

Grove - MOSFET

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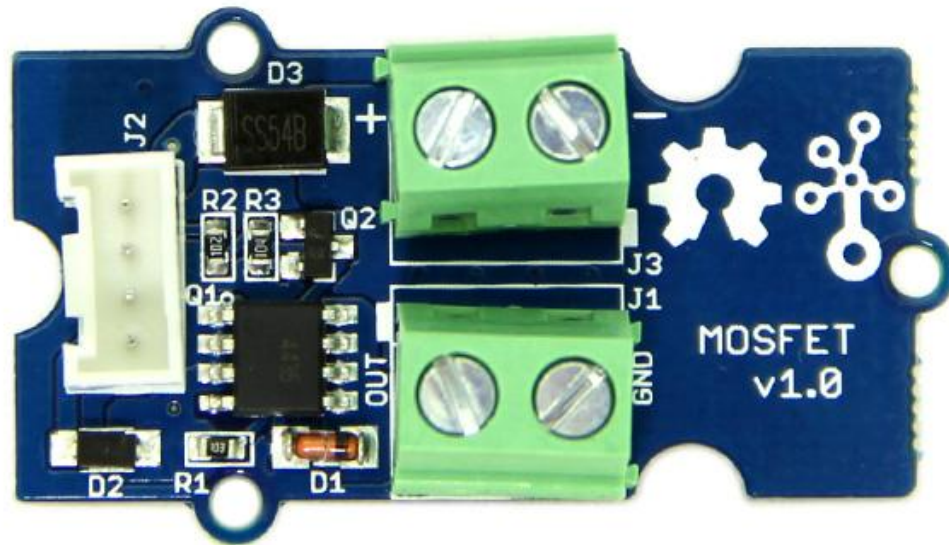
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Grove – MOSFET enables you to control higher voltage project, say 15V DC, with low voltage, say 5V, on microcontroller. MOSFET is also a kind of switch, but its switching frequency can reach up to 5MHz, much faster than normal mechanical relay. There are two screw terminals on the board. One for outer power source and the other for device you want to control. Grove – MOSFET will pass the power from one end to another when closed. But if outer power source is absent, your device can still draw power from microcontroller via the Grove interface.

Version

Product Version	Changes	Released Date
Grove - MOSFET V1.0	Initial	Oct 2015

Specification

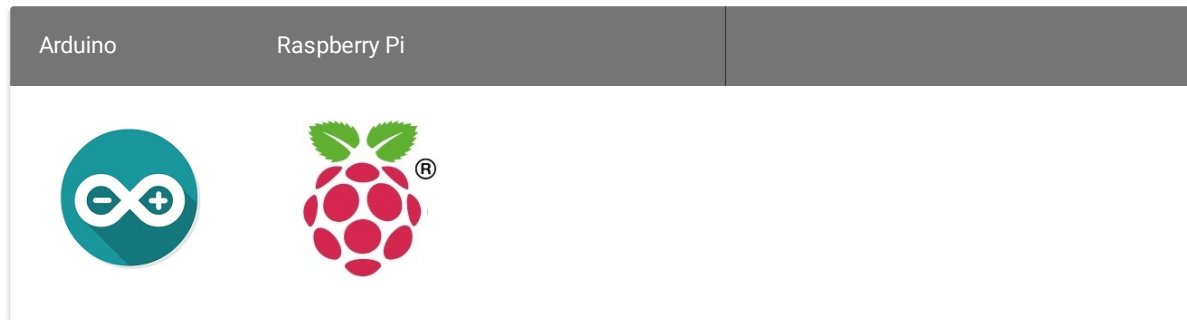
Parameter	Value/Range
Working voltage	5V
Vin	5 ~ 15V
MOSFET Model	CJQ4435



Tip

More details about Grove modules please refer to [Grove System](#)

Platforms Supported



Caution

The platforms mentioned above as supported is/are an indication of the module's software or theoretical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

Getting Started



Note

If this is the first time you work with Arduino, we firmly recommend you to see [Getting Started with Arduino](#) before the start.




