

# TECHNICAL DATA

# MQ-8 GAS SENSOR

## FEATURES

- \* High sensitivity to Hydrogen (H<sub>2</sub>)
- \* Small sensitivity to alcohol, LPG,cooking fumes
- \* Stable and long life

## APPLICATION

They are used in gas leakage detecting equipments in family and industry, are suitable for detecting of Hydrogen (H<sub>2</sub>), avoid the noise of alcohol and cooking fumes, LPG,CO.

## SPECIFICATIONS

### A. Standard work condition

| Symbol         | Parameter name      | Technical condition | Remarks  |
|----------------|---------------------|---------------------|----------|
| V <sub>c</sub> | Circuit voltage     | 5V±0.1              | AC OR DC |
| V <sub>H</sub> | Heating voltage     | 5V±0.1              | AC OR DC |
| P <sub>L</sub> | Load resistance     | 10KΩ                |          |
| R <sub>H</sub> | Heater resistance   | 31±5%               | Room Tem |
| P <sub>H</sub> | Heating consumption | less than800mW      |          |

### B. Environment condition

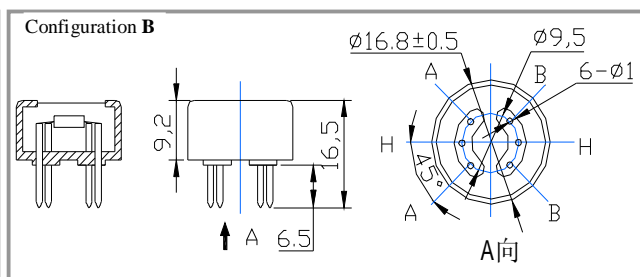
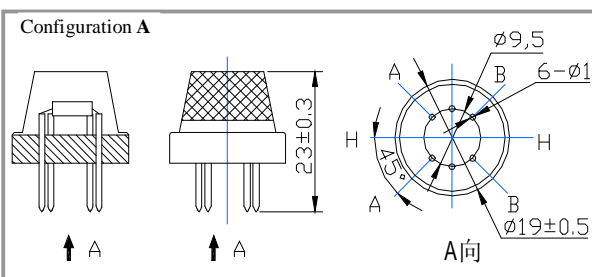
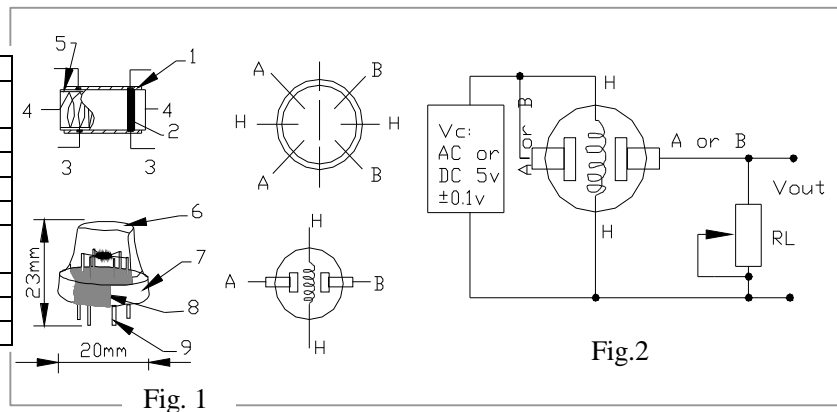
| Symbol          | Parameter name       | Technical condition  | Remarks                  |
|-----------------|----------------------|--|--------------------------|
| T <sub>ao</sub> | Using Tem            | -10°C-50°C   |                          |
| T <sub>as</sub> | Storage Tem          | -20°C-70°C   |                          |
| R <sub>H</sub>  | Related humidity     | less than 95%Rh  |                          |
| O <sub>2</sub>  | Oxygen concentration | 21%(standard condition)Oxygen concentration can affect sensitivity | minimum value is over 2% |

### C. Sensitivity characteristic

| Symbol                                   | Parameter name                       | Technical parameter                               | Remark 2   |
|--|--------------------------------------|---|--|
| R <sub>s</sub>                           | Sensing Resistance                   | 10KΩ - 60KΩ<br>(1000ppm H <sub>2</sub> )          | Detecting concentration scope:<br>100-10000ppm<br>Hydrogen (H <sub>2</sub> ) |
| α<br>(1000ppm/<br>500ppmH <sub>2</sub> ) | Concentration slope rate             | ≤0.6  |  |
| Standard detecting condition             | Temp: 20°C ± 2°C<br>Humidity: 65%±5% | V <sub>c</sub> :5V±0.1<br>V <sub>H</sub> : 5V±0.1 |  |
| Preheat time                             | Over 24 hour                         |   |  |

