

KGS 102



The KGS 102 is an SnO₂ semiconductor gas sensor and is used in gas detection, air cleaning system, auto-ventilation system, micro wave oven, etc. In a clean atmosphere, the resistance of the sensor is high. However, with the increase of water vapor or gas concentration in the atmosphere, the resistance decreases. The KGS 102 gas sensor features high stability against air flow, superb response time and excellent durability.

Specifications

Power Consumption	800 ± 50 mW
Heater Current	160 ± 10 mA
Heater Voltage	AC or DC 5 V
Circuit Voltage	AC or less than DC 12 V (DC 5V recommended)
Load	Variable
Operating Temp. & Humidity	-10°C ~ 50°C, 30~85%RH
Storage Temperature	-30°C ~ 50°C
Sensor Resistance (in clean air at 25°C, 60% RH)	20~80 kΩ
Gas Sensitivity Rs (CH ₄ 1000ppm)/ Rs (air)	< 1/3

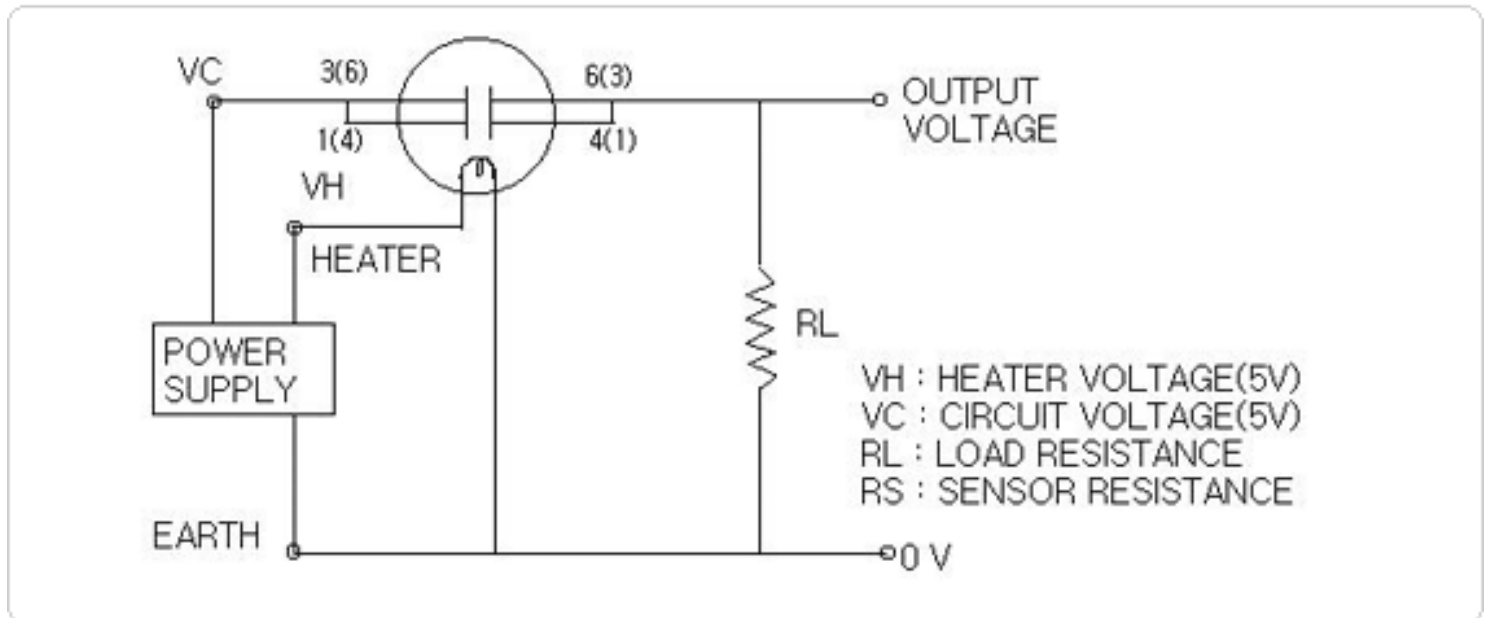
Detectable Gases

