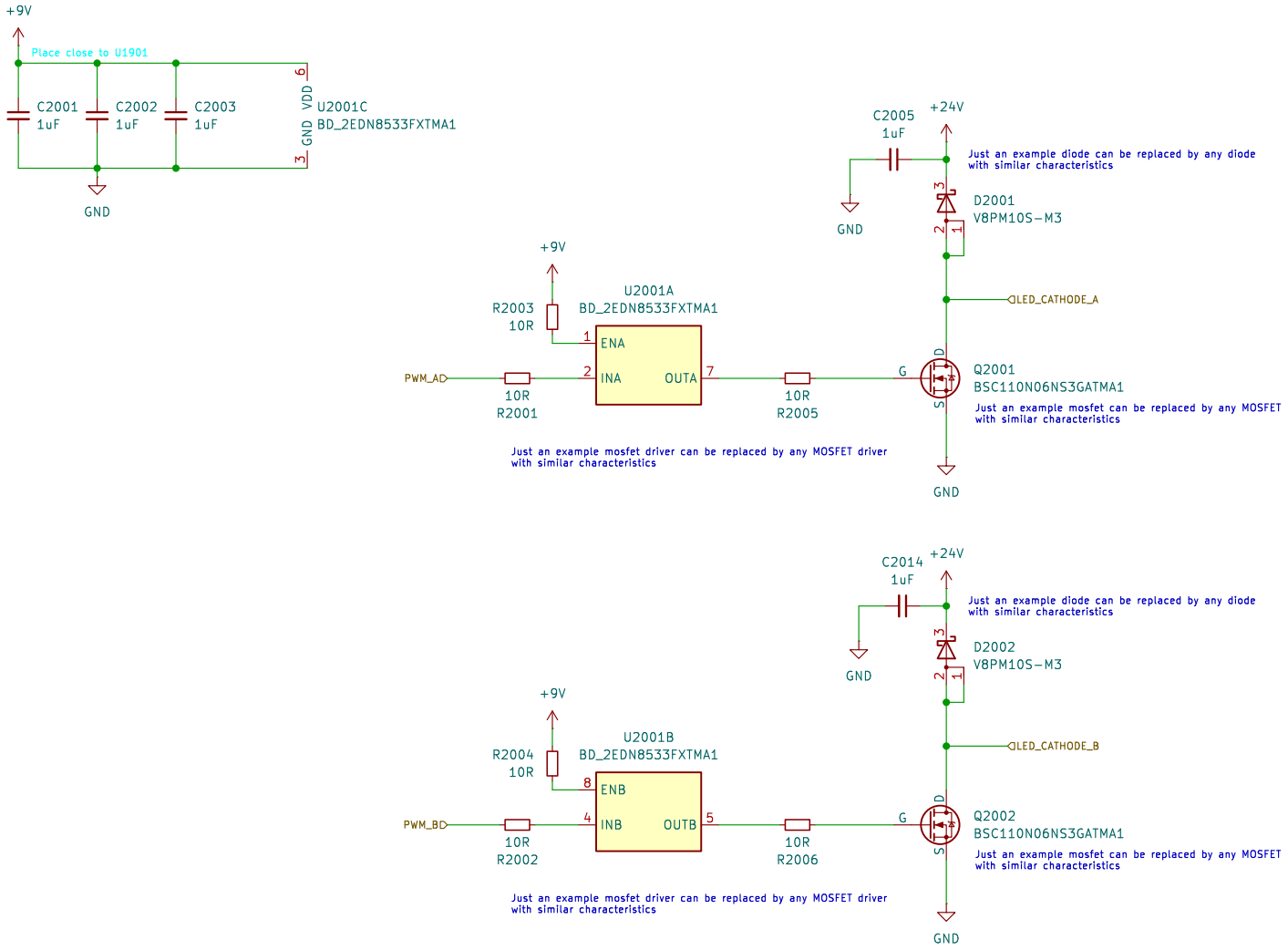


C1813 (nF)	BW (kHz)
Open	100.0
1	60.3
4.7	20.0
22	4.76
47	3.97
100	1.2
220	0.56
470	0.31

Sheet: /Project Architecture/Full Bridge/Motor B Full Bridge/
File: motor_full_bridge.kicad_sch

