

- Specification Sheets -

# FIGARO GAS SENSOR TGS 800

(Tentative)

FIGARO ENGINEERING INC.

Model : Figaro Gas Sensor TGS 800

## 2. Structure and Materials

Structure : Refer to Fig.1 in attached paper

Part	Material	Standard
Element	Sintered semiconductor( $\text{SnO}_2$ )	Refer to Article 4 "Electric Characteristics"
Stainless steel gauze	SUS 316, 100 mesh	Double mesh
Heater coil	Chrome alloy wire $\phi = 0.06$	Resistance value of heater: $R_H = 38 \Omega \pm 3 \Omega$ (measured at room temperature)
Lead wire	Gold alloy wire $\phi = 0.08$	
Base and Flame arrester	Glass Fiber reinforced polyamid resin	Approved by 94HB of UL standard Deformable temperature: $\sim 240^\circ\text{C}$
Pin	Ni	Retentivity: 5Kg. or more

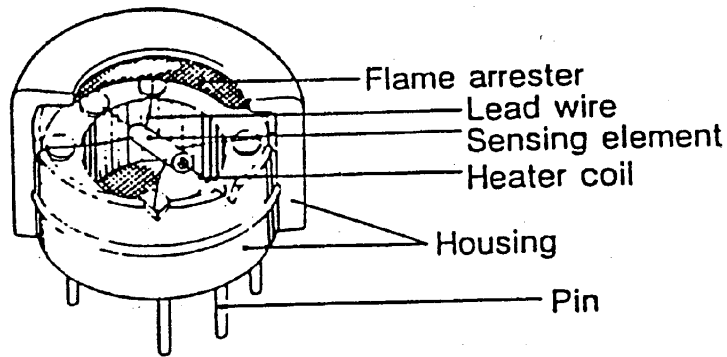
## 3. Circuit Condition

Item	Standard	Remarks
Power consumption of heater	$P_H = 650\text{mW}$	Typical value
Power consumption of Sensor	$P_S \leq 15\text{mW}$	$P_S = V_C^2 \cdot R_S / (R_S + R_L)^2$
Heater voltage ( $V_H$ )	$V_H = 5.0\text{V} \pm 0.2\text{V}$ A.C. or D.C.	
Circuit voltage ( $V_C$ )	$V_C \leq 24\text{V}$ A.C. or D.C.	Should satisfy the following condition : $P_S \leq 15\text{mW}$
Load Resistor ( $R_L$ )	variable	Same as the above

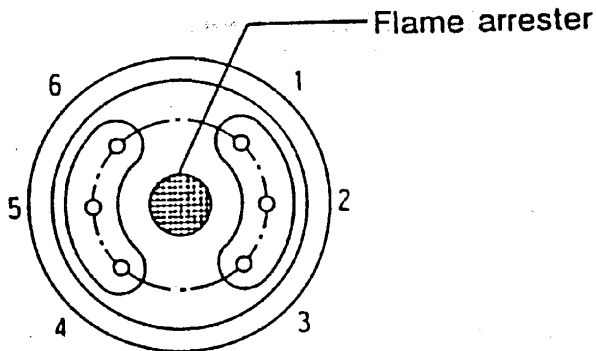
#### 4. Electric Characteristics

Item	Test Condition	Standard
Sensor Resistance	<p>Basic measuring circuit is shown in Fig. 4 in attached paper</p> <p>H<sub>2</sub> (purity 99% or more) should be used as test gas</p> <p>The capacity of the test chamber should be 1ℓ or more per one sensor</p> <p>Standard atmospheric condition:            clean air            temperature: 20°C ± 2°C            relative humidity: 65% ± 5%</p> <p>Before the test, 48 hours pre-heating under the standard atmospheric condition is necessary</p>	<p>《in clean air》</p> <p><math>R_s = 10K\Omega \sim 130K\Omega</math></p> <p>《in H<sub>2</sub> 10ppm》</p> <p><math>\frac{R_s(H_2 \ 10ppm)}{R_s(Air)}</math>            = 0.2 ~ 0.6</p>
Response time	Required time for sensor resistance to reach the value at 90% of the stable level in H <sub>2</sub> 10ppm after exposed to H <sub>2</sub> 10ppm	Within 20 seconds
Time for initial stabilization	Required time for Sensor resistance to reach the value at 80% of the stable level in clean air after switch on	One hour or more
Insulation resistance	Insulation resistance when DC 100V is applied between the live part and the dead metal part	5MΩ or more
Dielectric strength	Dielectric strength when a voltage of 500V is applied between the live part and the dead metal part for one minute	No dielectric breakdown is caused (Current leakage: under 1mA)