Play With Arduino

Demonstration

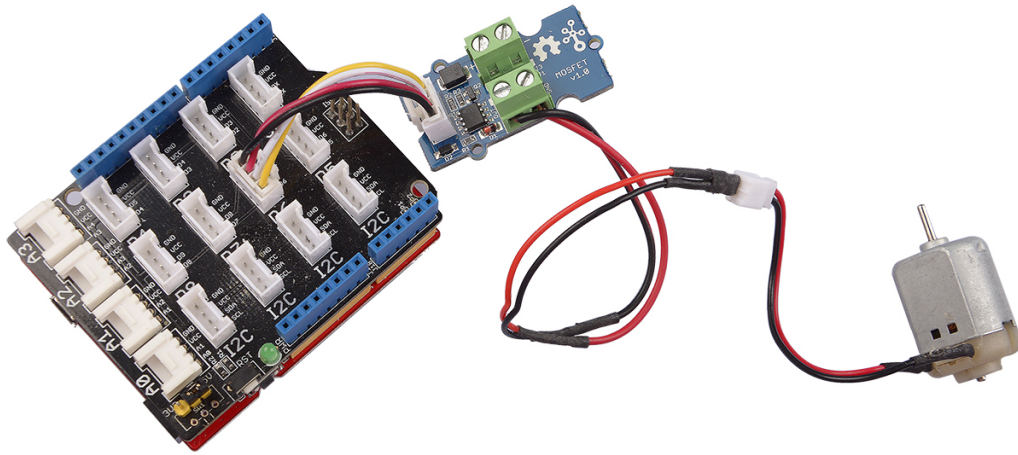
Here we demonstrate how to use Grove - MOSFET to control a motor. We provide power for it with external power source, but if your controlled device needs current smaller than 300mA, Seeeduino can totally support it and no extra power source needed. \

Hardware

- **Step 1.** Prepare the below stuffs:

Seeeduino V4.2	Base Shield	Grove - MOSFET
		
Get One Now	Get One Now	Get One Now

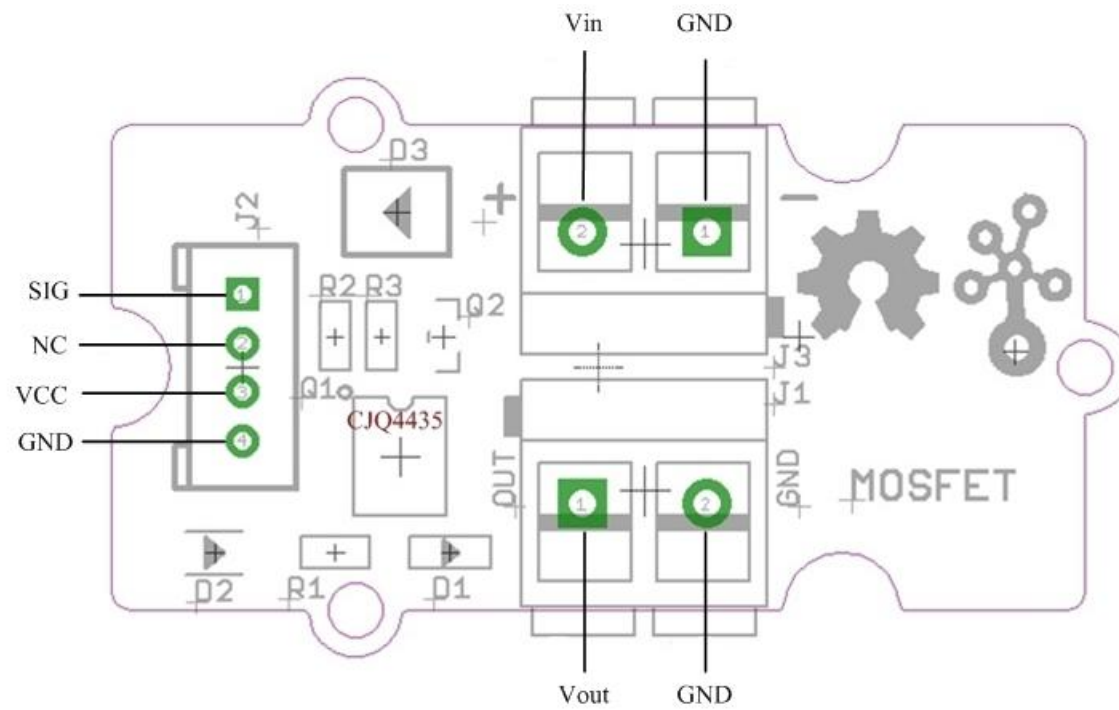
- **Step 2.** Connect Grove - MOSFET to port D6 of Grove-Base Shield.
- **Step 3.** Plug Grove - Base Shield into Seeeduino.
- **Step 4.** Connect Seeeduino to PC via a USB cable.



Note

If we don't have Grove Base Shield, We also can directly connect Grove_MOSFET to Seesduino as below.

