TECHNICAL DATA   MQ-2   GAS SENSOR

FEATURES

Wide detecting scope   Fast response and High sensitivity
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 LPG, i-butane, propane, methane ,alcohol, Hydrogen, 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
R_L	Load resistance	can adjust	
R_H	Heater resistance	33Ω±5%	Room Tem
P_H	Heating consumption	less than 800mw	

B. Environment   condition

Symbol	Parameter name	Technical condition	Remarks
Tao	Using Tem	-20…+50°C	
Tas	Storage Tem	-20…+70°C	
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	Remarks
Rs	Sensing Resistance	3KΩ-30KΩ (1000ppm iso-butane)	Detecting concentration scope: 200ppm-5000ppm LPG and propane
α (3000/1000) isobutane	Concentration Slope rate	≤0.6	300ppm-5000ppm butane
Standard Detecting Condition	Temp: 20°C±2°C Vc:5V±0.1 Humidity: 65%±5% Vh: 5V±0.1		5000ppm-20000ppm methane 300ppm-5000ppm H_2
Preheat time	Over 24 hour		100ppm-2000ppm Alcohol

D. Structure 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

Configuration A
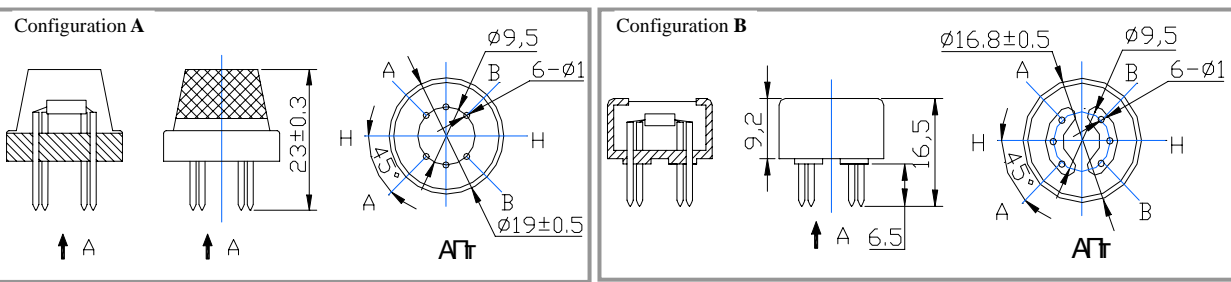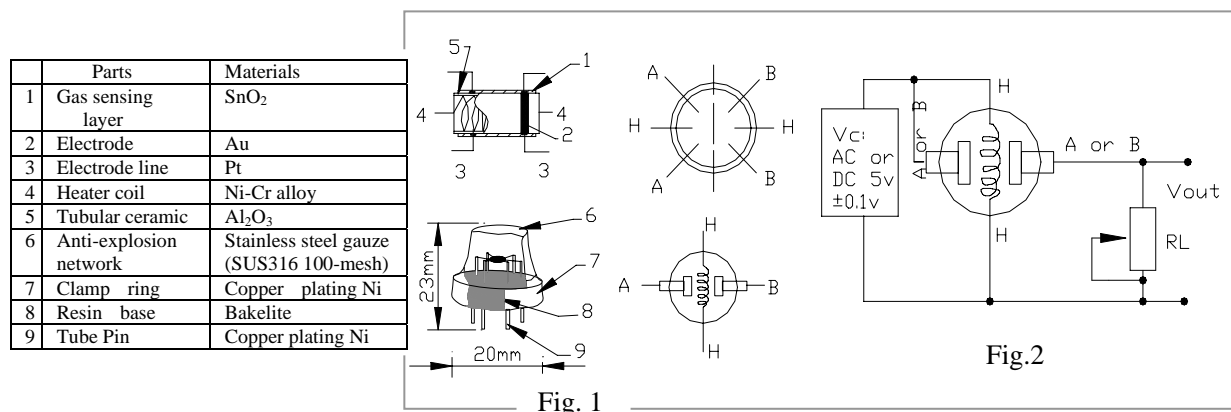
Configuration B

