

Unit BLDC Driver

SKU:U181



描述

Unit BLDC Driver 是一款专为无刷直流电机 (BLDC) 设计的驱动单元，采用 STM32 为主控芯片，通过 I2C 通讯方式实现对 DRV11873PWPR 电机驱动芯片的精准控制，实现 PWM 转速控制调节和监控，方向切换等功能。该驱动芯片具有简化的控制接口和集成的堵转保护等功能，实现三相小型无刷直流电机的高效、低噪音运行。板载 STM32 升级接口便于固件更新和功能扩展，适用于工业自动化、智能机器人、精密仪器等领域。

产品特性

- STM32 主控
- I2C 通讯 (0x65)
- DRV11873 驱动控制
- BLDC (无刷直流电机)
- PWM 转速配置以及控制、方向切换等功能
- 堵转保护
- 固件可升级

包装内容

- 1 x Unit-BLDC Driver
- 1 x HY2.0-4P Grove 连接线 (20cm)

- 1 x HT3.96-4P

应用场景

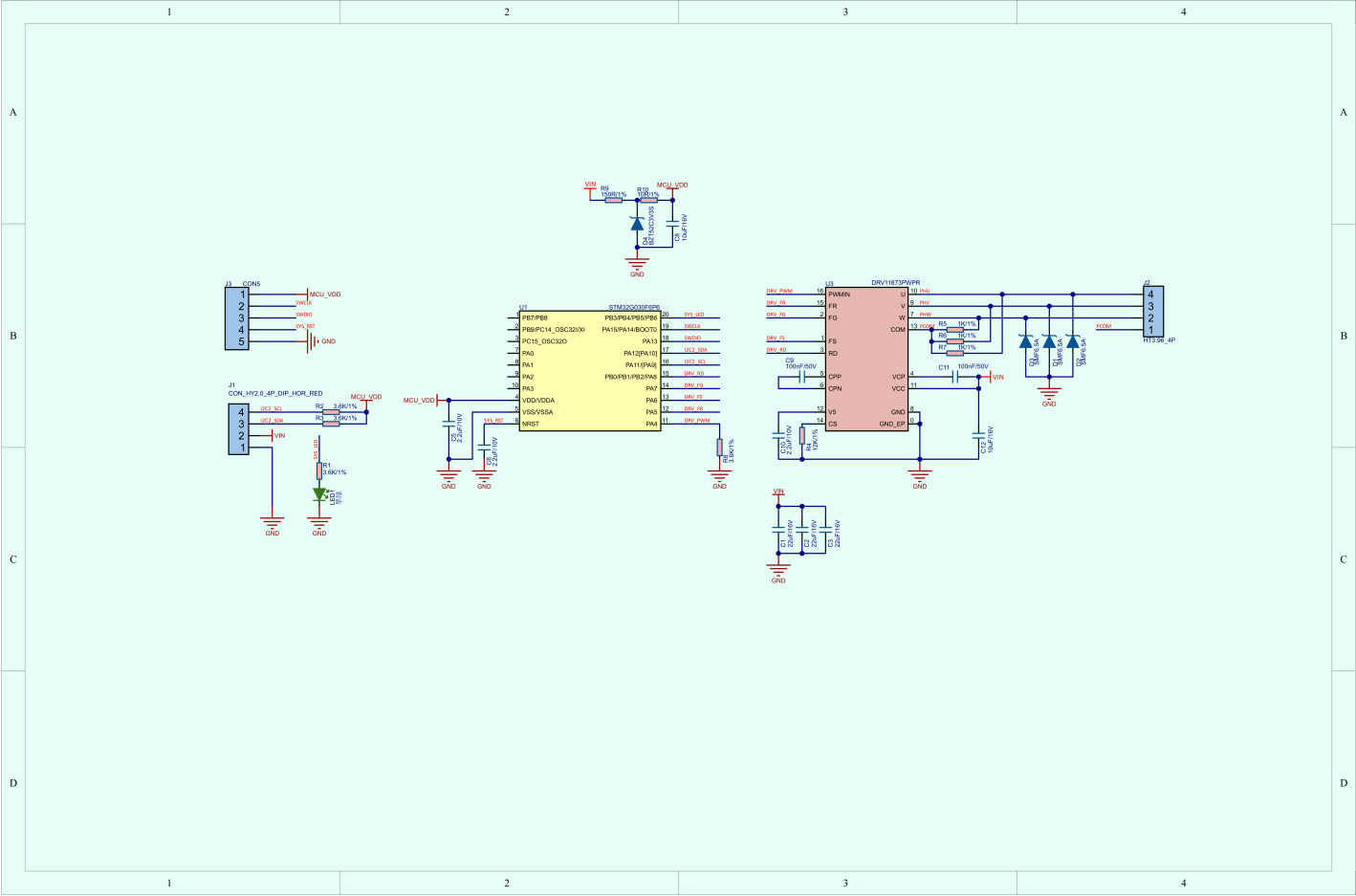
- 工业自动化
- 智能机器人
- 精密仪器

规格参数

规格	参数