Seeeduino	Grove_MOSFET
5V	Red
GND	Black
Not Conencted	White
D6	Yellow



Vin: Accepts 5V ~ 15V power of which current is less than 2A.

Vout: Attach actuators here.

Software

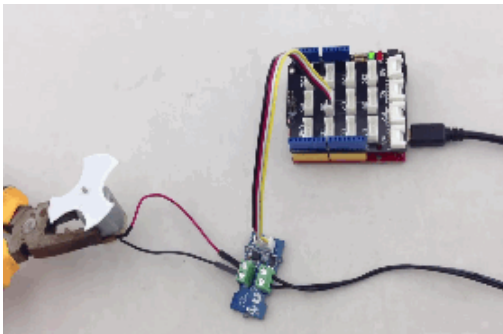
- **Step 1.** Copy the code into Arduino IDE and upload. If you do not know how to upload the code, please check [how to upload code](#).

```
1 // demo of Grove - MOSFET
2 // use pwm pin 6 to control a motor
3
4 int motorPin = 6;
5
6 void setup()
7 {
8     Serial.begin(38400);
9     pinMode(motorPin, OUTPUT);
10    Serial.println("Grove - MOSFET Test Demo!");
11 }
12
13 void loop()
14 {
15     motorOnThenOffWithSpeed();
16     motorAcceleration();
17 }
18
19 void motorOnThenOffWithSpeed()
20 {
21     int onSpeed = 200; // a number between 0 (s
22     int onTime = 2500;
23     int offSpeed = 50; // a number between 0 (s
24     int offTime = 1000;
```



```
25  analogWrite(motorPin, onSpeed);
26  delay(onTime);
27  analogWrite(motorPin, offSpeed);
28  delay(offTime);
29  }
30
31  void motorAcceleration()
32  {
33      int delayTime = 50;
34      for(int i=0; i<256; i++)
35      {
36          analogWrite(motorPin, i);
37          delay(delayTime);
38      }
39
40      for(int i=255; i>=0; i--)
41      {
42          analogWrite(motorPin, i);
43          delay(delayTime);
44      }
45  }
```




