

TECHNICAL DATA

MQ-3 GAS SENSOR

FEATURES

- * High sensitivity to alcohol and small sensitivity to Benzine .
- * Fast response and High sensitivity
- * Stable and long life
- * Simple drive circuit

APPLICATION

They are suitable for alcohol checker, Breathalyser.

SPECIFICATIONS

A. Standard work condition

| Symbol | Parameter name | Technical condition | Remarks |
|----------------|---------------------|---------------------|----------|
| V _c | Circuit voltage | 5V±0.1 | AC OR DC |
| V _H | Heating voltage | 5V±0.1 | ACOR DC |
| R _L | Load resistance | 200KΩ | |
| R _H | Heater resistance | 33Ω ±5% | Room Tem |
| P _H | Heating consumption | less than 750mw | |

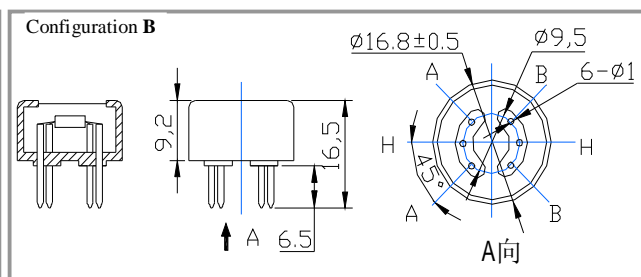
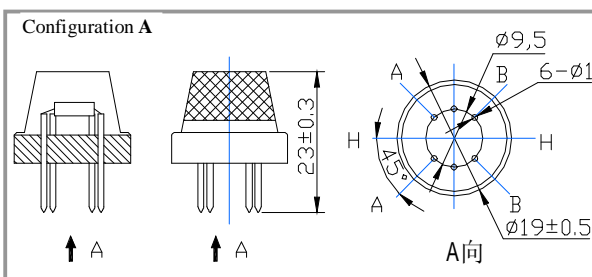
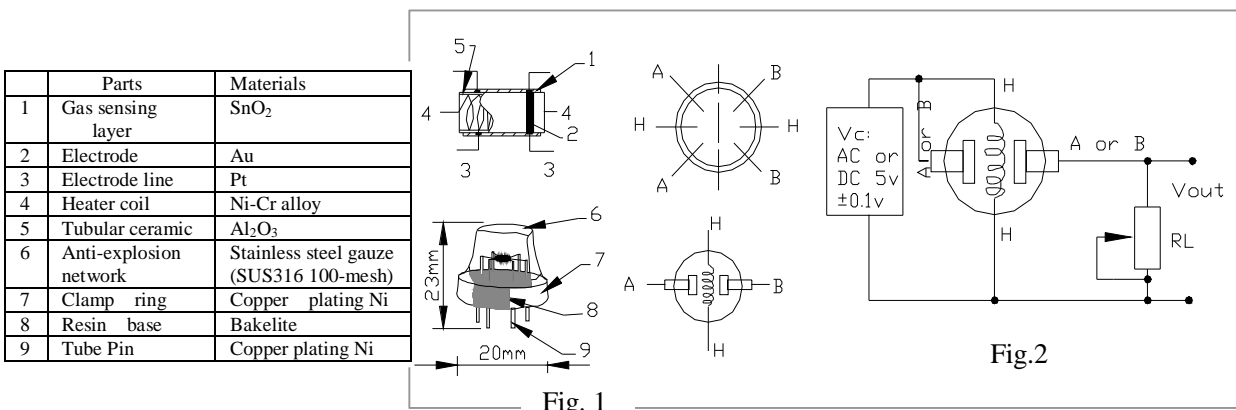
B. Environment condition

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

C. Sensitivity characteristic

| Symbol | Parameter name | Technical parameter | Remarks |
|------------------------------|-------------------------------------|---|---|
| R _s | Sensing Resistance | 1MΩ - 8 MΩ (0.4mg/L alcohol) | Detecting concentration scope: 0.05mg/L—10mg/L Alcohol |
| α (0.4/1 mg/L) | Concentration slope rate | ≤0.6 | |
| Standard detecting condition | Temp: 20°C ±2°C Humidity: 65%±5% | V _c :5V±0.1 V _h : 5V±0.1 | |
| Preheat time | Over 24 hour | | |