MCU	STM32G030F6P6
电机驱动芯片	DRV11873PWPR
电机类型	三相无传感器、无刷直流 (BLDC) 电机
电机驱动电压	5V (由 Grove 口供电)
通信接口	I2C 通信 @ 0x65
输出带载能力	DC 5V@508mA
功耗	待机电流: DC 5V@10.62mA 工作电流: DC 5V@13.20mA
工作温度	0 ~ 40°C
产品尺寸	32.0 x 24.0 x 11.3mm
产品重量	6.2g
包装尺寸	138.0 x 93.0 x 12.3mm
毛重	13.4g

原理图

- [Unit BLDC Driver 原理图 PDF](#)



管脚映射

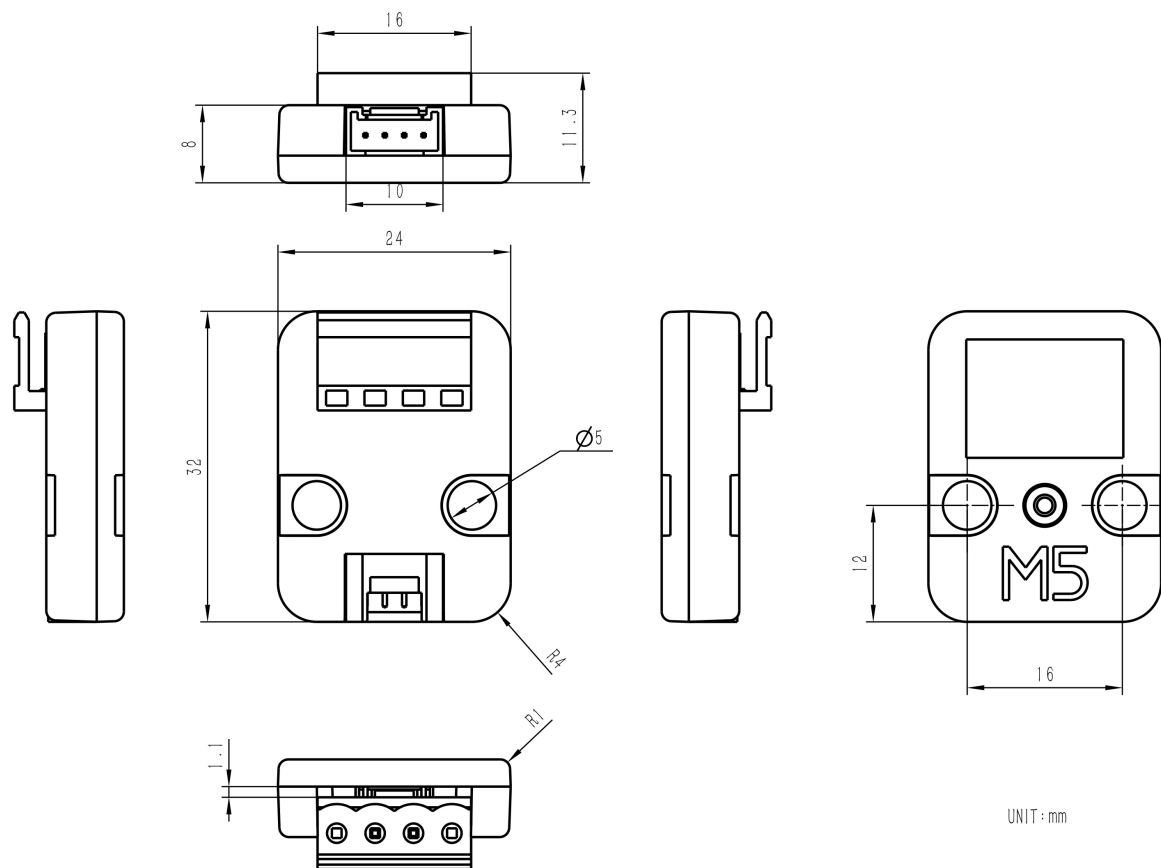
Unit BLDC Driver

HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	SDA	SCL

指示灯 LED

STM32	PB3/PB4/PB5/PB6
指示灯 LED (绿色)	SYS_LED

尺寸图



结构文件

- [Unit BLDC Driver 结构文件](#)