Title:

Size: A4 | Date: | **Rev:**
KiCad E.D.A. 9.0.0 | Id: 19/27



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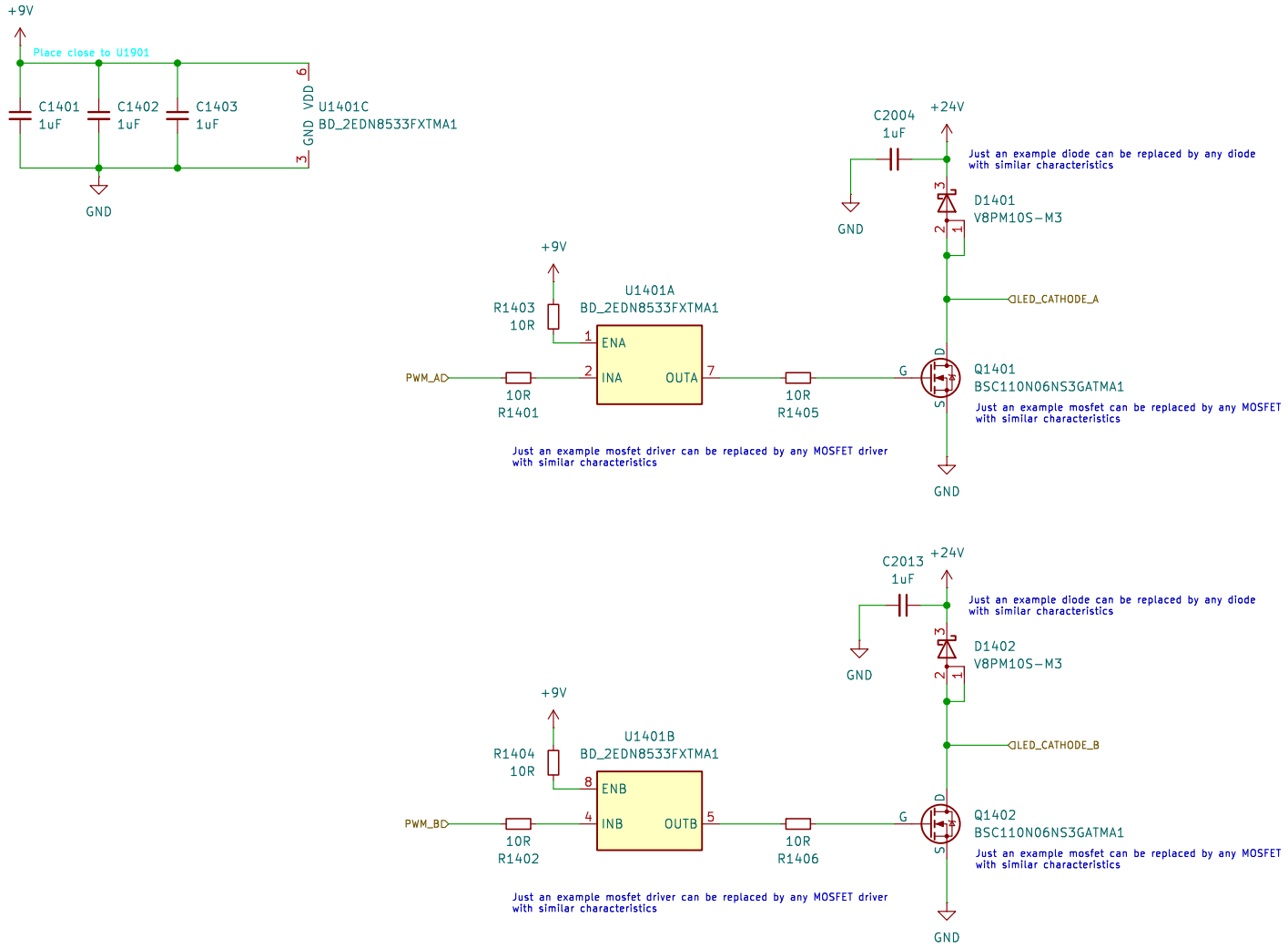
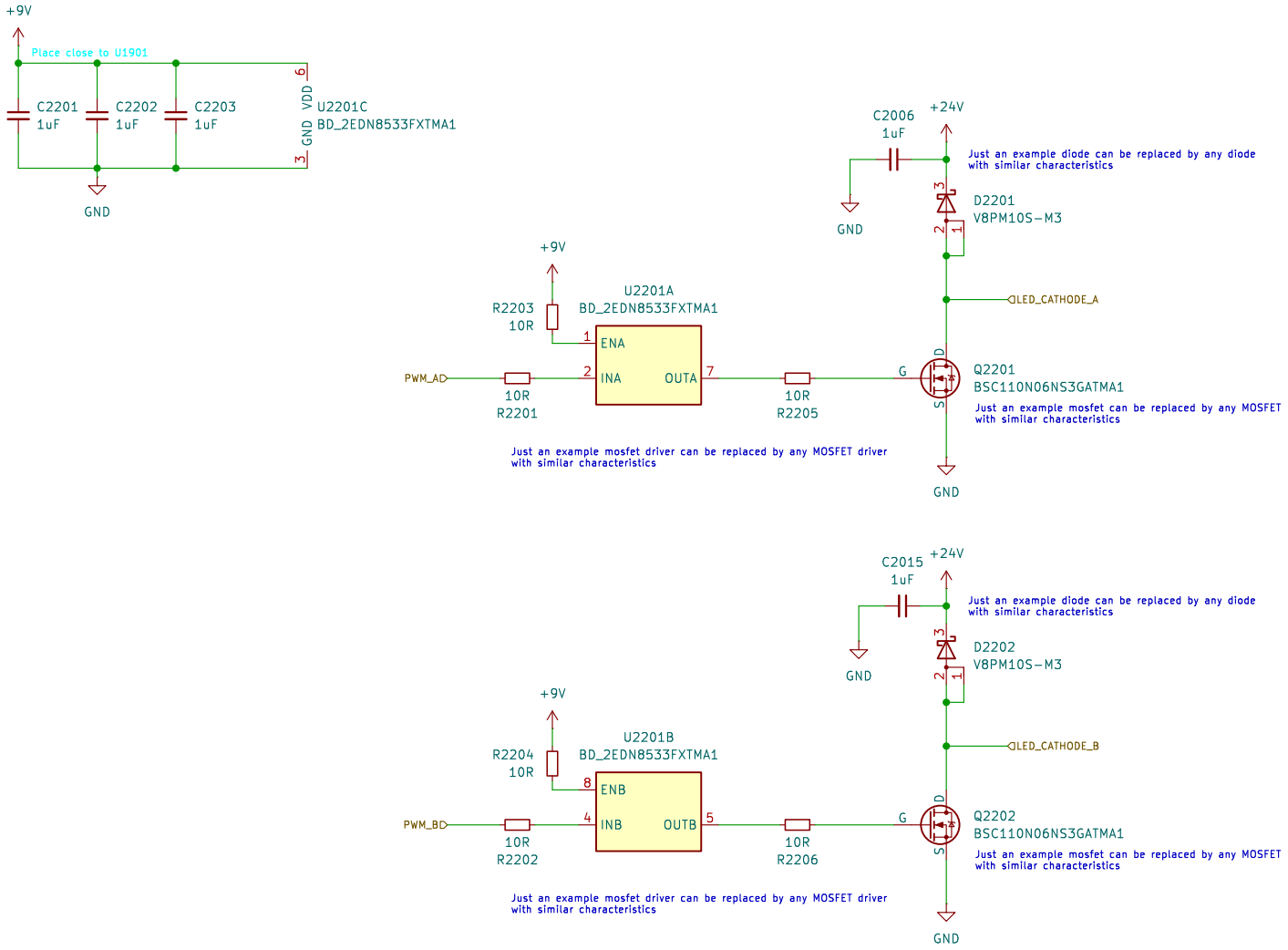
