

3-PHASE BRIDGE

The image displays three identical circuit diagrams for a 3-phase bridge rectifier, each corresponding to a different input phase: Phase A, Phase B, and Phase C. Each circuit is powered by a 24V AC source and includes a 470 ohm resistor (R32, R33, R34), a 2.2uF capacitor (C1, C8, C10), a 10uF capacitor (C6, C7, C9), an IR2103 MOSFET driver (U3, U4, U5), and two IRLZ44N MOSFETs (Q1, Q2, Q3, Q4, Q5, Q6). The input signals are AH/AL, BH/BL, and CH/CL respectively. The output is 37V AC.

Phase A Circuit:

- Input: 24V AC, AH (2), AL (3)
- Resistor: R32 (470)
- Capacitor: C1 (2.2uF)
- MOSFET Driver: U3 (IR2103)
- MOSFETs: Q1 (IRLZ44N), Q2 (IRLZ44N)
- Output: 37V AC, Phase A

Phase B Circuit:

- Input: 24V AC, BH (2), BL (3)
- Resistor: R33 (470)
- Capacitor: C8 (2.2uF)
- MOSFET Driver: U4 (IR2103)
- MOSFETs: Q3 (IRLZ44N), Q4 (IRLZ44N)
- Output: 37V AC, Phase B

Phase C Circuit:

- Input: 24V AC, CH (2), CL (3)
- Resistor: R34 (470)
- Capacitor: C10 (2.2uF)
- MOSFET Driver: U5 (IR2103)
- MOSFETs: Q5 (IRLZ44N), Q6 (IRLZ44N)
- Output: 37V AC, Phase C

2 3

POWER

HEATSINK

COM

BEMF

BEMF (~5V)

IN/OUT

UART

SCREEN

DANI
Sheet
File:
Title
Size:
KiCa

2 3

MCU

YAAJ_WeAct_BlackPill_Part_Like

U9

USB

5V

40

39

38

37

36

35

34

33

32

31

30

29

28

27

26

25

24

23

22

21

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

PB12

PB13

PB14

PB15

PA8

PA9

PA10

PA11

PA12

PA15

PB3

PB4

PB5

PB6

PB7

PB8

PB9

5V

GND

3V3

TX3

PB10

PB2

ADC9

ADC8

MOS11

MISO1

SCA4

ADC4

RX2

ADC3

TX2

ADC2

ADC1

ADC0

RES

PC15

PC14

LED

PC13

VBat

5V

THROTTLE

CL

BL

AL

CH

BH

AH

BRKALIGHT

SC_SCL

SC_SDA

BRAKEBUTTON

5VMCU

10uF

C15

GND

▲ sink 3mA
source 0mA
30pF 2MHz
PWM pin
5V tolerant

COM

PhaseA

PhaseB

PhaseC

150k

150k

150k

150k

150k

150k

50k

50k

50k

GND

GND

GND

COM

TP14

COM

MOT_BAT_INPUTS

PhaseA

PhaseB

PhaseC

1

2

3

J4

MOTORPHASES

POWERSWITCH

37V

+

-

10uF

GND

TP15

GND

J8

BATTERY

1

2

3

4

5

6

ANIEL'S PERSONAL PROJECT

et: /

e: SCHEMATIC.kicad_sch

ile: ESC_SENSORLESS_BLD

ed: A4

Date: 2025-09-14

ed E.D.A. kicad 7.0.2

Rev: Beta

Id: 1/1

4

Id: 1/1