Structure and configuration of MQ-2 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-2 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
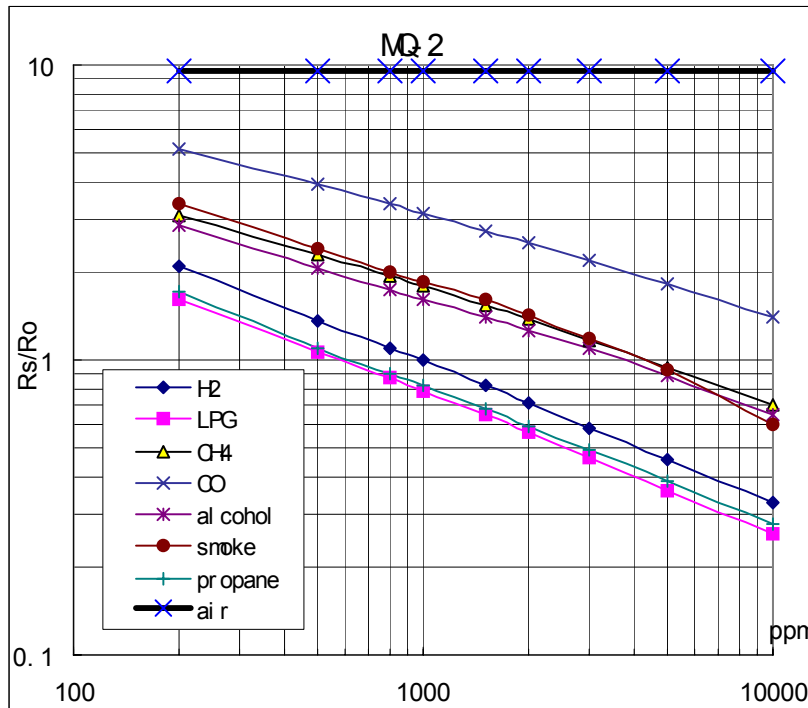
E. Sensitivity characteristic curve

Fig.3 is shows the typical sensitivity characteristics of the MQ-2 for several gases.
in their: Temp: 20°C,
Humidity: 65%,
O_2 concentration 21%
RL=5kΩ
Ro: sensor resistance at 1000ppm of H_2 in the clean air.
Rs:sensor resistance at various concentrations of gases.

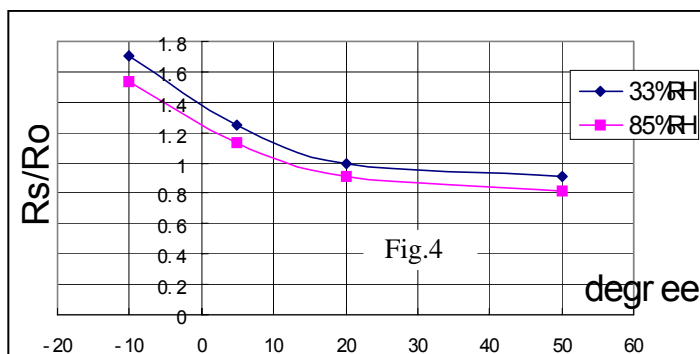Fig.2 sensitivity characteristics of the MQ-2

Fig.4 is shows the typical dependence of the MQ-2 on temperature and humidity.
Ro: sensor resistance at 1000ppm of H_2 in air at 33%RH and 20 degree.
Rs: sensor resistance at 1000ppm of H_2 at different temperatures and humidities.

SENSITVITY ADJUSTMENT

Resistance value of MQ-2 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 liquified petroleum gas<LPG>,or 1000ppm iso-butane<i-C4H10>concentration in air and use value of Load resistance that(R_L) about 20 KΩ(5KΩ to 47 KΩ).

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