

MOSWITCH-SPDT

9A / 28V Single Pole Double Throw MOSFET Switch

User Manual (revision 1.00)

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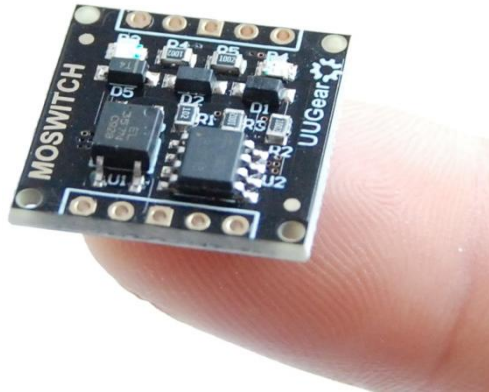
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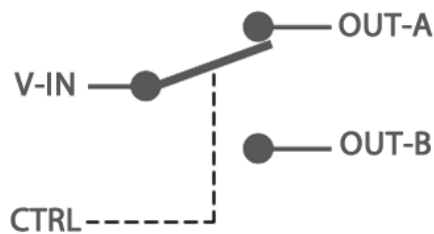
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What is MOSWITCH-SPDT?

MOSWITCH-SPDT is a single pole double throw switch implemented with MOSFETs, and it has very small footprint (2cm x 2cm).

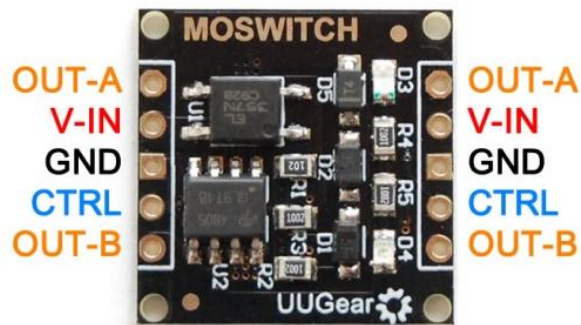


The diagram below shows the equivalent model of this product:



The control signal (CTRL) and main power rails have common ground and this product can connect the positive pole of V-IN to either OUT-A (default) or OUT-B (when CTRL is HIGH). It works like a relay, but is quiet, has higher switching speed and longer life cycle.

An optical coupler is used on the board to isolate the control signal and the main power rails. It is very easy and safe to use low voltage signal (e.g. 3.3V or 5V) to control higher voltage (up to 28V) and higher current (up to 9A for resistive load) circuit.



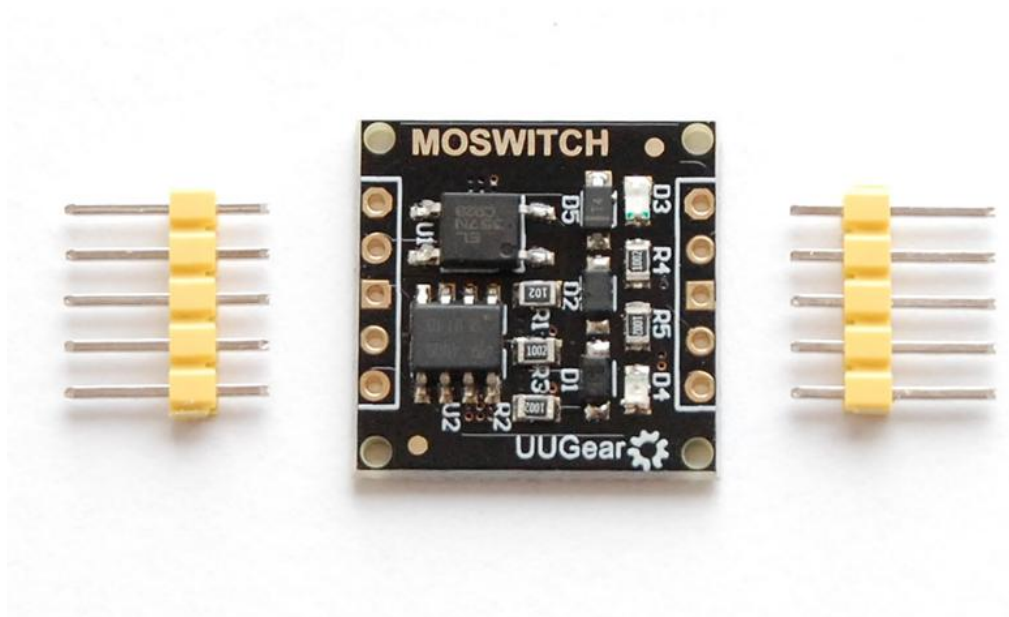
The board has symmetrical pinout with 2.54mm pitch. You can either solder the two 5-pin headers (included in package) on it to make it breadboard friendly, or solder wires directly to the board.

