

# TECHNICAL DATA

# MQ-214A

# 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 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
Vc	Circuit voltage	12V±0.1	AC OR DC
RL	Load resistance	200	
PH	Heating consumption	less than 120mw	@20mA

### B. Environment condition

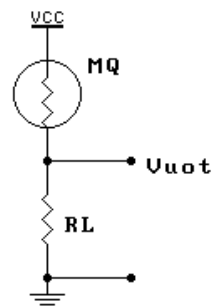
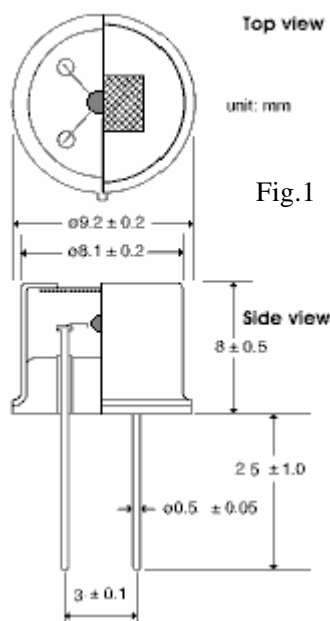
Symbol	Parameter name	Technical condition	Remarks
Tao	Using Tem	0 -50	
Tas	Storage Tem	0 -70	
RH	Related humidity	less than 95%Rh	
O <sub>2</sub>	Oxygen concentration	21%(standard condition)Oxygen concentration can affect sensitivity	Minimum value is over 2%

### C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Remarks
Rs	Sensing Resistance	100 -300 (5000ppm methane)	Detecting concentration scope : 3000ppm-20000ppm methane 500ppm-10000ppm LPG and propane 500ppm-10000ppm butane
(5000/3000) methane	Concentration Slope rate	0.6	
Standard Detecting Condition	Temp: 20 ± 2 Humidity: 65%± 5%	Vc:12V±0.1 RL=200	
Preheat time	Over 24 hour		

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

#### Structure and Dimensions:



Structure and configuration of MQ-214A 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-214A have 2 pin , they are used to fetch signals.

Electric parameter measurement circuit is shown as Fig.2

E. Sensitivity characteristic curve

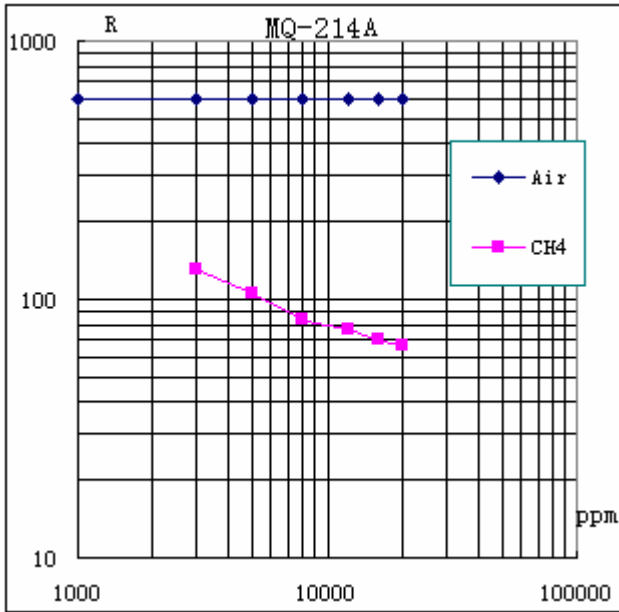


Fig.3 is shows the typical sensitivity characteristics of the MQ-214A for several gases.

in their: Temp: 20 °C  
 Humidity: 65%  
 O<sub>2</sub> concentration 21%  
 RL=200

R: sensor resistance at various concentrations of CH<sub>4</sub> gases.

Fig.3 sensitivity characteristics of the MQ-214A

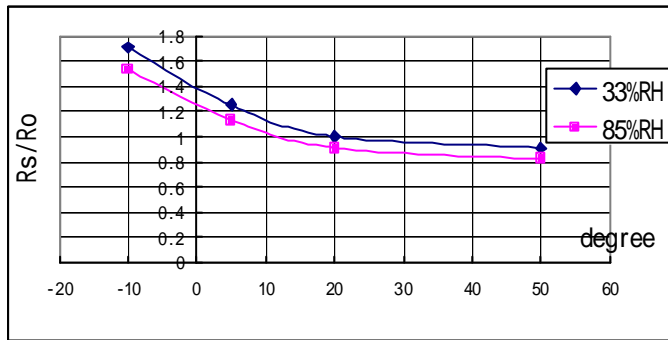


Fig.4 is shows the typical dependence of the MQ-214A on temperature and humidity.

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-214A 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 50-100 Ω in series, otherwise, it will destroy the sensor.

Basic application circuit