Fig. 1. Structure



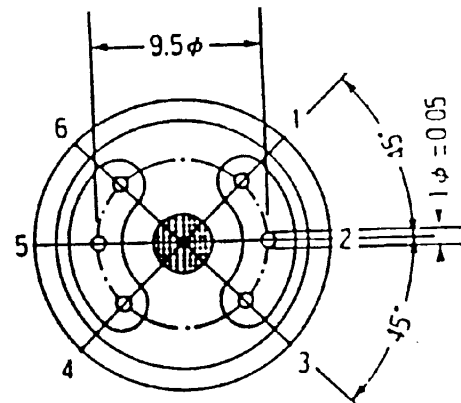
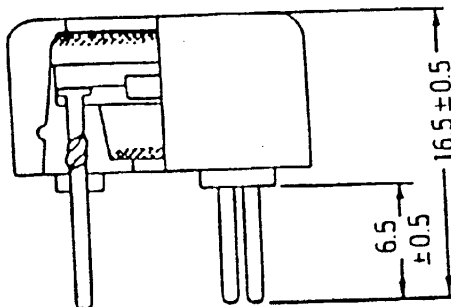
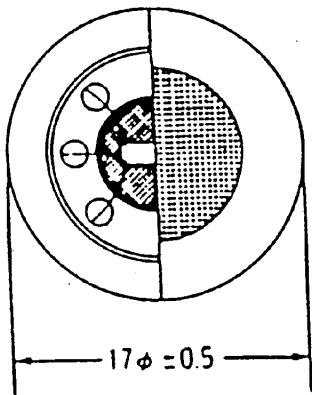
(a) Cut View



(b) Bottom View

The numbers in the figure indicate the six pins.

Fig. 2. Dimensions



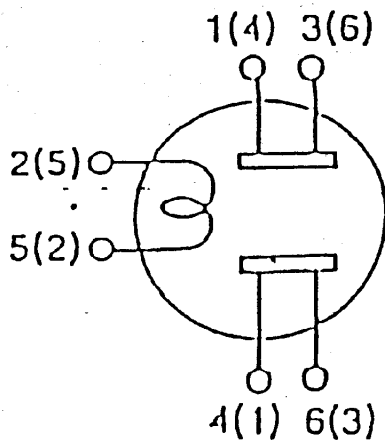


Fig. 3 Symbol of TGS 800 in Electric Circuit

\* 2, 5 : Heater pin

1, 3 : Connected electrodes pairs

4, 6 : Connected electrodes pairs

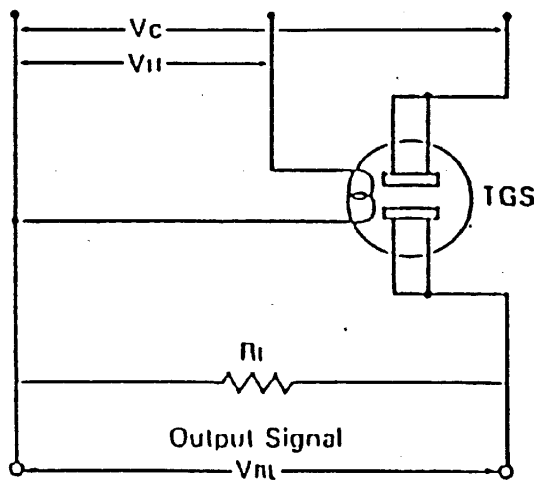


Fig. 4 Basic Measuring Circuit

\* Standard Test Condition

Circuit voltage :  $V_c = 10 \pm 0.1V$  (AC or DC)

Heater voltage :  $V_{II} = 5 \pm 0.05V$  (AC or DC)

Load Resistor :  $R_L = 10.0K\Omega \pm 1\%$