Comparing with mechanical switch, MOSWITCH-SPDT can be easily controlled by micro controller or single board computers like Raspberry Pi. Also the switching is very fast and quiet.

What is in the Package?

Each MOSWITCH-SPDT package contains:

- MOSWITCH-SPDT board x 1
- 5-pin header x 2



Specification

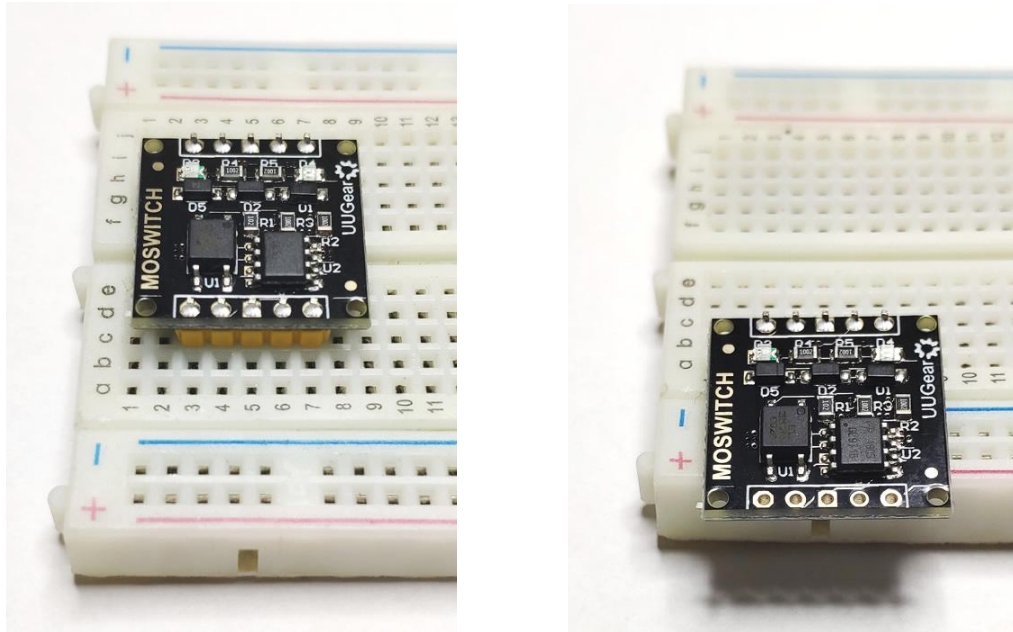
Dimension:	20mm x 20mm x 3.7mm
Weight	4g
Dual P-MOSFET	AO4805 (datasheet)
LED	Blue LED for OUT-A Red LED for OUT-B
Input Voltage	DC 3~28V ¹
CTRL Signal Range	0~28V (voltage > ~2.5V is considered HIGH)
Output Current	Up to 9A (for resistive load) ¹
Channel Resistance	15mΩ@20V, 18mΩ@10V, 24mΩ@5V, 70mΩ@3V
Quiescent Current	0.3mA@3V, 0.7mA@5V, 1.5mA@9V, 2.1mA@12V, 5.4mA@24V, 6.6mA@28V ²
Switching Speed	OUT-A turns on: 52 μs (40 μs delay + 12 μs rise) OUT-A turns off: 22 μs (4 μs delay + 18 μs fall) OUT-B turns on: 16 μs (7us delay + 9 μs rise) OUT-B turns off: 91 μs (49 μs delay + 32 μs fall)
Operating Temperature	-30°C~80°C (-22°F~176°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Humidity	0~80%RH, no condensing

