# TECHNICAL DATA

# MQ-2 GAS SENSOR

#### **FEATURES**

Wide detecting scope Stable and long life Fast response and High sensitivity

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
Г	$V_{\mathrm{H}}$	Heating voltage	5V±0.1	ACOR DC
	$R_{L}$	Load resistance	can adjust	
Ī	R <sub>H</sub>	Heater resistance	$33 \Omega \pm 5\%$	Room Tem
	$P_{\mathrm{H}}$	Heating consumption	less than 800mw	

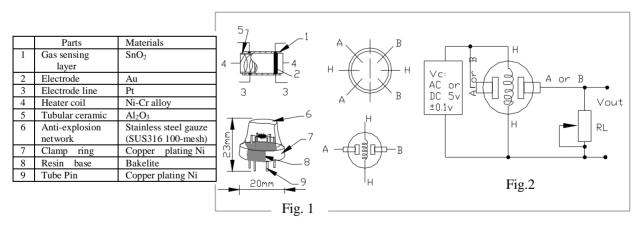
#### B. Environment condition

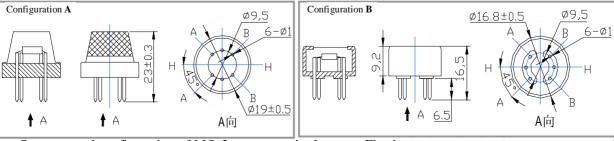
Symbol	Parameter name	Technical condition	Remarks
Tao	Using Tem	-20°C-50°C	
Tas	Storage Tem	-20°C-70°C	
$R_{\mathrm{H}}$	Related humidity	less than 95% Rh	
$O_2$	Oxygen concentration	21%(standard condition)Oxygen	minimum value is
		concentration can affect sensitivity	over 2%

## C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Remarks
Rs	Sensing	$3$ K $\Omega$ - $30$ K $\Omega$	Detecting concentration
	Resistance	(1000ppm iso-butane)	scope:
			200ppm-5000ppm
α	Concentration		LPG and propane
(3000/1000)	Slope rate	≤0.6	300ppm-5000ppm
isobutane			butane
Standard	Temp: 20°C ±2°C Vc:5V±0.1 Humidity: 65%±5% Vh: 5V±0.1		5000ppm-20000ppm
Detecting			methane
Condition			300ppm-5000ppm H <sub>2</sub>
Preheat time	Over 24 hour		100ppm-2000ppm Alcohol

D. Structure and configuration, basic measuring circuit





Structure and configuration of MQ-2 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

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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

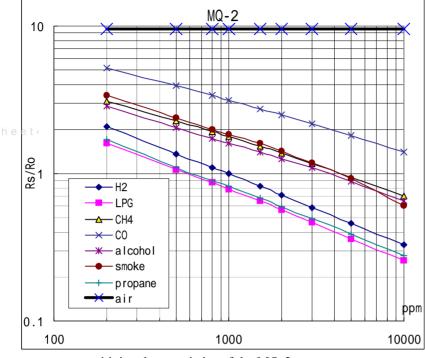


Fig.3 is shows the typical sensitivity characteristics of the MQ-2 for several gases. in their: Temp:  $20^{\circ}\text{C}$ , Humidity: 65%,  $O_2$  concentration 21% RL=5k  $\Omega$ 

Ro: sensor resistance at 1000ppm of H<sub>2</sub> in the clean air.
Rs:sensor resistance at various concentrations of gases.

Fig.2 sensitivity characteristics of the MQ-2

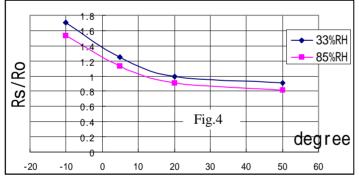


Fig.4 is shows the typical dependence of the MQ-2 on temperature and humidity. Ro: sensor resistance at 1000ppm of  $H_2$  in air at 33% RH and 20 degree. Rs: sensor resistance at 1000ppm of  $H_2$  at different temperatures and humidities.

#### 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 K  $\Omega$  (5K  $\Omega$ ) to 47 K  $\Omega$ ).

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

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