

**TECHNICAL DATA****MQ-7 GAS SENSOR****FEATURES**

- \* High sensitivity to carbon monoxide
- \* Stable and long life

**APPLICATION**

They are used in gas detecting equipment for carbon monoxide(CO) in family and industry or car.

**SPECIFICATIONS**

## A. Standard work condition

Symbol	Parameter name	Technical condition	Remark
Vc	circuit voltage	5V ± 0.1	Ac or Dc
V <sub>H</sub> (H)	Heating voltage (high)	5V ± 0.1	Ac or Dc
V <sub>H</sub> (L)	Heating voltage (low)	1.4V ± 0.1	Ac or Dc
RL	Load resistance	Can adjust	
RH	Heating resistance	33 Ω ± 5%	Room temperature
T <sub>H</sub> (H)	Heating time (high)	60 ± 1 seconds	
T <sub>H</sub> (L)	Heating time (low)	90 ± 1 seconds	
PH	Heating consumption	About 350mW	

## b. Environment conditions

Symbol	Parameters	Technical conditions	Remark
Tao	Using temperature	-20°C -50°C	
Tas	Storage temperature	-20°C -50°C	Advice using scope
RH	Relative humidity	Less than 95% RH	
O <sub>2</sub>	Oxygen concentration	21% (stand condition) the oxygen concentration can affect the sensitivity characteristic	Minimum value is over 2%

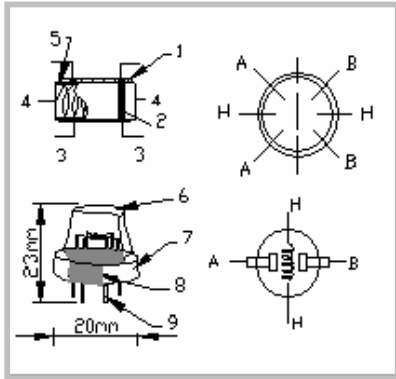
## c. Sensitivity characteristic

symbol	Parameters	Technical parameters	Remark
Rs	Surface resistance Of sensitive body	2-20k	In 100ppm Carbon Monoxide
a (300/100ppm)	Concentration slope rate	Less than 0.5	Rs (300ppm)/Rs(100ppm)
Standard working condition	Temperature -20°C ± 2°C	relative humidity 65% ± 5%	RL: 10K Ω ± 5%
	Vc: 5V ± 0.1V	VH: 5V ± 0.1V	VH: 1.4V ± 0.1V
Preheat time	No less than 48 hours	Detecting range: 20ppm-2000ppm carbon monoxide	

## D. Structure and configuration, basic measuring circuit

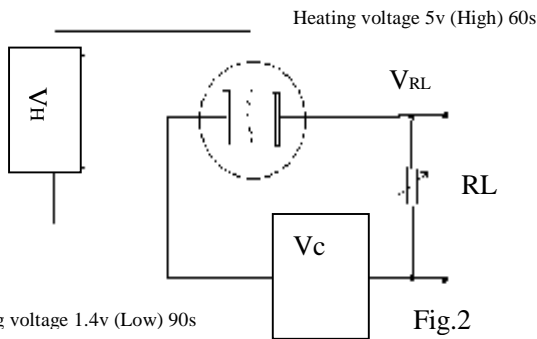
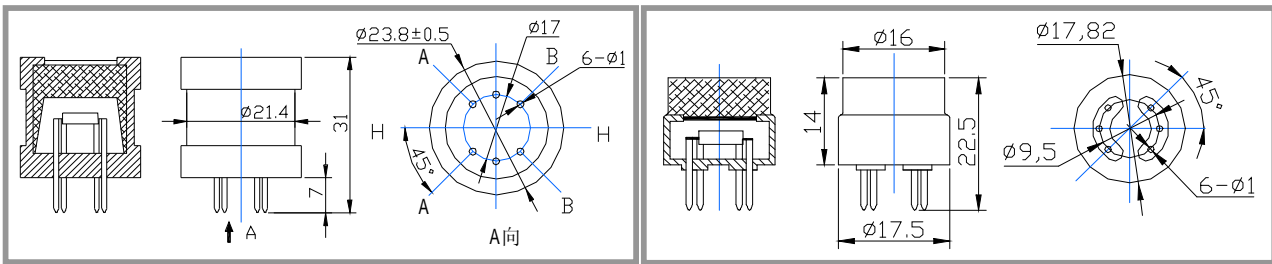
Structure and configuration of MQ-7 gas sensor is shown as Fig. 1 (Configuration A or B), sensor composed by micro AL<sub>2</sub>O<sub>3</sub> ceramic tube, Tin Dioxide (SnO<sub>2</sub>) sensitive layer, measuring electrode and heater are fixed into a crust made by plastic and stainless steel net. The heater provides necessary work conditions for work of sensitive components. The enveloped MQ-7 have

6 pin ,4 of them are used to fetch signals, and other 2 are used for providing heating current.



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

Fig.1



**Standard circuit:**

As shown in Fig 2, standard measuring circuit of MQ-7 sensitive components consists of 2 parts. one is heating circuit having time control function (the high voltage and the low voltage work circularly ). The second is the signal output circuit, it can accurately respond changes of surface resistance of the sensor.

Electric parameter measurement circuit is shown as Fig.2

**E. Sensitivity characteristic curve**

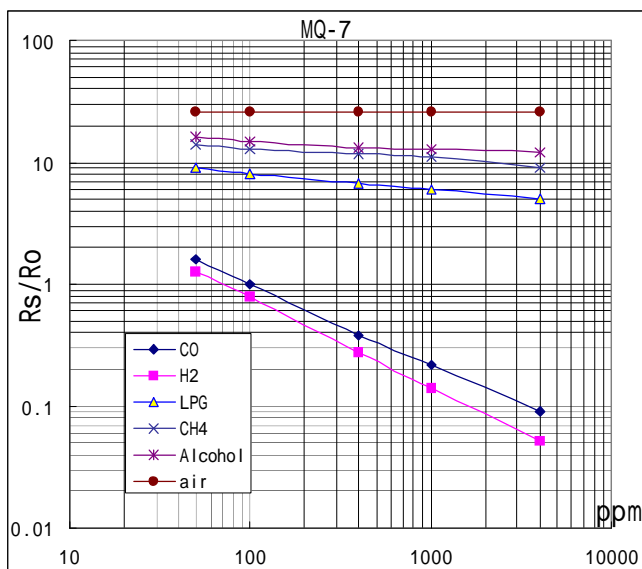


Fig.3 is shows the typical sensitivity characteristics of the MQ-7 for several gases.

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

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

Rs: sensor resistance at various concentrations of gases.

Fig.3 sensitivity characteristics of the MQ-7