Hydrocarbons	Methane, Propane, Butane, Hexane, Gasoline, Acetylene, Ethylene, Butylene, Benzene, Toluene, etc.
Halogenized Hydrocarbons	Methyl Chloride(CH ₃ Cl) , Ethyl Chloride, Vinyl Chloride, etc.
Alcohols	Methanol, Ethanol, Propanol, Butanol, etc.
Ethers	Methyl Ether, Ethyl Ether, etc.
Ketones	Acetone, Methyl Ethyl Ketone, etc.
Esters	Methyl Acetate, Ethyl Acetate, Butyl Acetate, etc.
Nitrogen Compounds	Nitro Methane, Methyl Amine, Ethyl Amine, etc.
Inorganic Gas & Others	Ammonia, Carbon Monoxide, Hydrogen, Hydrogen Sulphide, Smoke, etc.

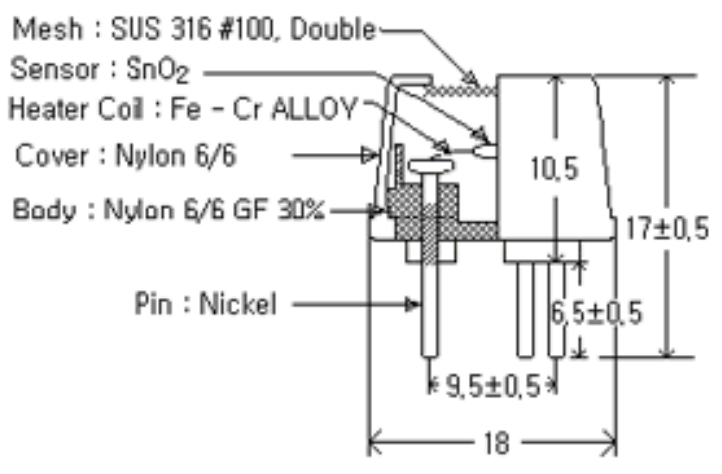
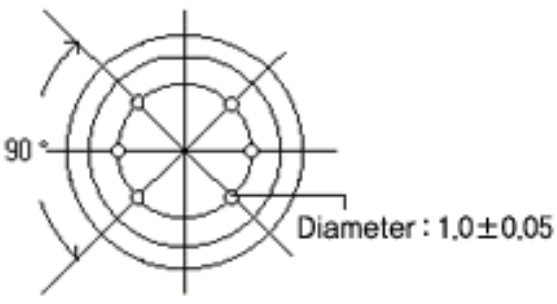
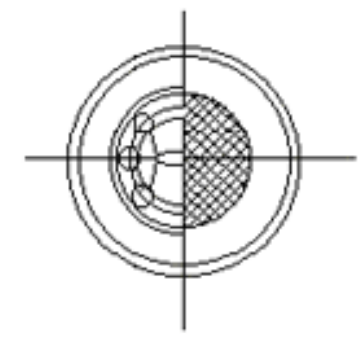
Basic Measuring Circuit

The variation in resistance of the sensor(R_s) is measured as a change in the voltage across the load resistor(R_L). The sensor resistance (R_s) is calculated from output voltage(V_{RL}) by the following formular.

