

Mosfet IRF520

Product parameters

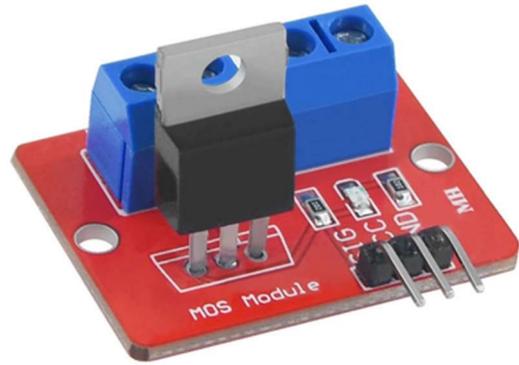
Size: 33.4 * 25.6MM.

Voltage: 3.3V, 5V.

Port: the digital quantity level.

The output load voltage: 0 to 24V.

The output load current: < 5A (more than 1A you need to add heat sink).



The product features

Using original IRF520 power MOS tube, can adjust PWM output.

Can let the drive up to 24 v load, such as LED lights belt, dc motor, micro pump, solenoid valve.

By PWM adjustable can realize stepless dimming LED, motor stepless speed regulation.

The product instructions

PWM signal for high level effectively.

When the PWM for high level (3.3 V to 3.3 V):

As the power supply voltage, between V + and V - working indicator, work load

When the PWM is low level (0 V to 0.5 V):

V + and V - between 0, work lights out, don't work load

Description

The IRF540N is an N-Channel Power Mosfet. The Mosfet can switch loads that consume up to 9.2A continuous current and operate below 100V. It also has a decent on-state resistance of 0.27 Ohms which increases the efficiency of the Mosfet since it will dissipate less heat as loss.

This Mosfet has a low gate threshold voltage of only 4V, this means that the Mosfet can be turned on even with 5V from the GPIO pin of microcontrollers like Arduino. But this does not mean that the Mosfet will turn on completely with just 5V, it needs around 10V supplied to the gate pin to turn on completely and supply 9.2A collector current. So if you are looking for a Mosfet to be used with microcontroller then you should consider the logic level Mosfet like 2N7002 etc.

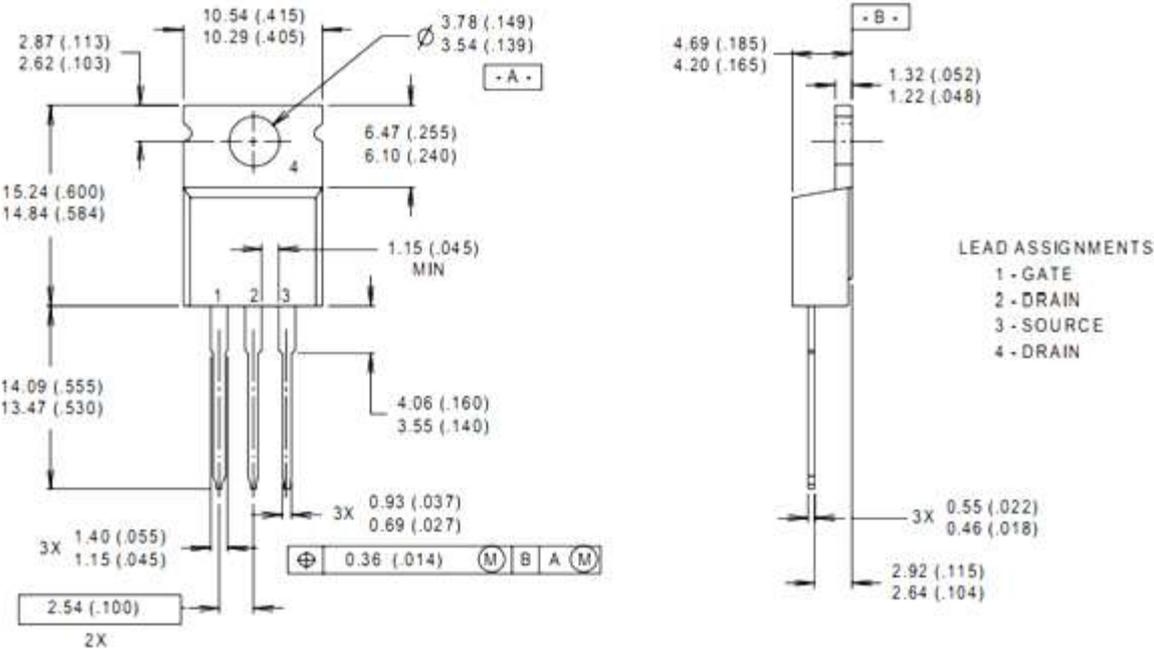
Alternatively, you can also use a driver circuit to provide 10V to the gate pin of this Mosfet using a transistor. Added to this the Mosfet also has good switching speeds and hence can be used in DC-DC converter circuits also.