¹ **Remarks:** NEVER do the wiring when power supply is connected, otherwise the spike could damage the device. The

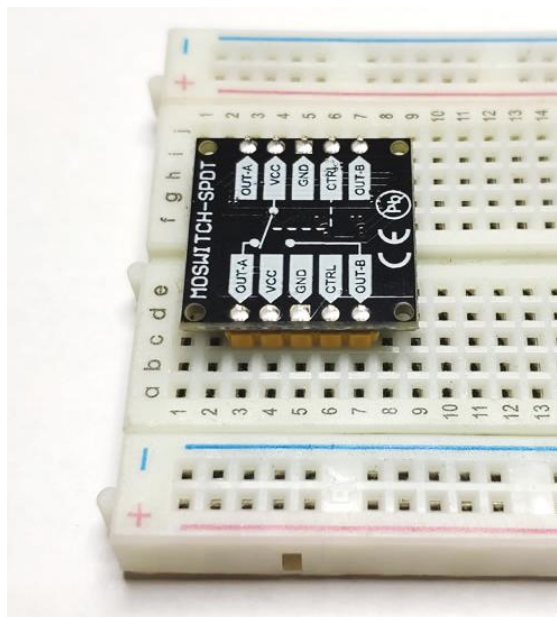
² The quiescent current is mainly consumed by the LEDs.

Wiring

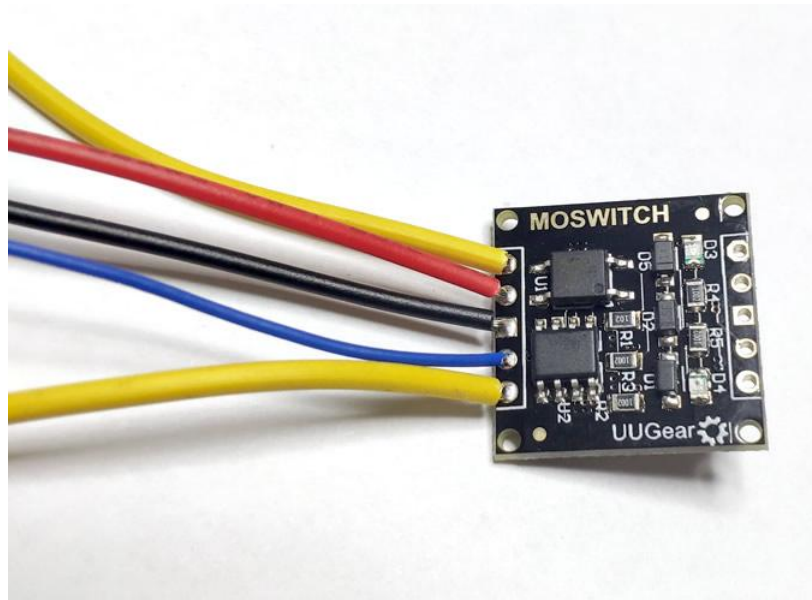
It is possible to use this board on breadboard. You can solder one or both 5-pin headers (included in package) to the board, and place it on the breadboard.



If you don't need to monitor the blue and red LEDs on the board, you can flip the board so the labels of pins become visible.



If you are going to use this product to implement your project (instead of prototyping), or you are going to use it under rather high voltage or big current, we strongly recommend to solder the wires directly to the board.



Remarks: NEVER do the wiring when power supply is connected, otherwise the spike could damage the device. The specification of MOSWITCH-SPDT is measured when it is reliably connected. If you manually connect/disconnect the power supply with load connected to the device, it could get damaged even the voltage or current is way lower than the specification.

Usage

After power supply is connected, you will see the blue LED lights up, indicating OUT-A is currently connected to V-IN.

The CTRL pin is LOW by default, if you give it a voltage higher than 2.5V, the switch will flip and you will see the red LED lights up, indicating OUT-B is currently connected to V-IN. You can connect the CTRL pin to any micro controller or any device that has GPIO output.

Besides using it as a single pole double throw switch (SPDT), you can also use it as a normally open or normally close switch.

Revision History

Revision	Date	Description
1.00	2019.11.17	Initial revision