### D. Structure and configuration, basic measuring circuit

| Parts                    | Materials                               |
|--------------------------|---|
| 1 Gas sensing layer      | SnO <sub>2</sub>                        |
| 2 Electrode              | Au                                      |
| 3 Electrode line         | Pt                                      |
| 4 Heater coil            | Ni-Cr alloy                             |
| 5 Tubular ceramic        | Al <sub>2</sub> O <sub>3</sub>          |
| 6 Anti-explosion network | Stainless steel gauze (SUS316 100-mesh) |
| 7 Clamp ring             | Copper plating Ni                       |
| 8 Resin base             | Bakelite                                |
| 9 Tube Pin               | Copper plating Ni                       |



Structure and configuration of MQ-8 gas sensor is shown as Fig. 1 (Configuration A or B), sensor composed by micro  $Al_2O_3$  ceramic tube, Tin Dioxide ( $SnO_2$ ) sensitive layer, measuring electrode and heater are fixed into a crust made by plastic and stainless steel net. The heater provides necessary work conditions for work of sensitive components. The enveloped MQ-8 have 6 pin ,4 of them are used to fetch signals, and other 2 are used for providing heating current.

Electric parameter measurement circuit is shown as Fig.2

E. Sensitivity characteristic curve

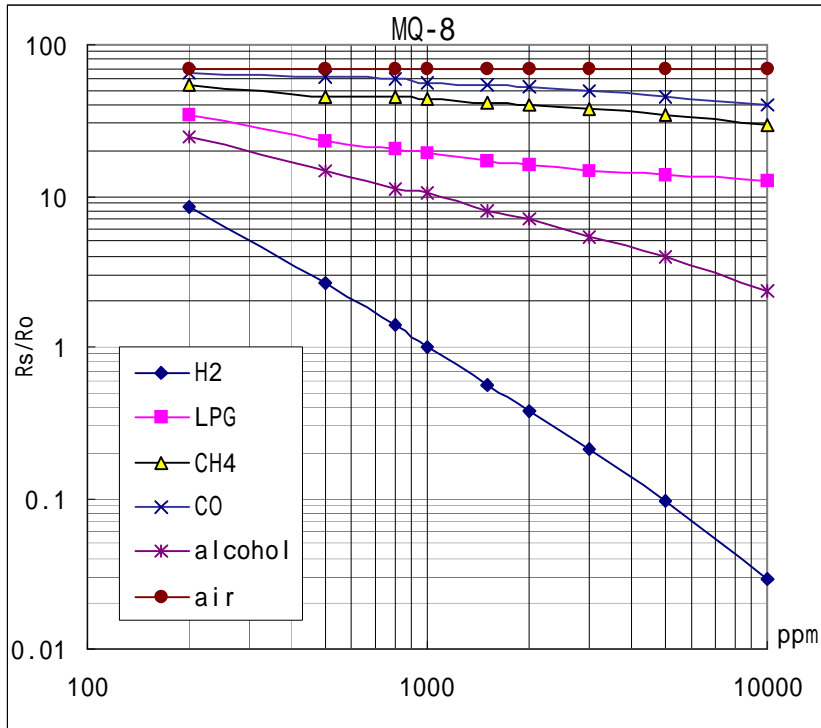


Fig.2 sensitivity characteristics of the MQ-8

Fig.3 is shows the typical sensitivity characteristics of the MQ-8 for several gases.

in their: Temp: 20°C,  
Humidity: 65% ,  
O<sub>2</sub> concentration 21%  
RL=10k Ω

Ro: sensor resistance at 1000ppm H<sub>2</sub> in the clean air.

Rs:sensor resistance at various concentrations of gases.

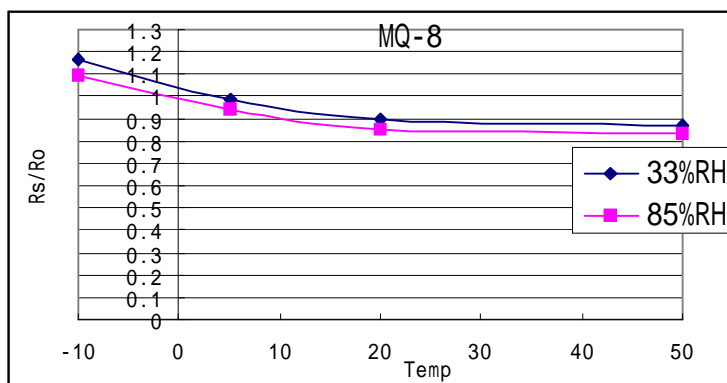


Fig.4 is shows the typical dependence of the MQ-8 on temperature and humidity.

Ro: sensor resistance at 1000ppm of H<sub>2</sub> in air at 33%RH and 20 degree.

Rs: sensor resistance at 1000ppm of H<sub>2</sub> in air at different temperatures and humidities.

**SENSITIVITY ADJUSTMENT**

Resistance value of MQ-8 is difference to various kinds and various concentration gases. So,When using this components, sensitivity adjustment is very necessary. we recommend that you calibrate the detector for 1000ppm H<sub>2</sub> concentration in air and use value of Load resistance ( R<sub>L</sub>) about 10 K Ω (5K Ω to 33 K Ω).

When accurately measuring, the proper alarm point for the gas detector should be determined after considering the temperature and humidity influence.