Applications

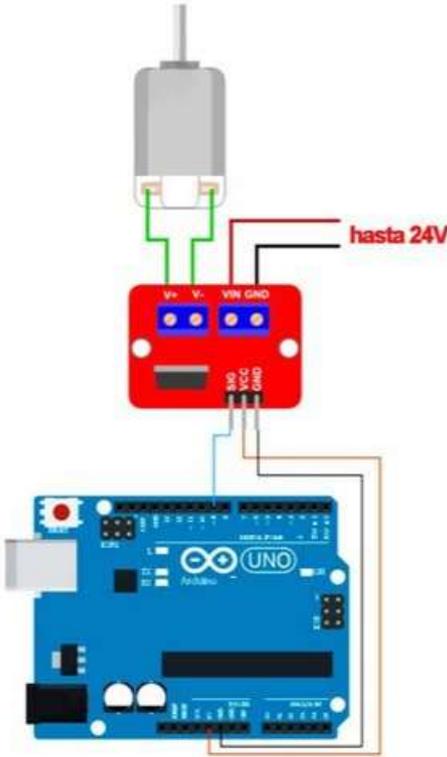
- Switching high power devices
- Control speed of motors
- LED dimmers or flashers
- High Speed switching applications
- Converters or Inverter circuits

2D model of the component

If you are designing a PCB or Perf board with this component then the following picture from the IRF520 Datasheet will be useful to know its package type and dimensions.



Arduino met Mosfet



Tutorial: IRF520 MOSFET Driver Module Features

This module controls DC motors by PWM (Pulse Width Modulation) technique. These modules convert a constant input voltage to a variable voltage. DC Motor's speed can also be controlled by changing the voltage across it. PWMs usually have a constant frequency and can control the engine speed by controlling the length of time that the pulse is HIGH (Duty Cycle). Engine speed control modules are very versatile and easy to use.

DC motor's voltage can be 0 to 24 volts and the maximum current can be up to 5A. In high currents heatsink is required.

You can download the datasheet of this module here:

[IRF520 MOSFET Driver Module Datasheet](#)

IRF520 MOSFET Pinout

This sensor has 7 pins:

- **VCC:** Module power supply – 5V
- **GND:** Ground
- **SIG:** PWM-input signal
- **Vin:** Input voltage 5-24 V
- **OUT:** Module output for connecting to motor

You can see the pinout of this module in the image below.

Required Materials

- Arduino UNO R3
- IRF520 MOSFET Driver Module
- 6V DC Motor
- 10K Potentiometer
- 9V Battery
- 9V Battery Clips with Bare Leads
- Male-Female jumper wire
- Male-Male jumper wire
- 400 Tie point Breadboard

Interfacing IRF520 MOSFET with Arduino

Step 1: Circuit

The following circuit shows how you should connect Arduino to IRF520 sensor. Connect wires accordingly.

Step 2: Code

Upload the following code to Arduino.

```
/*  
IRF520-MOSFET-Driver  
https://electropeak.com/learn/
```

```

*/
#define PWM 3
int pot;
int out;

void setup() {
  Serial.begin(9600);
  pinMode(PWM,OUTPUT);
}

void loop() {
  pot=analogRead(A0);
  out=map(pot,0,1023,0,255);
  analogWrite(PWM,out);
}

```

In this code, by rotating the potentiometer, the value of PWM pin 3 changes from 0 to 5. The voltage of the motor also changes from 0 to 9. It can be seen that by turning the potentiometer, the motor speed can be controlled.

Example using just the Mosfet (no module)

