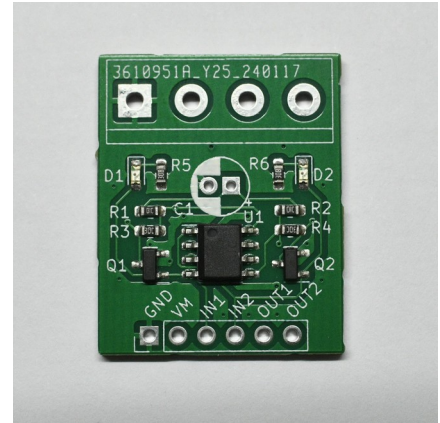


MOS H-bridge

Features

- Simple H-bridge motor control module
- Low resistance MOSFET switches
- 2 PWM control interfaces compatible with 3.3V logic
- Up to 30V, 2.5A

This module utilises the [DMHC3025](#) quad MOSFET from Diodes Incorporated to implement an H-bridge. The 4 gate inputs of the MOSFET are grouped and only 2 PWM inputs are needed. The DMHC3025 has low threshold voltage and is compatible with 3.3V logic.

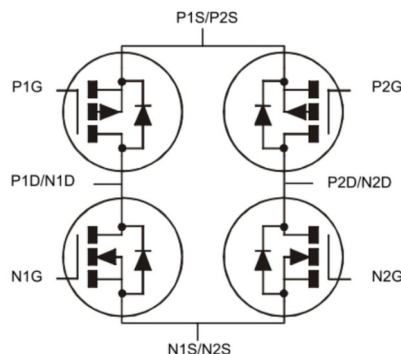


Pin Configurations

This module has 6 I/Os: 2 for power input, 2 for PWM control, 2 for the load.

| Pin name | Description |
|----------|---|
| GND | Ground connection for both logic and load. |
| VM | Power supply for the H-bridge and load. This voltage need not be the same as the logic voltage. |
| IN1 | PWM input 1. This input will be at the same logic state as output 1. |
| IN2 | PWM input 2. This input will be at the same logic state as output 2. |
| OUT1 | H-bridge output 1. This output will be at the same logic state as input 1. |
| OUT2 | H-bridge output 2. This output will be at the same logic state as input 2. |

Note that logic voltage supply is not required to operate this module.



The internals of DMHC3025(taken from [datasheet](#)).

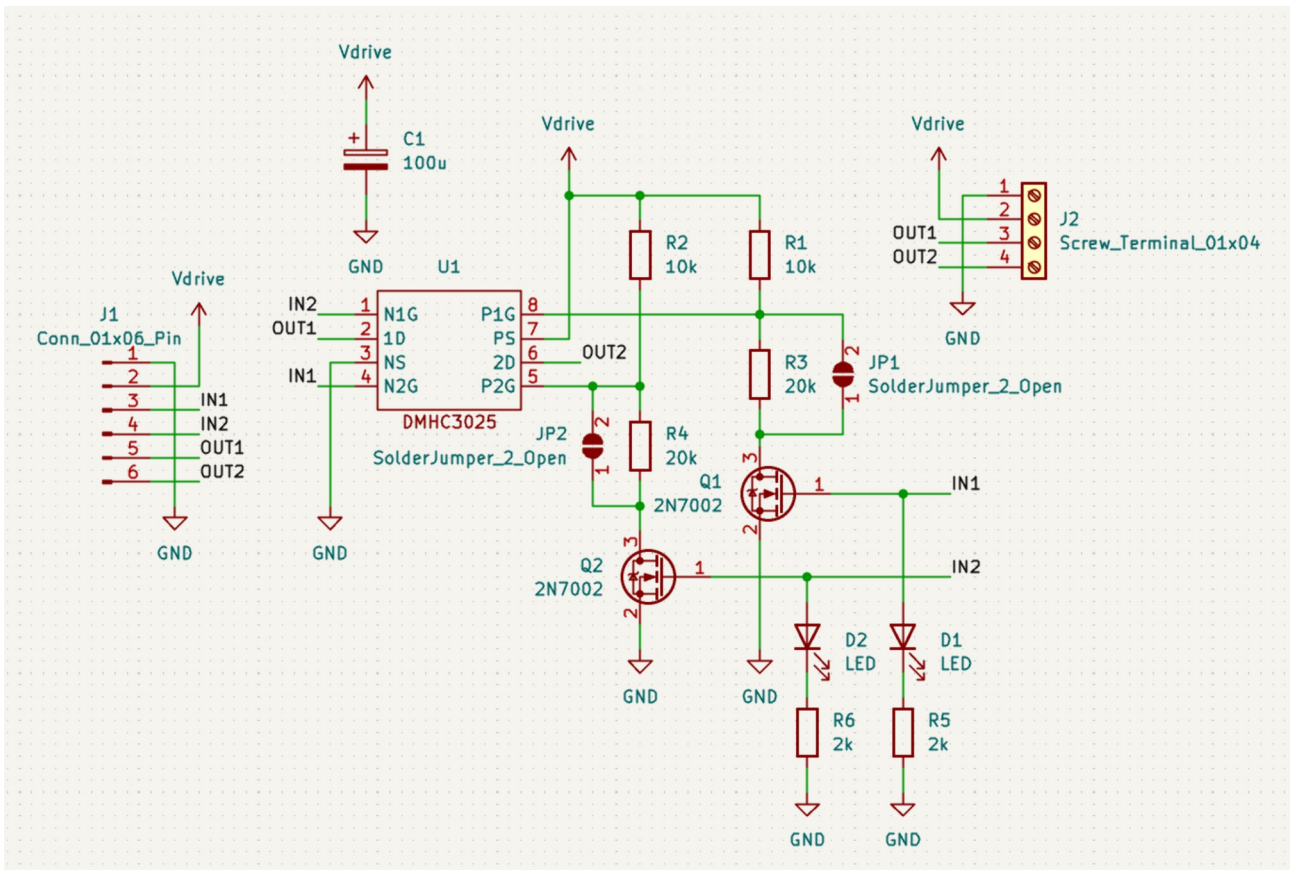
When IN1 is set to logic high, PMOS1 and NMOS2 will be turned on, allowing current to flow from OUT1 to OUT2. When IN2 is set to logic high, current will flow from OUT2 to OUT1. **Do not set both inputs to high at the same time, this will cause a direct short between VM and GND.**

In order to protect the MOSFETs, a resistive divider is implemented to reduce the gate-source voltage of the PMOS so that it will not exceed 20V when the device is operated with 30V supply. This divider reduces the low voltage performance of the module and they may be bypassed by bridging the jumpers on the back of the module.

Besides the pin headers, 4 screw terminal mounting holes are provided on the module for the 4 high current pins: GND, VM, OUT1 and OUT2 (from right to left in the picture on the right). To improve performance, a large capacitor should be soldered to the centre of the module, where a electrolytic capacitor footprint is provided.



Two LED2 are connected to the input respectively to monitor the input signal. Note that the two inputs don't have pull-down resistors and **the gate voltage of the NMOS is floating when the input is disconnected**. The two PMOS are off when the inputs are disconnected since R1 and R2 pulls the gate and source voltages together.



The schematic of the module.