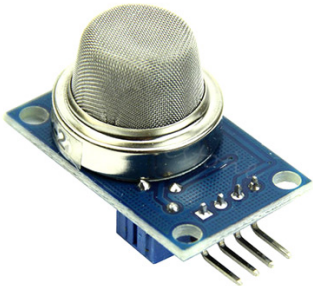


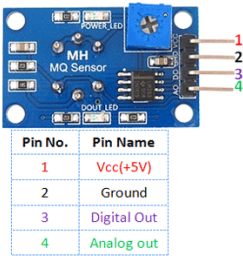
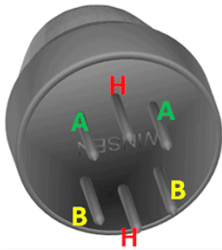
MQ-6 Gas Sensor

20 April 2018 - 0 Comments



(/sites/default/files/components/MQ-6-Gas-Sensor.jpg)

MQ-6 Gas Sensor



(/sites/default/files/component_pin/MQ-6-Gas-Sensor-Pinout.png)

MQ-6 Gas Sensor Pinout

[Click the image to enlarge it]

Pin Configuration

Pin No:	Pin Name:	Description
For MQ6 Sensor Module		
1	Vcc	This pin powers the module, typically the operating voltage is +5V
2	Ground	Used to connect the module to system ground
3	Digital Out	You can also use this sensor to get digital output from this pin, by setting a threshold value using the potentiometer
4	Analog Out	This pin outputs 0-5V analog voltage based on the intensity of the gas
For MQ6 Sensor		
1	H -Pins	Out of the two H pins, one pin is connected to supply and the other to ground
2	A-Pins	The A pins and B pins are interchangeable. These pins will be tied to Supply voltage.
3	B-Pins	The A pins and B pins are interchangeable. One pin will act as output while the other will be pulled to ground.

Features of MQ6 Gas sensor

- Operating Voltage is +5V
- Can be used to detect LPG or Butane gas
- Analog output voltage: 0V to 5V
- Digital Output Voltage: 0V or 5V (TTL Logic)
- Preheat duration 20 seconds
- Can be used as a Digital or analog sensor
- The Sensitivity of Digital pin can be varied using the potentiometer

Alternative MQ Gas sensors

Sensor Name	Gas to measure
MQ-2 (https://components101.com/mq2-gas-sensor)	Methane, Butane, LPG, Smoke

MQ-3	Alcohol, Ethanol, Smoke
MQ-4	Methane, CNG Gas
MQ-5	Natural gas, LPG
MQ-6	LPG, butane
MQ-7	Carbon Monoxide
MQ-8	Hydrogen Gas
MQ-9	Carbon Monoxide, flammable gasses
MQ131	Ozone
MQ135 (https://components101.com/sensors/mq135-gas-sensor-for-air-quality)	Air Quality
MQ136	Hydrogen Sulphide gas
MQ137 (https://components101.com/sensors/mq137-gas-sensor)	Ammonia
MQ138	Benzene, Toluene, Alcohol, Propane, Formaldehyde gas, Hydrogen
MQ214	Methane, Natural Gas
MQ216	Natural gas, Coal Gas
MQ303A	Alcohol, Ethanol, smoke
MQ306A	LPG, butane
MQ307A	Carbon Monoxide
MQ309A	Carbon Monoxide, flammable gas

MQ6 Equivalent Sensors

MQ-2, MQ-5,AQ-2, MQ-306A, AQ-3

Where to use MQ-6 Gas sensor?

The MQ-6 Gas sensor can detect or measure gases like LPG and butane. The MQ-6 sensor module comes with a Digital Pin which makes this sensor to operate even without a microcontroller and that comes in handy when you are only trying to detect one particular gas. When it comes to measuring the gas in ppm the analog pin has to be used, the analog pin also TTL driven and works on 5V and hence can be used with most common microcontrollers.

So if you are looking for a sensor to detect or measure gasses like LPG, or methane with or without a microcontroller then this sensor might be the right choice for you.