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 20/27



Sheet: /Project Architecture/PWM Channels/LED Power Control 1/
File: led_power_control.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 21/27



Sheet: /Project Architecture/PWM Channels/LED Power Control 2/
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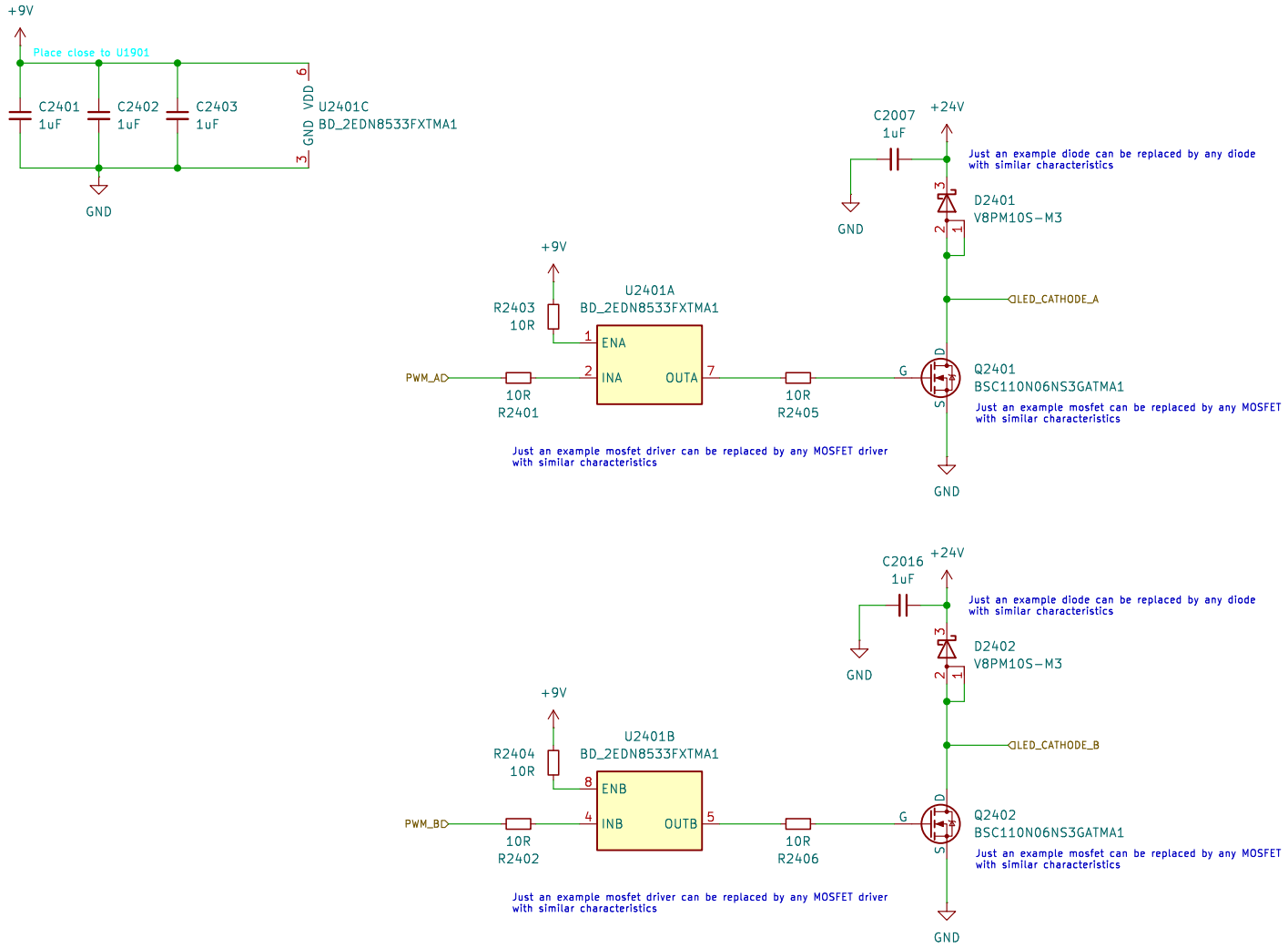
Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 22/27



Sheet: /Project Architecture/PWM Channels/LED Power Control 3/