D. Structure and configuration, basic measuring circuit



Structure and configuration of MQ-3 gas sensor is shown as Fig. 1 (Configuration A or B), sensor composed by micro AL₂O₃ ceramic tube, Tin Dioxide (SnO₂) 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-3 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

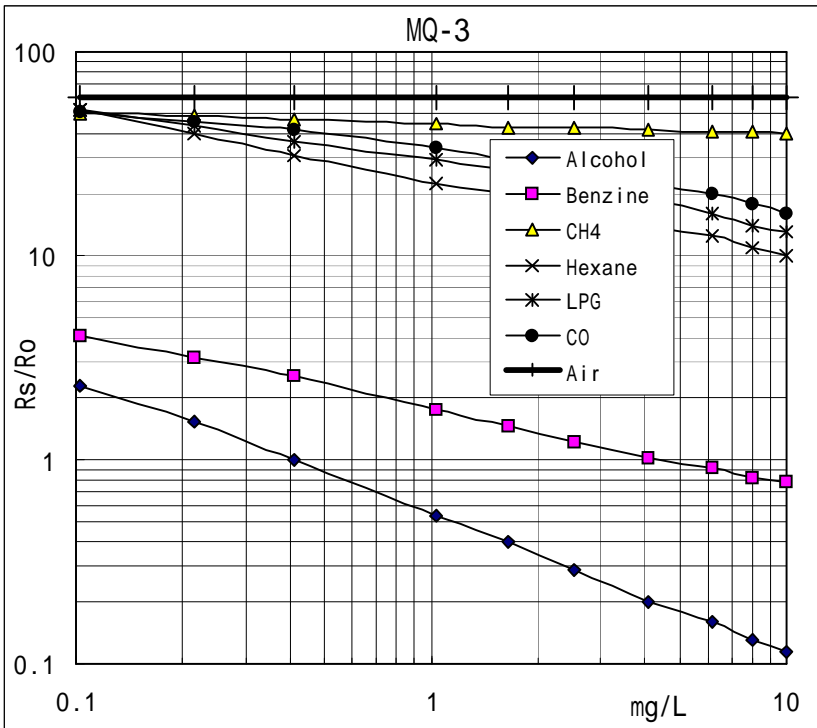


Fig.2 sensitivity characteristics of the MQ-3

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

in their: Temp: 20°C,
Humidity: 65% ,
O₂ concentration 21%
RL=200k Ω

Ro: sensor resistance at 0.4mg/L of Alcohol in the clean air.

Rs:sensor resistance at various concentrations of gases.

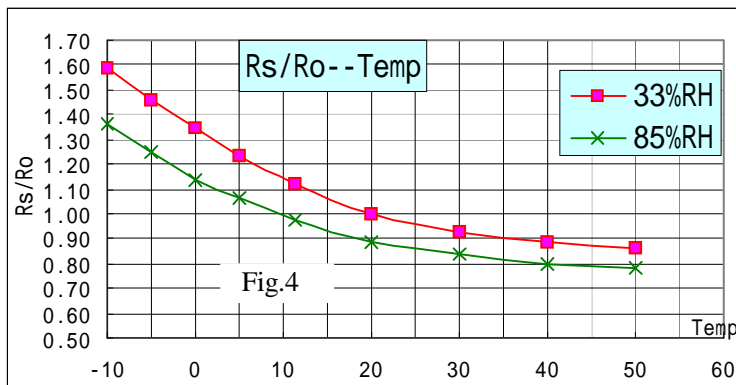


Fig.4 is shows the typical dependence of the MQ-3 on temperature and humidity.

Ro: sensor resistance at 0.4mg/L of Alcohol in air at 33%RH and 20 °C

Rs: sensor resistance at 0.4mg/L of Alcohol at different temperatures and humidities.

SENSITIVITY ADJUSTMENT

Resistance value of MQ-3 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 0.4mg/L (approximately 200ppm) of Alcohol concentration in air and use value of Load resistancethat(R_L) about 200 K Ω (100K Ω to 470 K Ω).

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