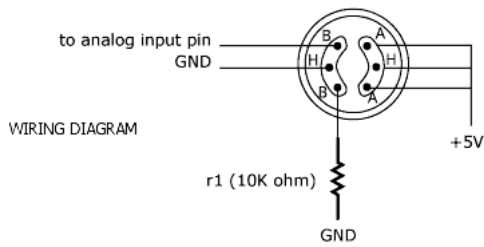
How to use MQ-6 Sensors to Detect gas?

Using a MQ sensor it detect a gas is very easy. You can either use the digital pin or the analog pin to accomplish this. Simply power the module with 5V and you should notice the power LED on the module to glow and when no gas it detected the output LED will remain turned off meaning the digital output pin will be 0V. Remember that these sensors have to be kept on for pre-heating time (mentioned in features above) before you can actually work with it. Now, introduce the sensor to the gas you want to detect and you should see the output LED to go high along with the digital pin, if not use the potentiometer until the output gets high. Now every time your sensor gets introduced to this gas at this particular concentration the digital pin will go high (5V) else will remain low (0V).

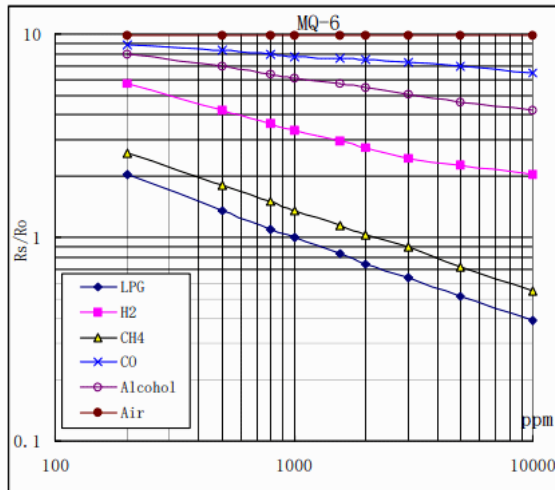
You can also use the analog pin to achieve the same thing. Read the analog values (0-5V) using a microcontroller, this value will be directly proportional to the concentration of the gas to which the sensor detects. You can experiment with this values and check how the sensor reacts to different concentration of gas and develop your program accordingly.

How to use MQ-6 sensor to measure PPM?

If you are looking for some accuracy with your readings then measuring the PPM would be the best way to go with it. It can also help you to distinguish one gas from another. So to measure PPM you can directly use a module. A basic wiring for the sensor from datasheet is shown below.



The procedure to measure PPM using MQ sensor is the same but few constant values will vary based on the type of MQ sensor used. Basically we need to look into the (R_s/R_o) VS PPM graph given in the **MQ-6 datasheet**, and also shown below.



The value of R_o is the value of resistance in fresh air and the value of R_s is the value of resistance in Gas concentration. First you should calibrate the sensor by finding the values of R_o in fresh air and then use that value to find R_s using the formulae:

$$\text{Resistance of sensor}(R_s): R_s = (V_c/V_{RL} - 1) \times R_L$$

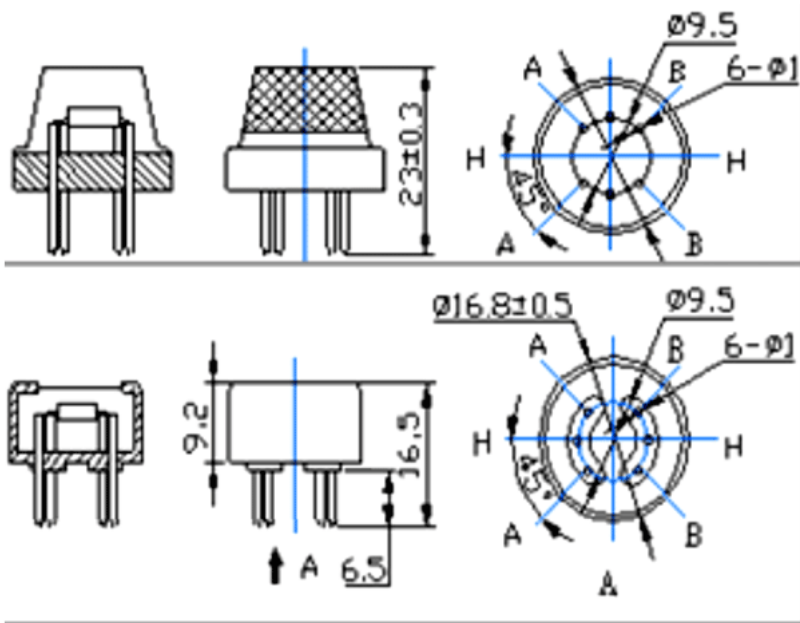
Once we calculate R_s and R_o we can find the ratio and then using the graph shown above we can calculate the equivalent value of PPM for that particular gas.