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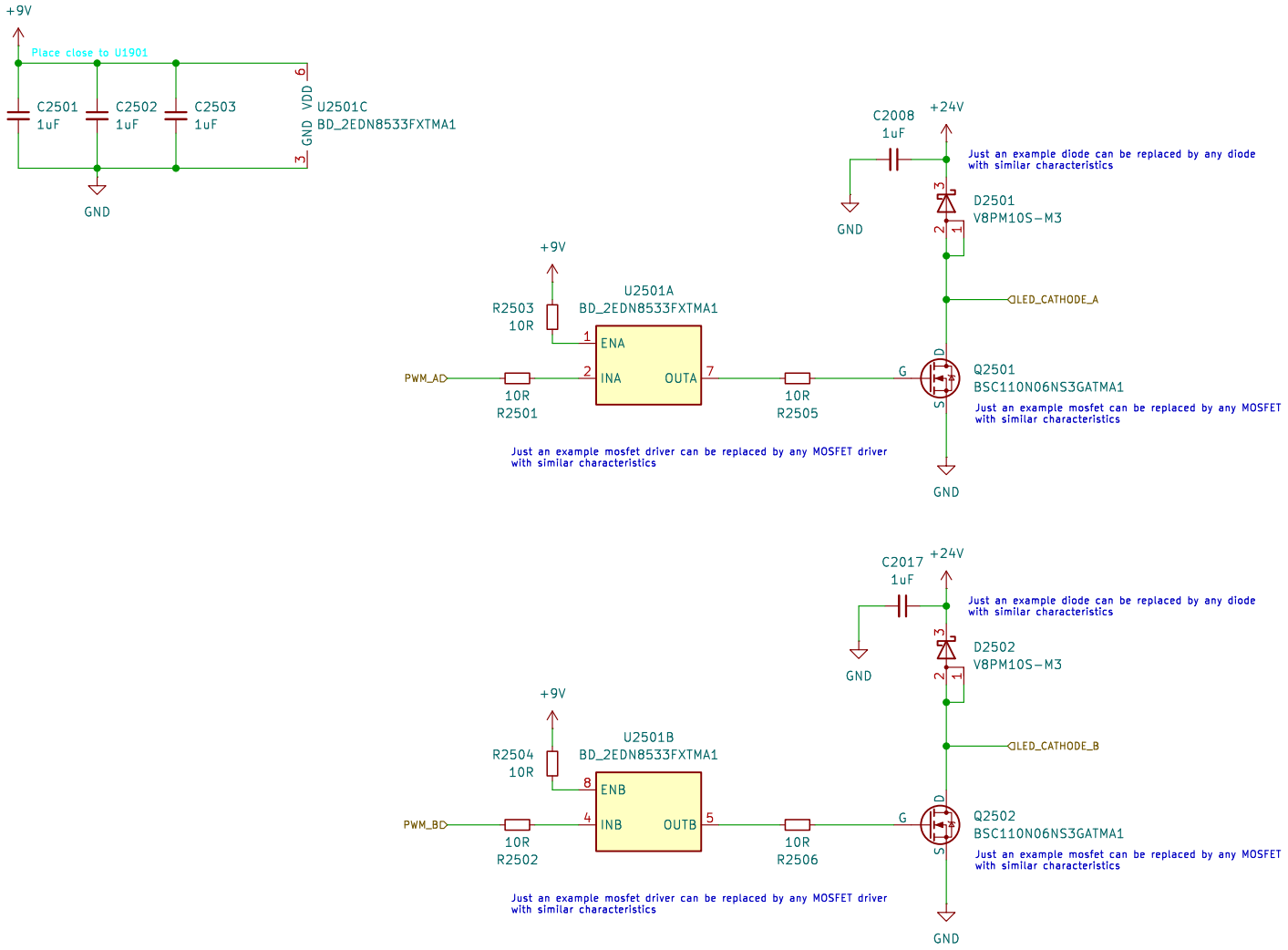
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 23/27



Sheet: /Project Architecture/PWM Channels/LED Power Control 4/
