VBCore BLDC Driver 30A v1.4

Power IN
9-60V
XT30 compatible

+ −

I2C4 voltage select solder jumper
switch 3.3 or 5V for I2C4 connector

INV: SPI3 level shifter direction*

Solder pads
Use common pins with user switch (1-6 inputs)
NOTE: put switches off in case of using solder pads

User siwtch
8 pin, ON == HIGH

ON
1 2 3 4 5 6 7 8

PB2 PB10 PB11 PB12 PA12 PA11 PA1 PA0

GND	1
5V	2
SPI3_MISO PC11	3
SPI3_MOSI PC12	4
SPI3_SCK PC10	5
SPI3_NSS PA15	6
SPI3_NSS2 PB4	7

GND	1	
5V	2	
TIM8_CH1 PB6	3	
TIM8_CH2 PC7	4	
TIM8_CH3 PC8	5	
NC NC	6	

GND	1	
5V	2	
SPI1_MISO PA6	3	
SPI1_MOSI PA7	4	
SPI1_SCK PA5	5	
SPI1_NSS PA4	6	

I2C4_SDA PB7
I2C4_SCL PC6
GPIO PB0

GND 3.3 / 5V
1 2 3 4 5

SPI3

I2C4

BLDC-30A-1.4 VBCORES.COM

GND CANL CANH

GND CANL CANH   1 2 3
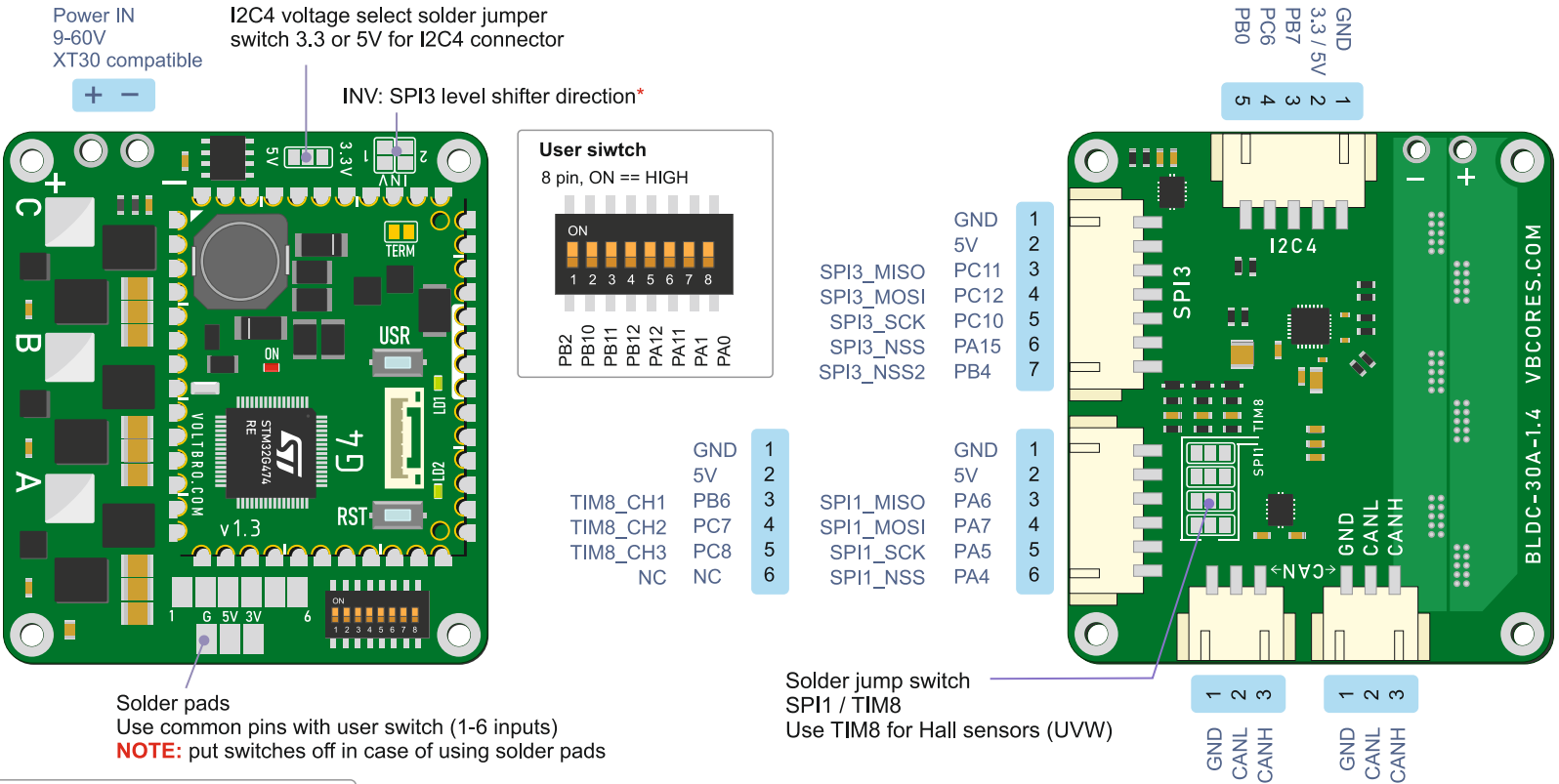GND CANL CANH   1 2 3

Solder jump switch
SPI1 / TIM8
Use TIM8 for Hall sensors (UVW)

VBCore BLDC Driver v1.4

VIN: 6-60V
MAX CURRENT 30A
MCU: VB32G4 (STM32G474RE)
DRIVER IC: DRV8328B
SPI encoder interface
UVW Hall encoder interface
I2C encoder interface
Current sensors
EEPROM
CAN / CAN-FD
Dimensions: 51x56mm
Mount holes: 45x50mm D2.5 mm

NOTES:
1. The SPI1 and SPI3 connectors are connected to the controller via level shifters.
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**.
4. 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.

VBCores
www.vbcores.com
Electronics for robotics
research and development

Motor driver
DRV8328B 4.5 to 60 V
Three-phase BLDC Gate Driver

Controll	PIN	Timer
INLA	PB13	TIM1_CH1N
INLB	PB14	TIM1_CH2N
INLC	PB15	TIM1_CH3N
INHA	PA8	TIM1_CH1
INHB	PA9	TIM1_CH2
INHC	PA10	TIM1_CH3
NSLEEP	PB3	
NFAULT	PB5	

Current sensor
ACS711KEXLT-31AB-T
Range: ± 31A
Sensitivity: 45mV/A

Controll	PIN	ADC
I_A	PC1	ADC12_IN7
I_B	PC2	ADC12_IN8
I_C	PC3	ADC12_IN9

EEPROM
256K
AT24C256C-SSHL-T

Controll	PIN	I2C
A0	GND	
A1	GND	
A2	GND	
SCL	PC6	I2C4_SCL
SDA	PB7	I2C4_SDA

Voltage controll
Resistive voltage divider 16:1

Controll	PIN	ADC
V input	PC0	ADC12_IN6