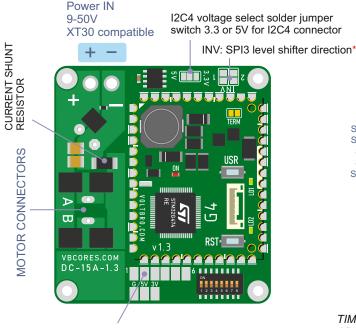
VBCore DC motor Driver 15A v1.3



Solder pads

Use common pins with user switch (1-6 inputs)

NOTE: put switches off in case of using solder pads

Power line bulk capacitor. Can be moved in case 5 of built-in use 54324 **GND** 5V 2 12C4 PC11 3 SPI3 MISO SPI3 MOSI PC12 PC10 5 SPI3 SCK SPI3 NSS PA15 SPI3 NSS2 PB4 **CND** TIM8_CH2 PC7 GND 3 TIM8_CH1 PB6 5V 2 ٨٩ 7 3 ΛG TIM8 CH1 PB6 В TIM8 CH2 PC7 TIM8_ETR PA0 6 NC NC Alternate motor connector. 7 0 0 TIM8 for quadrature encoder 7 0 0

NOTES:

1. The SPI1 and SPI3 connectors are connected to the controller via level shifters.

AB 2-Channel / ABZ 3-Channel

- 2. The Hall sensor connectors are connected to the controller via a filter.
- 3. The I2C4 SCL and SDA lines have external pull-ups do not use the internal pull-up.
- To supply power to the I2C4 bus (including the EEPROM), close the voltage selection solder jumper.
- 5. To use the SPI3 7-pin connector as an SPI bus, leave the INV solder pads open. Close the INV_1 solder jumper to configure the PA15 and PB4 pins as inputs. Close the INV_2 solder jumper to configure the PC10 and PC12 pins as inputs.
- 6. Carefully read datasheet for ALLEGRO A4955 driver futures

6 pin, SMT, pitch 2.5mm

Attention! Encoder pins

AB pins same as motor out.

same as left connector.

VBCores

www.vbcores.com

Electronics for robotics research and development

Driver

Allegro A4955, 50V Full-Bridge PWM Gate Driver designed for control of DC motors

Controll	PIN	Notes
SLEEPn	PB3	
IN1	PA8	TIM1_CH1
IN2	PA9	TIM1_CH2
AIOUT	PC1	
VREF	PA4	1:2 divider
FAULT	PB5	
RC		$R_{RC} = 47K, C_{RC} = 1n$
ISET		R _{ISET} = 47K
SENSE		R _{SENSE} = 0,01

EEPROM

256K, AT24C256C

*For enable, one of I2C4 voltage select solder jumper must be closed

Controll	PIN	I2C
A0, A1, A2	GND	
Address		0x50
SCL	PC6	I2C4_SCL
SDA	PB7	I2C4_SDA

Voltage controll

Resistive voltage divider 16:1

Controll	PIN	ADC
V input	PC0	ADC12_IN6

Current shunt resistor

Connected to A4955 driver

Size	Default	
1206	R _{SENSE} 0.01 Ohm	

VBCore DC motor Driver v1.3

VIN: 9-50V

MAX CURRENT: 15A

MCU: VB32G4 (STM32G474RE)

DRIVER: ALLEGRO A4955

SPI interface

ABZ encoder interface

I2C interface

Current control

I2C EEPROM

CAN / CAN-FD

Dimensions: 51x56mm

Mount holes: 45x50mm D2.5 mm