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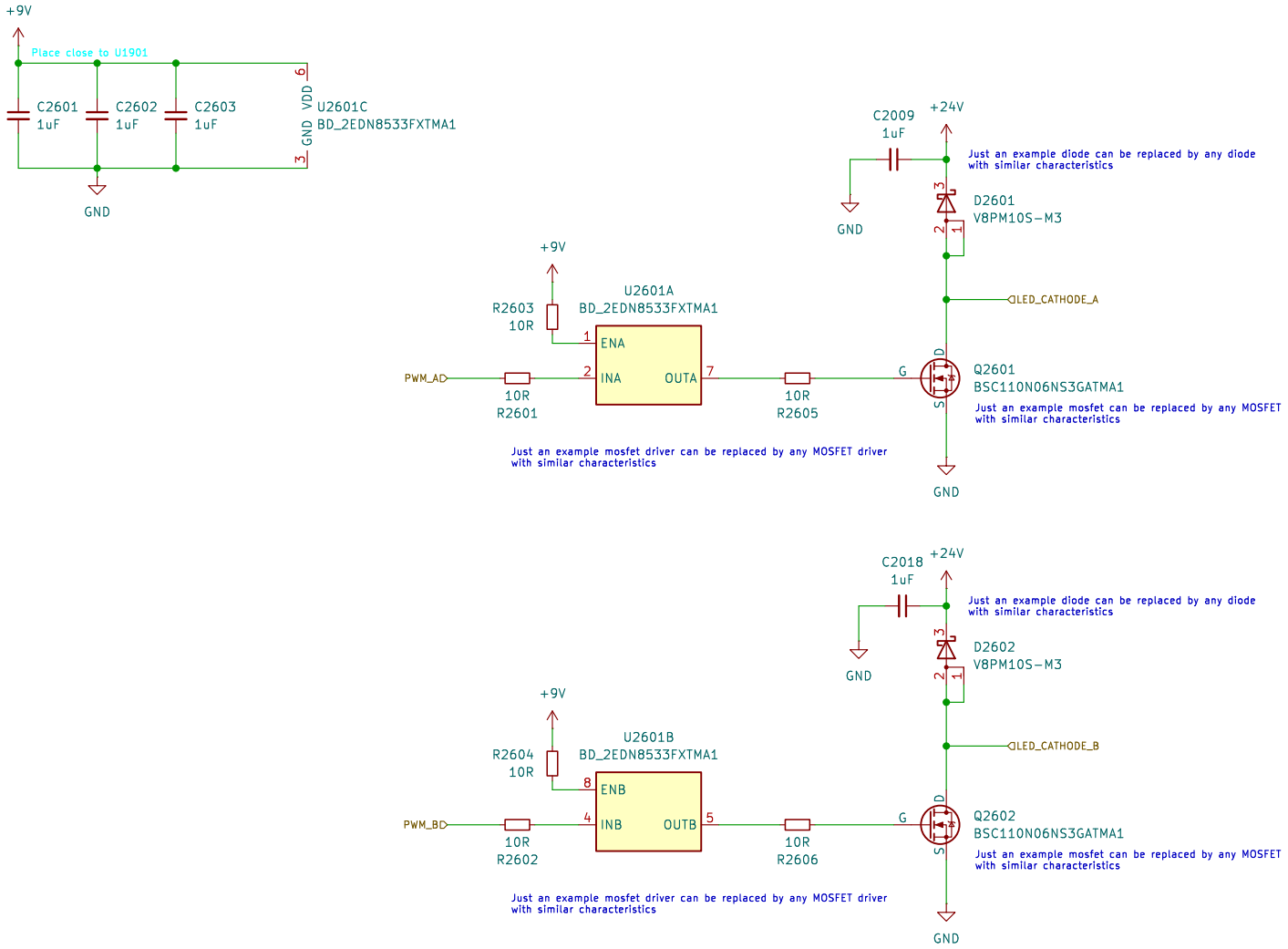
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 24/27



Sheet: /Project Architecture/PWM Channels/LED Power Control 5/		
