TECHNICAL DATA MQ-4 GAS SENSOR

FEATURES

* High sensitivity to CH_4, Natural gas.
* Small sensitivity to alcohol, smoke.
* Fast response . * Stable and long life * Simple drive circuit

APPLICATION

They are used in gas leakage detecting equipments in family and industry, are suitable for detecting of CH_4,Natural gas.LNG, avoid the noise of alcohol and cooking fumes and cigarette smoke.

SPECIFICATIONS

A. Standard work condition

Symbol	Parameter name	Technical condition	Remarks
Vc	Circuit voltage	5V± 0.1	AC OR DC
V_H	Heating voltage	5V± 0.1	ACOR DC
P_L	Load resistance	20KΩ	
R_H	Heater resistance	33Ω±5%	Room Tem
P_H	Heating consumption	less than 750mw	

B. Environment condition

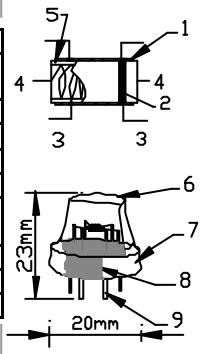
Symbol	Parameter name	Technical condition	Remarks
Tao	Using Tem	-10℃-50℃	
Tas	Storage Tem	-20℃-70℃	
R_H	Related humidity	less than 95%Rh	
O_2	Oxygen concentration	21%(standard condition)Oxygen concentration can affect sensitivity	minimum value is over 2%

C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Ramark 2
Rs	Sensing Resistance	10KΩ- 60KΩ (1000ppm CH_4)	Detecting concentration scope: 200-10000ppm CH_4 , natural gas
α (1000ppm/ 5000ppm CH_4)	Concentration slope rate	≤0.6	
Standard detecting condition	Temp: 20℃±2℃ Humidity: 65%± 5%	Vc:5V± 0.1 Vh: 5V± 0.1	
Preheat time	Over 24 hour		

D. Strucyure and configuration, basic measuring circuit

	Parts	Materials
1	Gas sensing layer	SnO_2
2	Electrode	Au
3	Electrode line	Pt
4	Heater coil	Ni-Cr alloy
5	Tubular ceramic	Al_2O_3
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



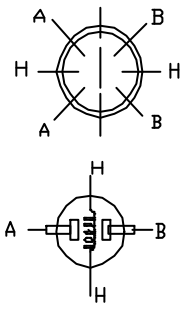


Fig. 1

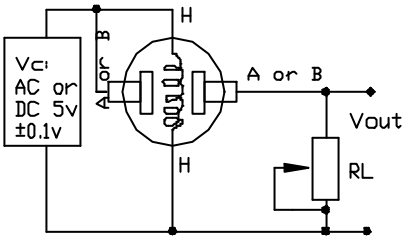
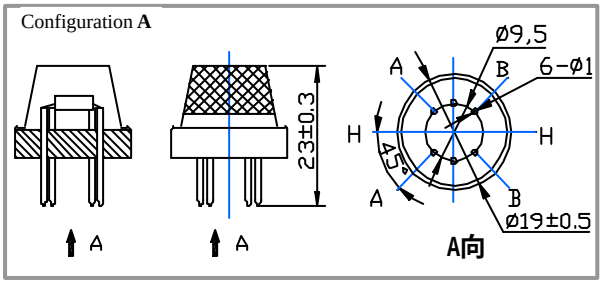
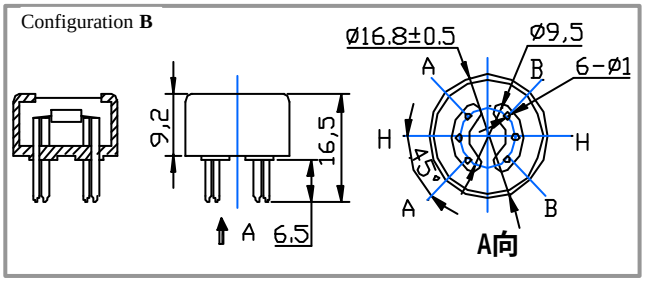


