

TECHNICAL DATA

MQ-139 GAS SENSOR

FEATURES

Wide detecting scope
Stable and long life

Fast response and High sensitivity
Simple drive circuit

APPLICATION

They are used in the gas detector for Freon in house or environment, and they are suitable for detecting of R11, R22, R113, R134A, R409A, R410A, etc.

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	AC OR DC
R _L	Load resistance	can adjust	
R _H	Heater resistance	33Ω ± 10%	Room Tem
P _H	Heating consumption	less than 850mw	

B. Environment condition

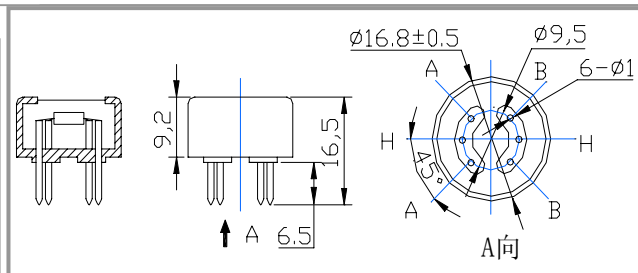
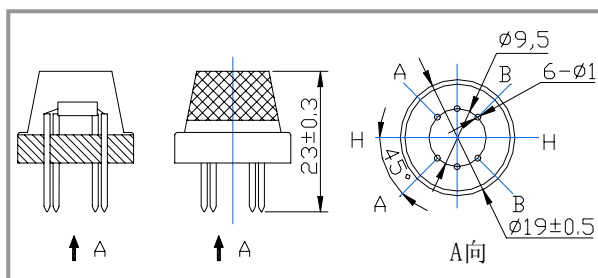
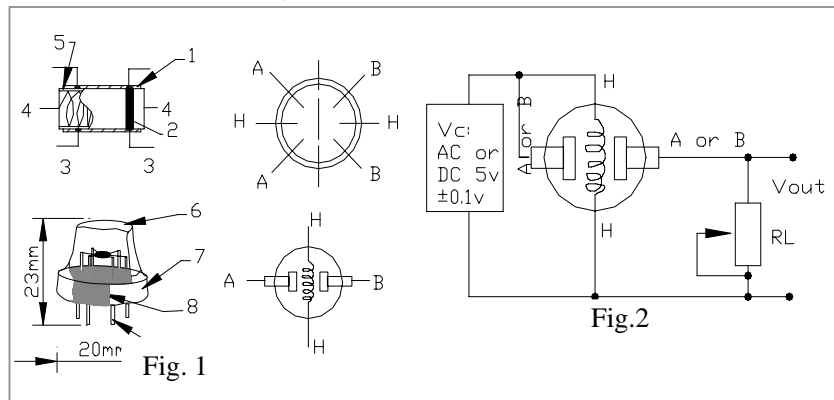
Symbol	Parameter name	Technical condition	Remarks
Tao	Using Tem	-20°C-50°C	
Tas	Storage Tem	-20°C-70°C	
R _H	Related humidity	less than 95%Rh	

C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Remarks
R _s	Sensing Resistance	30KΩ -200KΩ (100ppm R134a)	Detecting concentration scope: 10ppm-1000ppm R134a
α (200/50) R134a	Concentration Slope rate	≤0.65	
Standard Detecting Condition	Temp: 20°C ± 2°C Vc: 5V ± 0.1 Humidity: 65% ± 5% Vh: 5V ± 0.1		
Preheat time	Over 24 hours		

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 ₂ O ₃
6 Anti-explosion network	Double deck stainless steel gauze (SUB316 100-mesh)
7 Clamp ring	Copper plating Ni
8 Resin base	Bakelite
9 Tube Pin	Copper plating Ni



Structure and configuration of MQ-139 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-139 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

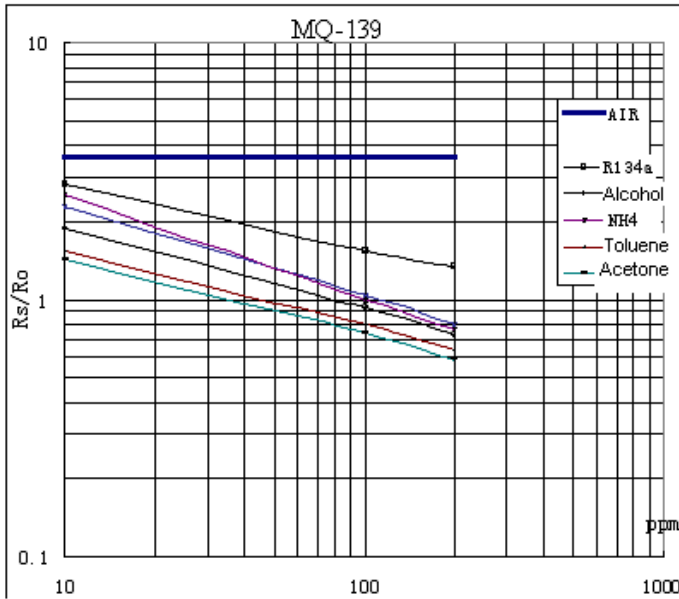


Fig.3 sensitivity characteristics of the MQ-139

Fig.3 is shows the typical sensitivity characteristics of the MQ-139.

in their:

Temp: 20°C、

Humidity: 65%、

O₂ concentration 21%

RL=20kΩ

Rs :sensor resistance at various concentrations of different gases.

Ro: sensor resistance in the clean air.

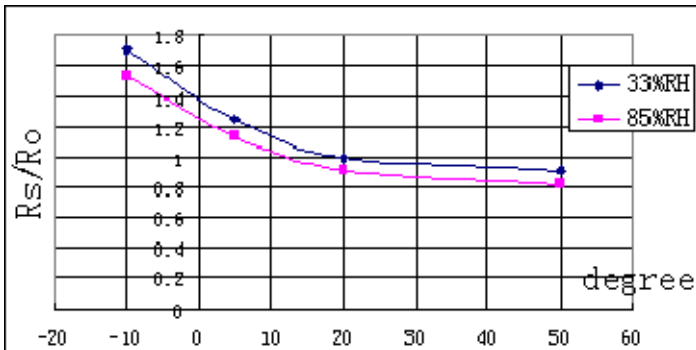


Fig.4 is shows the typical dependence of the MQ-139 on temperature and humidity.

Ro: sensor resistance at 100ppm R134a at 33%RH and 20 degree.

Rs: sensor resistance at 100ppm R134a at different temperatures and humidity

Fig.4 dependence on temperature and humidity of the MQ-139

SENSITIVITY ADJUSTMENT

.Resistance value of MQ-139 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 100ppm R134a.

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