TECHNICAL DATA   GAS SENSOR

FEATURES
* High sensitivity to LPG, natural gas , town gas
* Small sensitivity to alcohol, smoke.
* Fast response .   * Stable and long life   * Simple drive circuit

APPLICATION
They are used in gas leakage detecting equipments in family and industry, are suitable for detecting of LPG, natural gas , town gas, avoid the noise of alcohol and cooking fumes and cigarette smoke.

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	ACOR DC
P_L	Load resistance	20K	
R_H	Heater resistance	31± 10%	Room Tem
P_H	Heating consumption	less than 800mw	

B. Environment   condition

Symbol	Parameter name	Technical condition	Remarks
Tao	Using Tem	-10 -50	
Tas	Storage Tem	-20 -70	
R_H	Related humidity	less than 95%Rh	
O_2	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	10K - 60K (5000ppm methane)	Detecting concentration scope 200-10000ppm LPG,LNG Natural gas, iso-butane, propane Town gas
(5000ppm/1000 ppm CH_4)	Concentration slope rate	0.6	
Standard detecting condition	Temp: 20 ± 2 Vc:5V± 0.1 Humidity: 65%± 5% Vh: 5V± 0.1		
Preheat time	Over 24 hour		

D. Strucyure 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_2O_3
6	Anti-explosion network	Stainless steel gauze (SUS316 100-mesh)
7	Clamp ring	Copper plating Ni
8	Resin base	Bakelite
9	Tube Pin	Copper plating Ni

Fig. 1

Fig.2

Configuration A

Configuration B

Structure and configuration   gas sensor is show n as Fig. 1 (Configuration A or B), sensor composed by
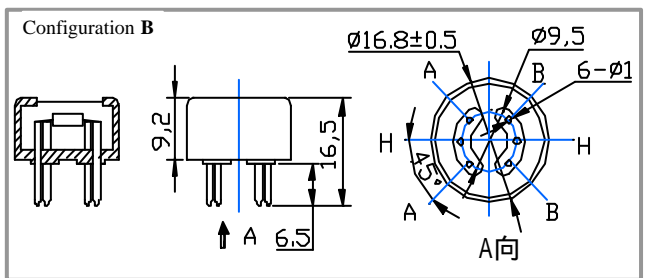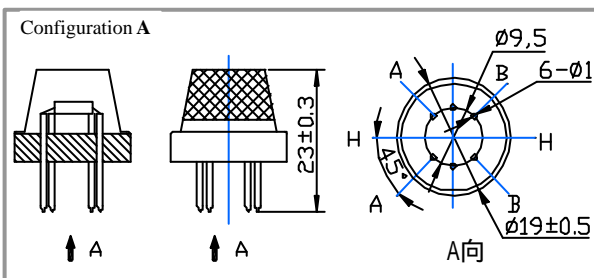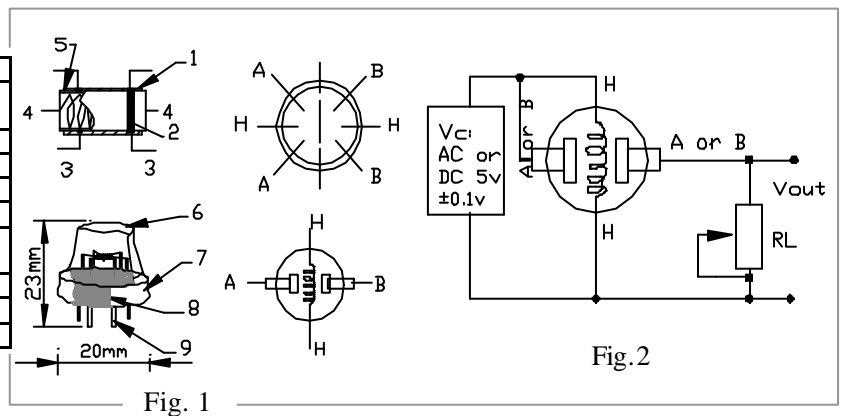
micro AL$_2$O$_3$ ceramic tube, Tin Dioxide (SnO$_2$) sensitive layer, measuring electrode and heater are fixed into a crust made by plastic and stainless steel net. The heater provides necessary work conditions for work of sensitive components. The enveloped have 6 pin ,4 of them are used to fetch signals, and other 2 are used for providing heating current.