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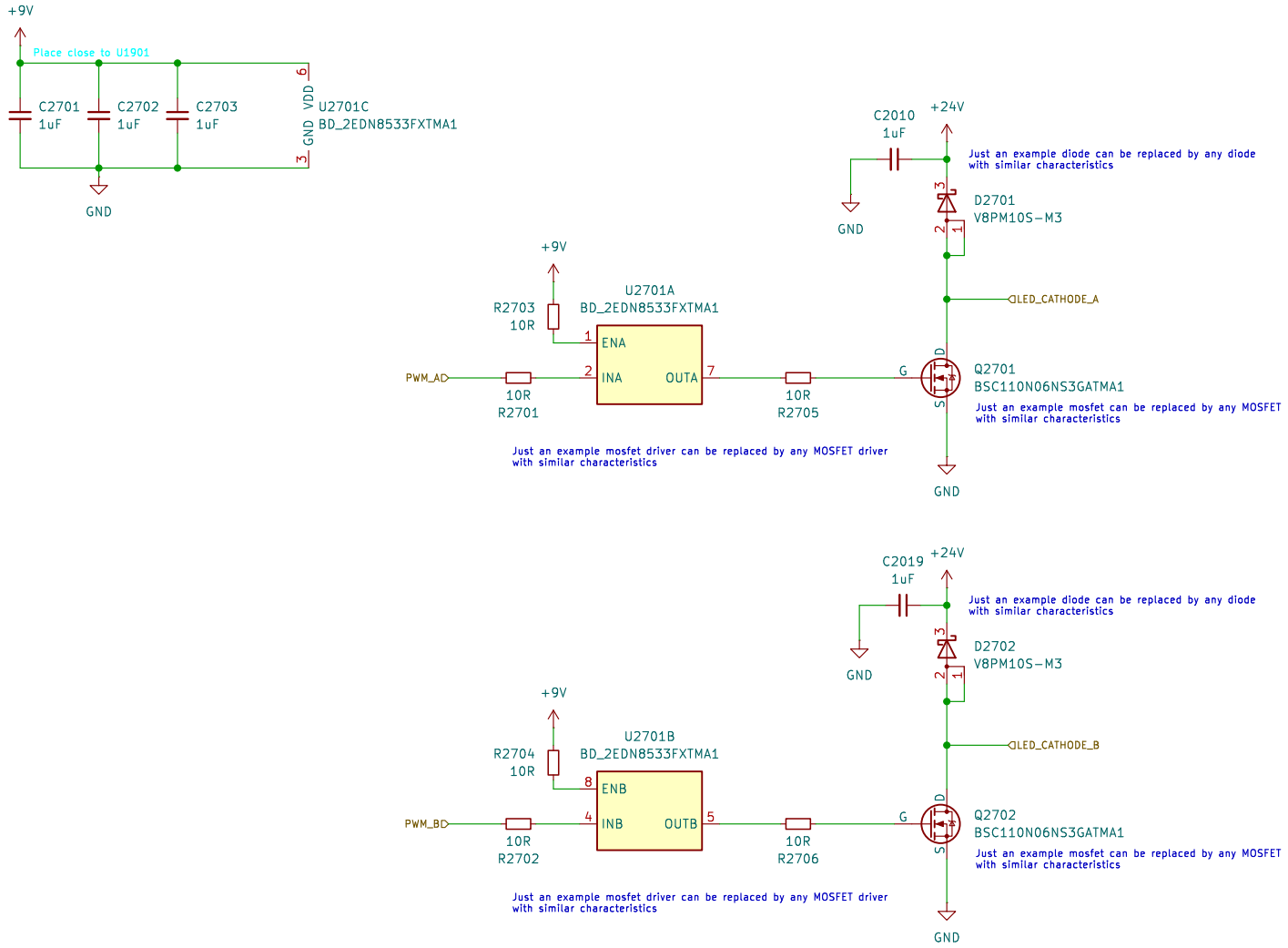
Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 25/27



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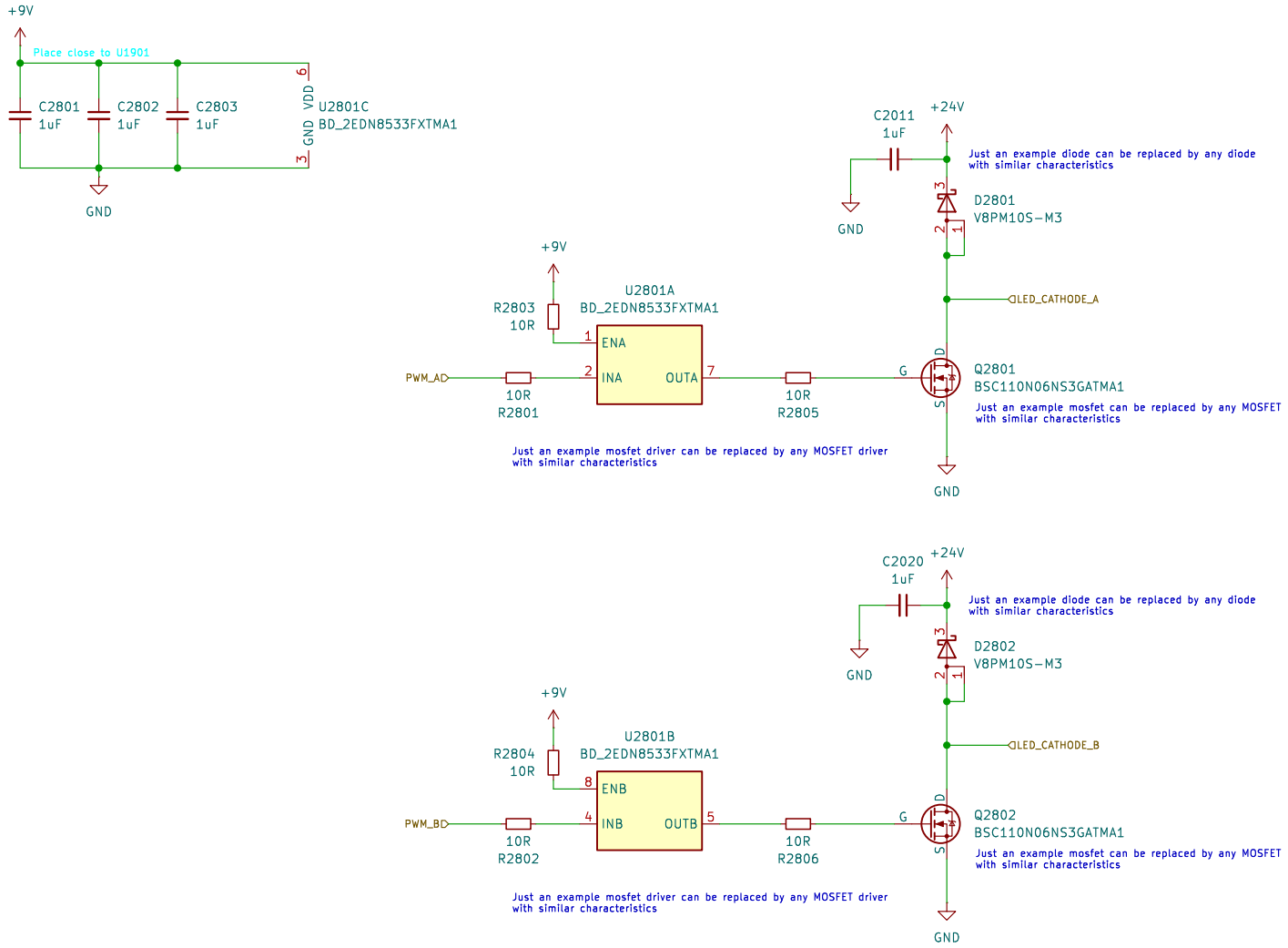

Sheet: /Project Architecture/PWM Channels/LED Power Control 7/
File: led_power_control.kicad_sch

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Size: A4	Date:	**Rev:**
KiCad E.D.A. 9.0.0		Id: 27/27