- **Step 2.** Observe the state of the motor



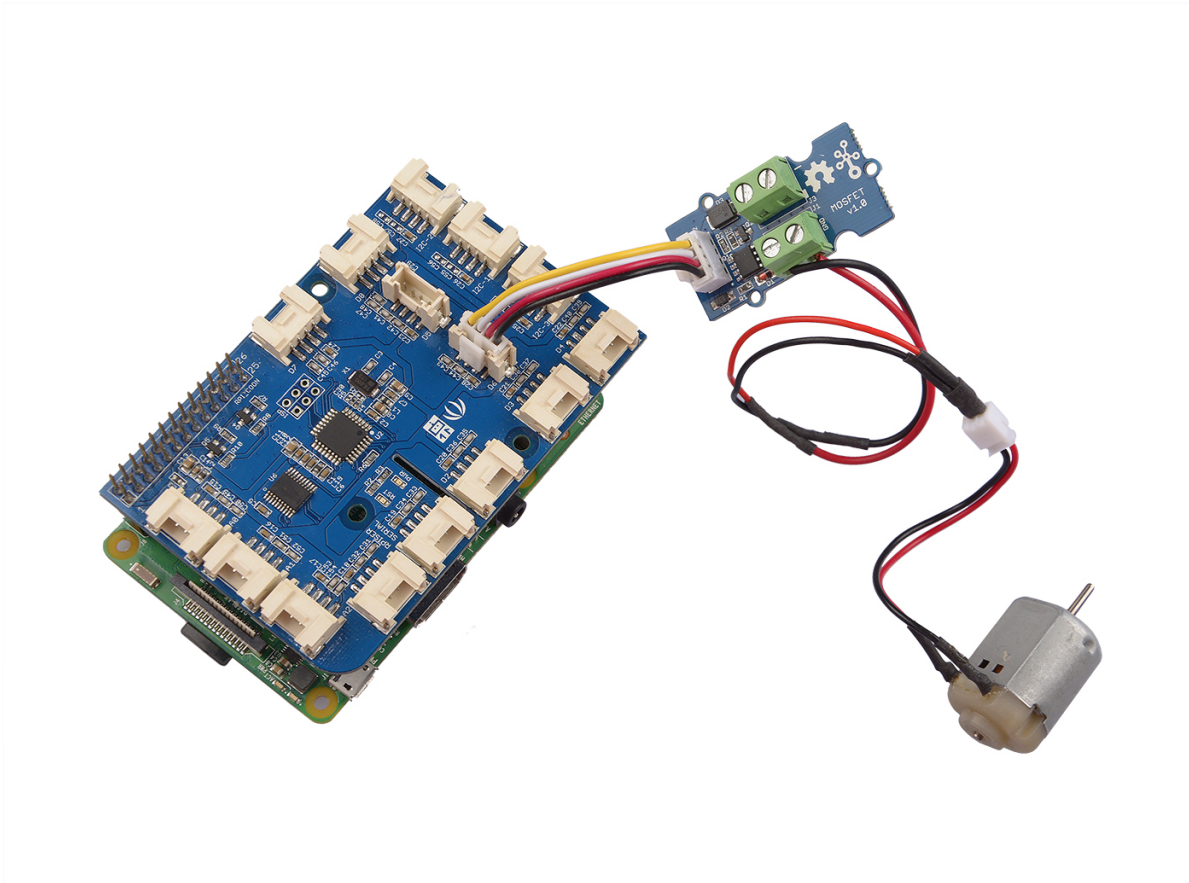
Play With Raspberry Pi

Hardware

- **Step 1.** Prepare the below stuffs:

Raspberry pi	GrovePi_Plus	Grove - MOSFET
		
Get One Now	Get One Now	Get One Now

- **Step 2.** Plug the GrovePi_Plus into Raspberry.
- **Step 3.** Connect Grove-MOSFET ranger to **D6** port of GrovePi_Plus.
- **Step 4.** Connect the Raspberry to PC through USB cable.



Software

- **Step 1.** Navigate to the demos' directory:

```
cd yourpath/GrovePi/Software/Python/
```



- **Step 2.** To see the code

```
nano grove_mosfet.py  # "Ctrl+x" to exit #
```

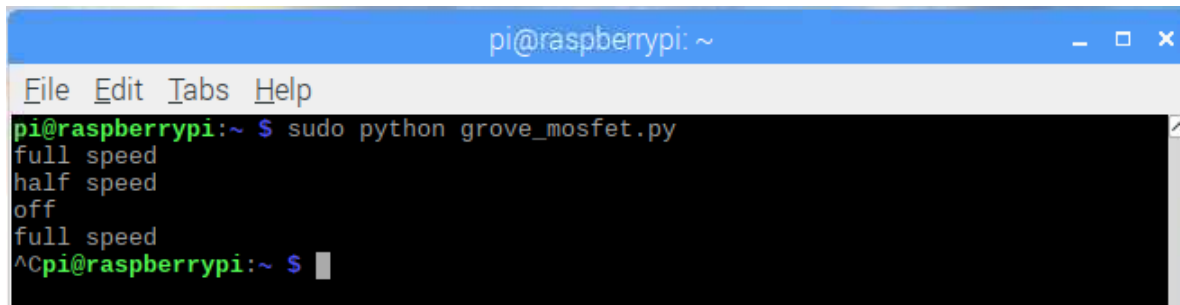
```
1  import time
2  import grovepi
3
4  # Connect the Grove MOSFET to digital port D6
5  # SIG,NC,VCC,GND
6  mosfet = 6
7
8  grovepi.pinMode(mosfet,"OUTPUT")
9  time.sleep(1)
10
11 while True:
12     try:
13         # Full speed
14         grovepi.analogWrite(mosfet,255)
15         print "full speed"
16         time.sleep(2)
17
18         # Half speed
19         grovepi.analogWrite(mosfet,128)
20         print "half speed"
21         time.sleep(2)
22
23         # Off
24         grovepi.analogWrite(mosfet,0)
25         print "off"
26         time.sleep(2)
27
28     except KeyboardInterrupt:
```

```
29     grovepi.analogWrite(mosfet,0)
30     break
31 except IOError:
32     print "Error"
```

- **Step 3.** Run the demo.

```
sudo python grove_mosfet.py
```

- **Step 4.** We will see the output display on terminal as below.



```
pi@raspberrypi: ~
File Edit Tabs Help
pi@raspberrypi:~ $ sudo python grove_mosfet.py
full speed
half speed
off
full speed
^Cpi@raspberrypi:~ $
```



Resources

- **[Eagle]** [Grove - MOSFET Schematic file](#)
- **[PDF]** [Grove - MOSFET Schematic PDF](#)

- **[Datasheet]** [CJQ4435 Datasheet](#)
- **[WIKI]** [MOSFET Wikipedia](#)

Tech Support

Please submit any technical issue into our [forum](#).