Electric parameter measurement circuit is shown as Fig.2

E. Sensitivity characteristic curve
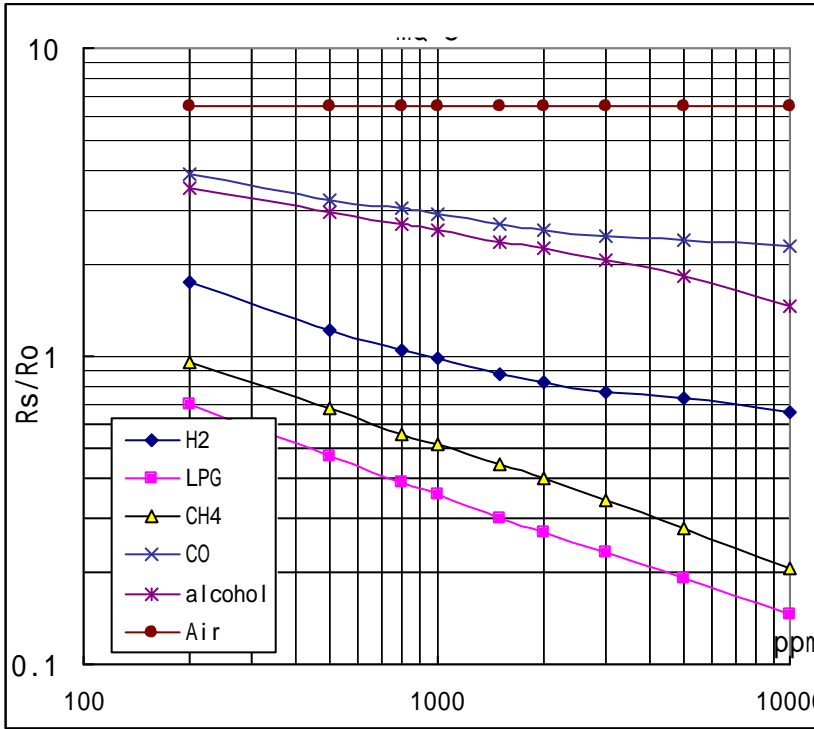
Fig.2 sensitivity characteristics

Fig.3 is shows the typical sensitivity characteristics for several gases.
in their: Temp: 20
Humidity: 65%
O$_2$ concentration 21%
RL=20k
Ro: sensor resistance at 1000ppm of H$_2$ in the clean air.
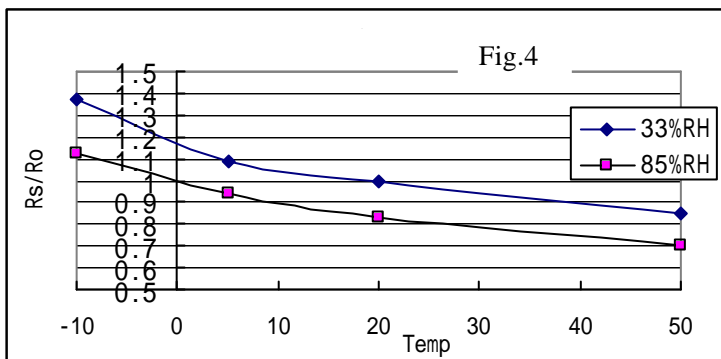Rs:sensor resistance at various concentrations of gases.

Fig.4 is shows the typical dependence on temperature and humidity.
Ro: sensor resistance at 1000ppm of H$_2$ in air at 33%RH and 20 degree.
Rs: sensor resistance at different temperatures and humidities.

SENSITVITY ADJUSTMENT

Resistance value 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 H$_2$ or LPG concentration in air and use value of Load resistance (R$_L$) about 20 K (10K to 47K).

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