数据手册

- [DRV11873](#)

软件开发

Arduino

- [Unit BLDC Driver I2C Addr Modify Example](#)
- [Unit-BLDC-Driver PWM Example](#)
- [Unit-BLDC-Driver RPM Example](#)

UiFlow1

- [Unit BLDC Driver UiFlow1 文档](#)

UiFlow2

- [Unit BLDCDriver UiFlow2 文档](#)

通信协议

M5Stack Unit BLDC Driver I2C Protocol																			V1 (FW Version)		
REG MAP (Addr:0x65)			0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	2023/12/5		
																			note		
Setup	Mode	0x00 W/R	Mode																0: open loop; 1: closed loop (After switching modes, pwm or rpm will be automatically set to 0)		
	Direction ^[1]	0x60 W/R	Direction																0~1 (You need to set PWM to 0 or RPM to 0 and then restart to take effect)		
	Motor Model (Can be save to flash)	0x70 W/R	Motor model	Pole Pairs															Motor model: 0: Low Speed; 1: High Speed Pole Pairs: 1~255		
	Motor Status	0x80 R	Motor Status																0: Standby; 1: Running; 2: Error		
Open loop control	PWM	0x10 W/R	PWM-L	PWM-H															0~2047		
Closed loop control	Readback RPM Float	0x20 R	Readback RPM-byte0	Readback RPM-byte1	Readback RPM-byte2	Readback RPM-byte3														float, get Motor Readback RPM	
	Readback RPM X100 Int	0x90 R	Readback RPM-byte0	Readback RPM-byte1	Readback RPM-byte2	Readback RPM-byte3														Readback RPM X100 = Readback RPM-byte0 + Readback RPM-byte1 * 256 + Readback RPM-byte2 * 65536 + Readback RPM-byte3 * 16777216	
	Readback RPM String	0xB0 R																	The string ends with '/0' and the maximum number of characters is 15		
	Readback Pulse Frequency Float (Hz)	0x30 R	Readback Pulse Frequency-byte0	Readback Pulse Frequency-byte1	Readback Pulse Frequency-byte2	Readback Pulse Frequency-byte3														float, get Motor Readback Pulse Frequency RPM = Readback Pulse Frequency * 60 / Pole Pairs	
	Readback Pulse Frequency X100 Int (Hz)	0xA0 R	Readback Pulse Frequency-byte0	Readback Pulse Frequency-byte1	Readback Pulse Frequency-byte2	Readback Pulse Frequency-byte3														Readback Pulse X100 = Readback Pulse-byte0 + Readback Pulse-byte1 * 256 + Readback Pulse-byte2 * 65536 + Readback Pulse-byte3 * 16777216	
	Readback Pulse Frequency String (Hz)	0xC0 R																	The string ends with '/0' and the maximum number of characters is 15		
	Setting RPM Float	0x40 W/R	Setting RPM-byte0	Setting RPM-byte1	Setting RPM-byte2	Setting RPM-byte3														float, setting target rpm (Only valid in closed loop)	
	Setting RPM X100 Int	0xD0 W/R	Setting RPM-byte0	Setting RPM-byte1	Setting RPM-byte2	Setting RPM-byte3														Setting RPM X100 = Setting RPM-byte0 + Setting RPM-byte1 * 256 + Setting RPM-byte2 * 65536 + Setting RPM-byte3 * 16777216 (Only valid in closed loop)	
System	PID X100 (Can be save to flash)	0x50 W/R	P-byte0	P-byte1	P-byte2	P-byte3	I-byte0	I-byte1	I-byte2	I-byte3	D-byte0	D-byte1	D-byte2	D-byte3					P/I/D: PID = PID-byte0 + PID-byte1 * 256 + PID-byte2 * 65536 + PID-byte3 * 16777216 For example: P=50.05, P setting value=50.05*100=5005, P-byte0=0x8D, P-byte1=0x13, P-byte2=0, P-byte3=0		
	Flash Writeback	0xF0 W	Flash Writeback																Write 1 save to flash		
	Firmware Version	0xF0 R																Version		Version: firmware version number	
	I2C Address (Can be save to flash)	0xF0 R/W																Address		Address: 1~127	
^[1] Change direction: Step1: Setup direction Step2: Set PWM or RPM to 0 Step3: Set PWM or RPM to a value more than 0																					

相关视频

Unit BLDC Driver 产品以及功能介绍

U181 BLDC Driver UNIT 视频.mp4

UiFlow2 Unit BLDC Driver