

# TECHNICAL DATA

# MQ-135 GAS SENSOR

## FEATURES

- Wide detecting scope
- Stable and long life
- Fast response and High sensitivity
- Simple drive circuit

## APPLICATION

They are used in air quality control equipments for buildings/offices, are suitable for detecting of NH<sub>3</sub>, NO<sub>x</sub>, alcohol, Benzene, smoke, CO<sub>2</sub>, etc.

## 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
R <sub>L</sub>	Load resistance	can adjust	
R <sub>H</sub>	Heater resistance	33Ω±5%	Room Tem
P <sub>H</sub>	Heating consumption	less than 800mw	

### B. Environment condition

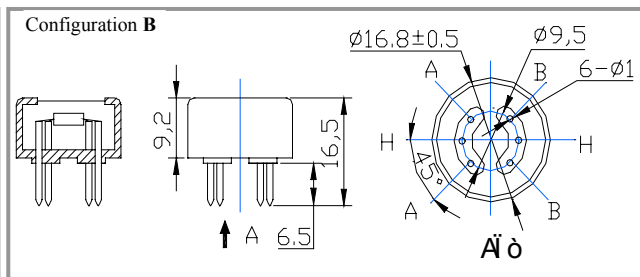
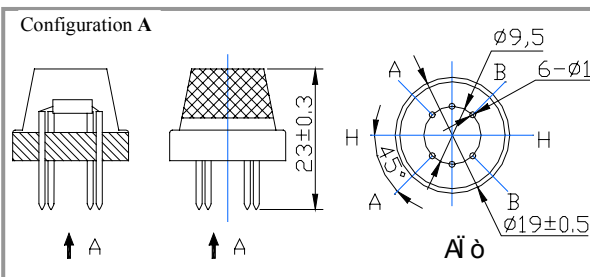
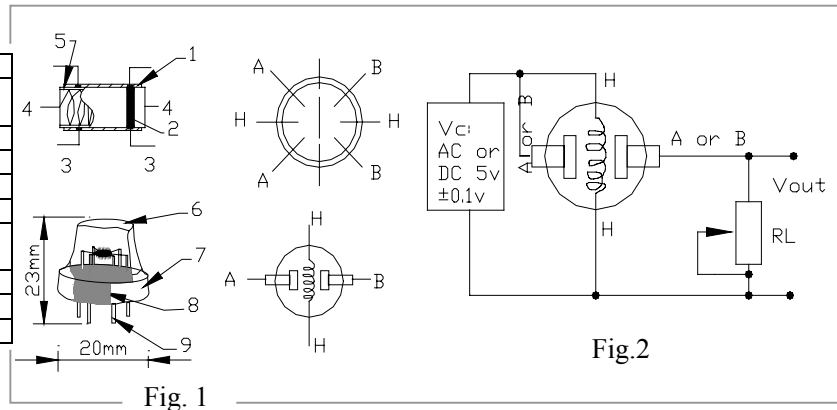
Symbol	Parameter name	Technical condition	Remarks
T <sub>ao</sub>	Using Tem	-10℃-45℃	minimum value is over 2%
T <sub>as</sub>	Storage Tem	-20℃-70℃	
R <sub>H</sub>	Related humidity	less than 95%Rh	
O <sub>2</sub>	Oxygen concentration	21%(standard condition)Oxygen concentration can affect sensitivity	

### C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Remark 2
R <sub>s</sub>	Sensing Resistance	30KΩ-200KΩ (100ppm NH <sub>3</sub> )	Detecting concentration scope 10ppm-300ppm NH <sub>3</sub> 10ppm-1000ppm Benzene 10ppm-300ppm Alcohol
α (200/50) NH <sub>3</sub>	Concentration Slope rate	≤0.65	
Standard Detecting Condition	Temp: 20℃±2℃ V <sub>c</sub> :5V±0.1 Humidity: 65%±5% 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-135 gas sensor is shown as Fig. 1 (Configuration A or B), sensor composed by micro AL<sub>2</sub>O<sub>3</sub> ceramic tube, Tin Dioxide (SnO<sub>2</sub>) 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-135 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-135

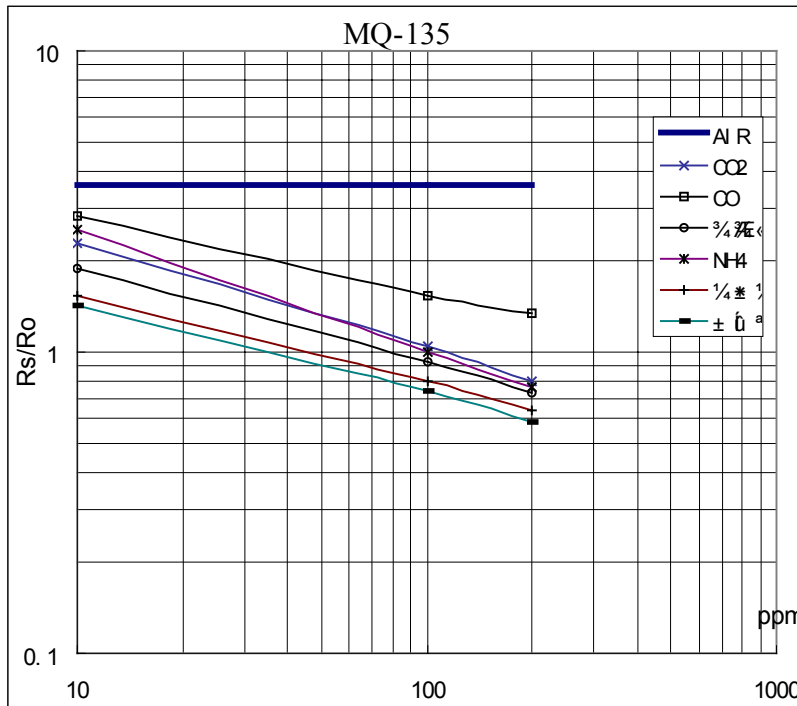


Fig.3 is shows the typical sensitivity characteristics of the MQ-135 for several gases.

in their: Temp: 20 °C  
Humidity: 65%  
O2 concentration 21%  
RL=20kΩ

Ro: sensor resistance at 100ppm of NH3 in the clean air.

Rs: sensor resistance at various concentrations of gases.

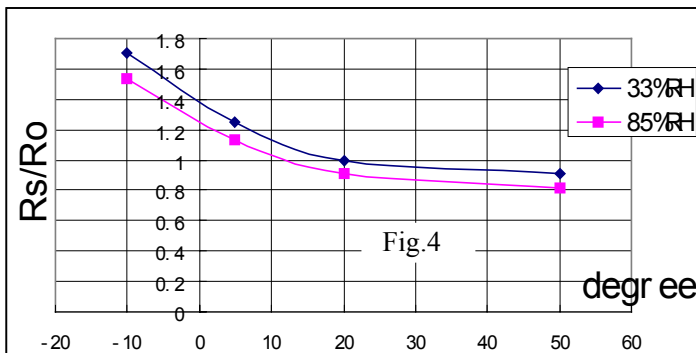


Fig.4 is shows the typical dependence of the MQ-135 on temperature and humidity.

Ro: sensor resistance at 100ppm of NH3 in air at 33%RH and 20 degree.

Rs: sensor resistance at 100ppm of NH3 at different temperatures and humidities.

**SENSITIVITY ADJUSTMENT**

Resistance value of MQ-135 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 100ppm NH3 or 50ppm Alcohol concentration in air and use value of Load resistancethat( RL) about 20 KΩ(10KΩ to 47 KΩ).

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

