

# TECHNICAL DATA MQ-214 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 equipment in family and industry, are suitable for detecting of methane LPG, i-butane, propane.

## SPECIFICATIONS

### A. Standard work condition

Symbol	Parameter name	Technical condition	Remarks
V <sub>c</sub>	Circuit voltage	6V±0.1	AC OR DC
R <sub>L</sub>	Load resistance	50 Ω	
P <sub>H</sub>	Heating consumption	less than 100mw	@20mA

### B. Environment condition

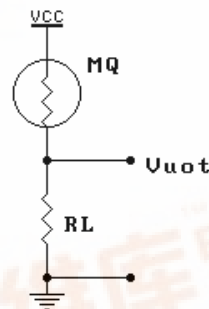
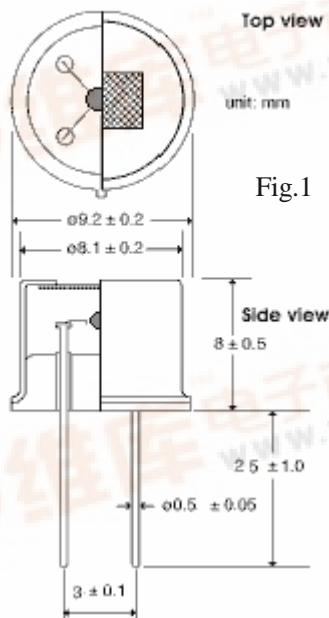
Symbol	Parameter name	Technical condition	Remarks
T <sub>ao</sub>	Using Tem	0°C-50°C	
T <sub>as</sub>	Storage Tem	0°C-70°C	
R <sub>H</sub>	Related humidity	less than 95% Rh	
O <sub>2</sub>	Oxygen concentration	21%(standard condition)Oxygen concentration can affect sensitivity	Minimum value is over 2%

### C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Remarks
R <sub>s</sub>	Sensing Resistance	50 Ω -200 Ω (5000ppm methane)	Detecting concentration scope: 3000ppm-20000ppm methane 500ppm-10000ppm LPG and propane 500ppm-10000ppm butane
α (3000/1000) isobutane	Concentration Slope rate	≤0.6	
Standard Detecting Condition	Temp: 20°C ±2°C Humidity: 65%±5%	V <sub>c</sub> :6V±0.1 R <sub>L</sub> =50 Ω	
Preheat time	Over 24 hour		

### D. Structure and configuration, basic measuring circuit

#### Structure and Dimensions:



Structure and configuration of MQ-214 gas sensor is shown as Fig. 1, micro Tin Dioxide (SnO<sub>2</sub>) sensitive bead with measuring electrode are fixed into a crust composed of plastic and stainless steel gauze, Without the heater providing necessary working conditions for sensitive components. The enveloped MQ-214 have 2 pin , they are used to fetch signals.

Electric parameter measurement circuit is shown as Fig.2



E. Sensitivity characteristic curve

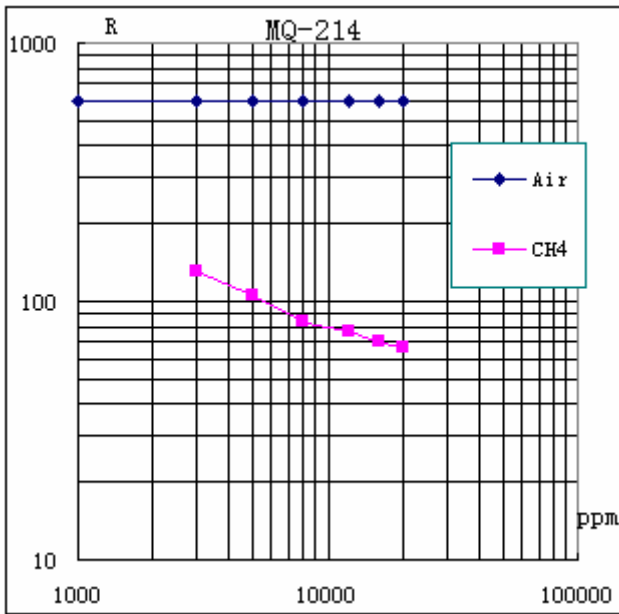


Fig.3 is shows the typical sensitivity characteristics of the MQ-214 for several gases. in their: Temp: 20°C、 Humidity: 65%、 O<sub>2</sub> concentration 21% RL=50 Ω R: sensor resistance at various concentrations of CH<sub>4</sub> gases.

Fig.3 sensitivity characteristics of the MQ-2 14

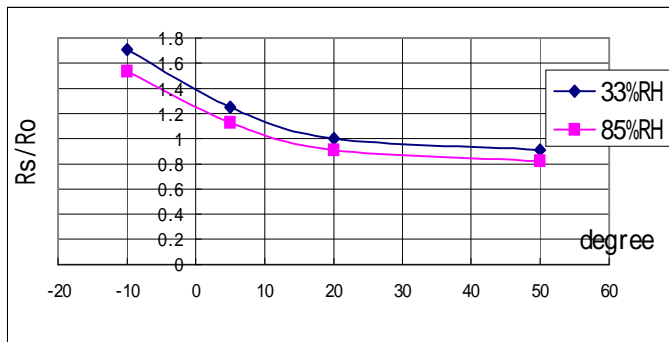


Fig.4 is shows the typical dependence of the MQ-214 on temperature and humidity. Ro: sensor resistance at 1000ppm of i-butane in air at 33%RH and 20 degree. Rs: sensor resistance at 5000ppm of CH<sub>4</sub> at different temperatures and humidities.

**SENSITIVITY ADJUSTMENT**

Resistance volume of MQ-214 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 3000ppm CH<sub>4</sub> concentration in air .

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

Notifications: When the sensor in preheating or working, do not connect VC on the two pins, it need one resistor of 50-100Ω in series, otherwise, it will destroy the sensor.

Basic application circuit