Applications

- Detect or measure Gases like LPG, and butane
- Air quality monitor
- Gas leak alarm
- Safety standard maintenance
- Maintaining environment standards in hospitals

2D model of MQ-6 Gas sensor

If you purchased as sensor then you can use the following dimensions to create your own PCB for your application



Component Datasheet
MQ-6 Gas Sensor Datasheet
(https://components101.com/sites/default/files/component_datasheet/MQ-6%20Gas%20Sensor%20Datasheet.pdf)

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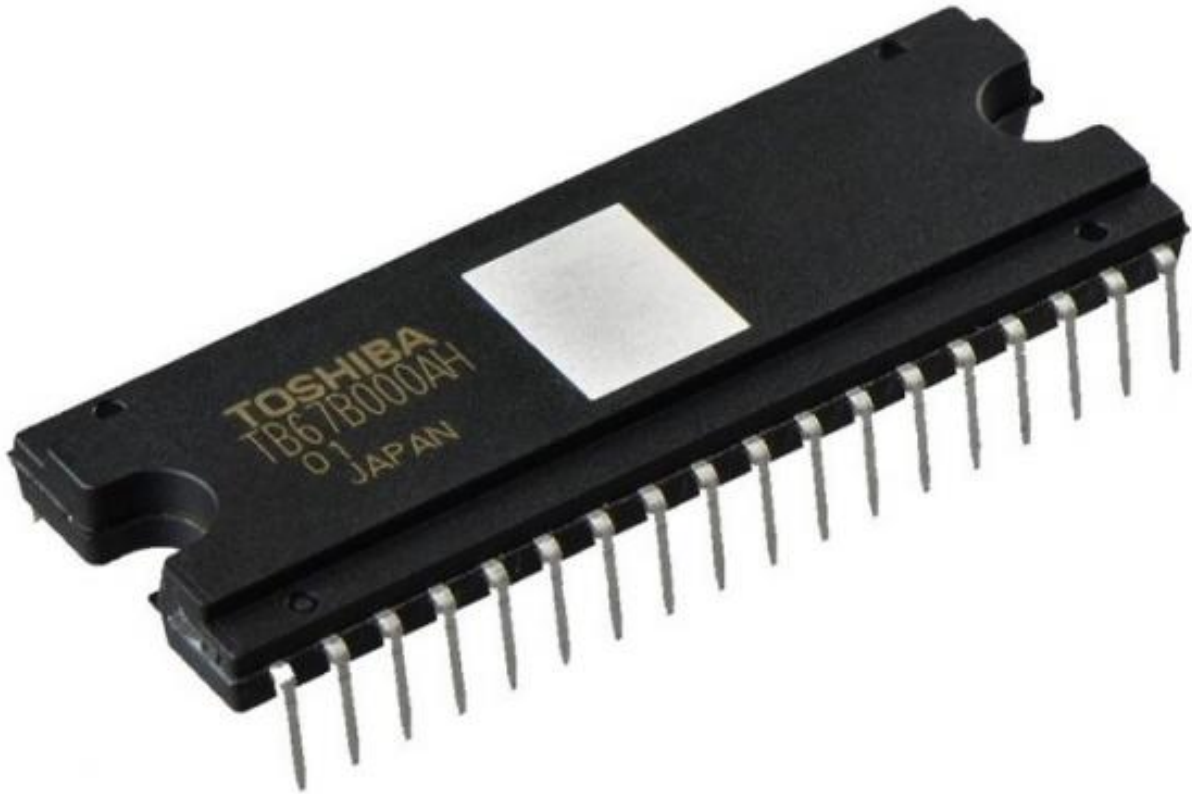
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