Fig.2





Structure and configuration of MQ-4 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-4 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

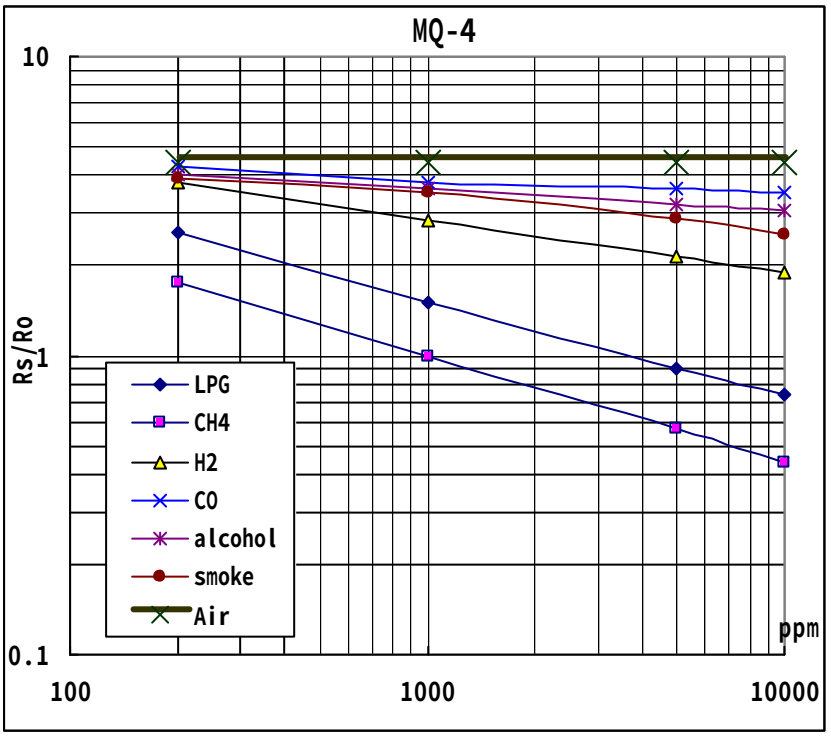


Fig.2 sensitivity characteristics of the MQ-4

Fig.3 is shows the typical sensitivity characteristics of the MQ-4 for several gases.
in their: Temp: 20℃、
Humidity: 65%、
O_2 concentration 21%
RL=20kΩ
Ro: sensor resistance at 1000ppm of CH_4 in the clean air.
Rs:sensor resistance at various concentrations of gases.

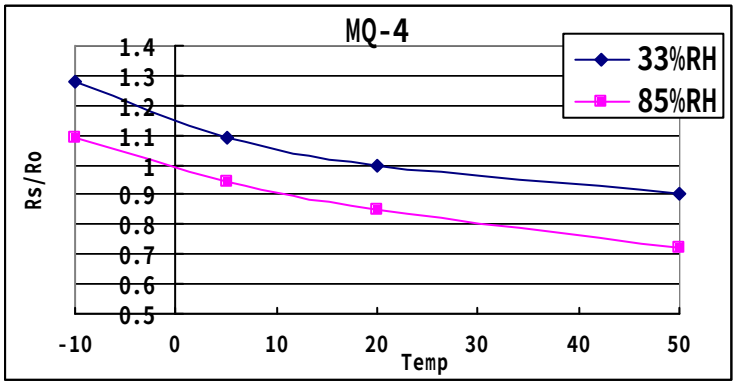


Fig.4 is shows the typical dependence of the MQ-4 on temperature and humidity.
Ro: sensor resistance at 1000ppm of CH_4 in air at 33%RH and 20 degree.
Rs: sensor resistance at 1000ppm of CH_4 in air at different temperatures and humidities.

SENSITVITY ADJUSTMENT

Resistance value of MQ-4 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 5000ppm of CH_4 concentration in air and use value of Load resistance (R_L) about 20KΩ(10KΩ to 47KΩ).

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