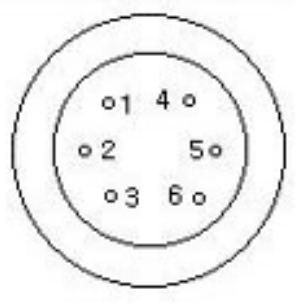
$$R_s = (V_c / V_{RL} - 1) \times R_L$$



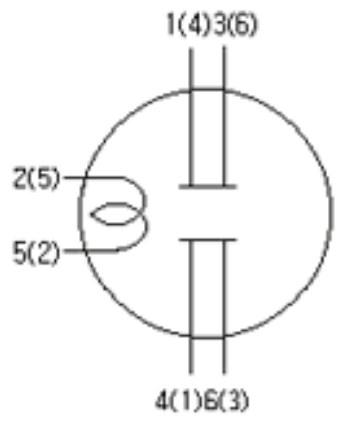
Structure and Materials



BOTTOM PIN CONNECTION



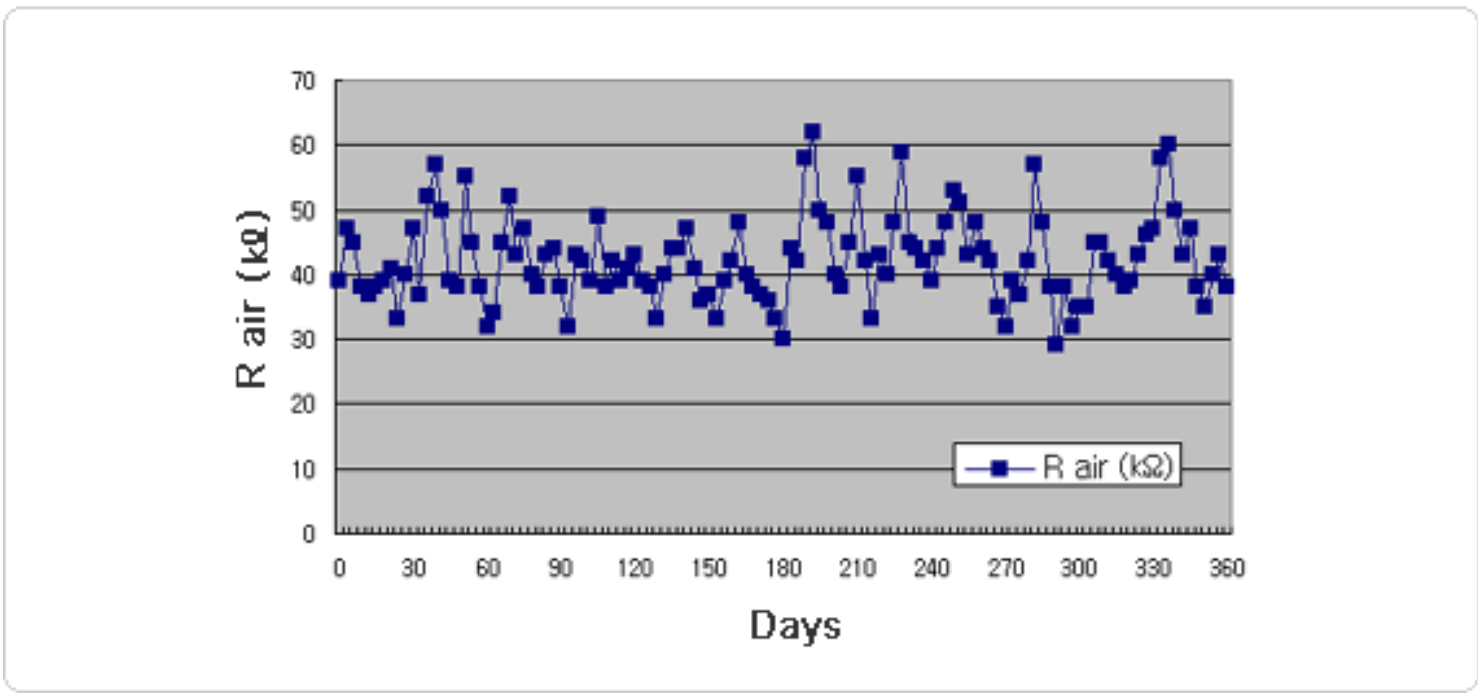
ELECTRICAL DIAGRAM



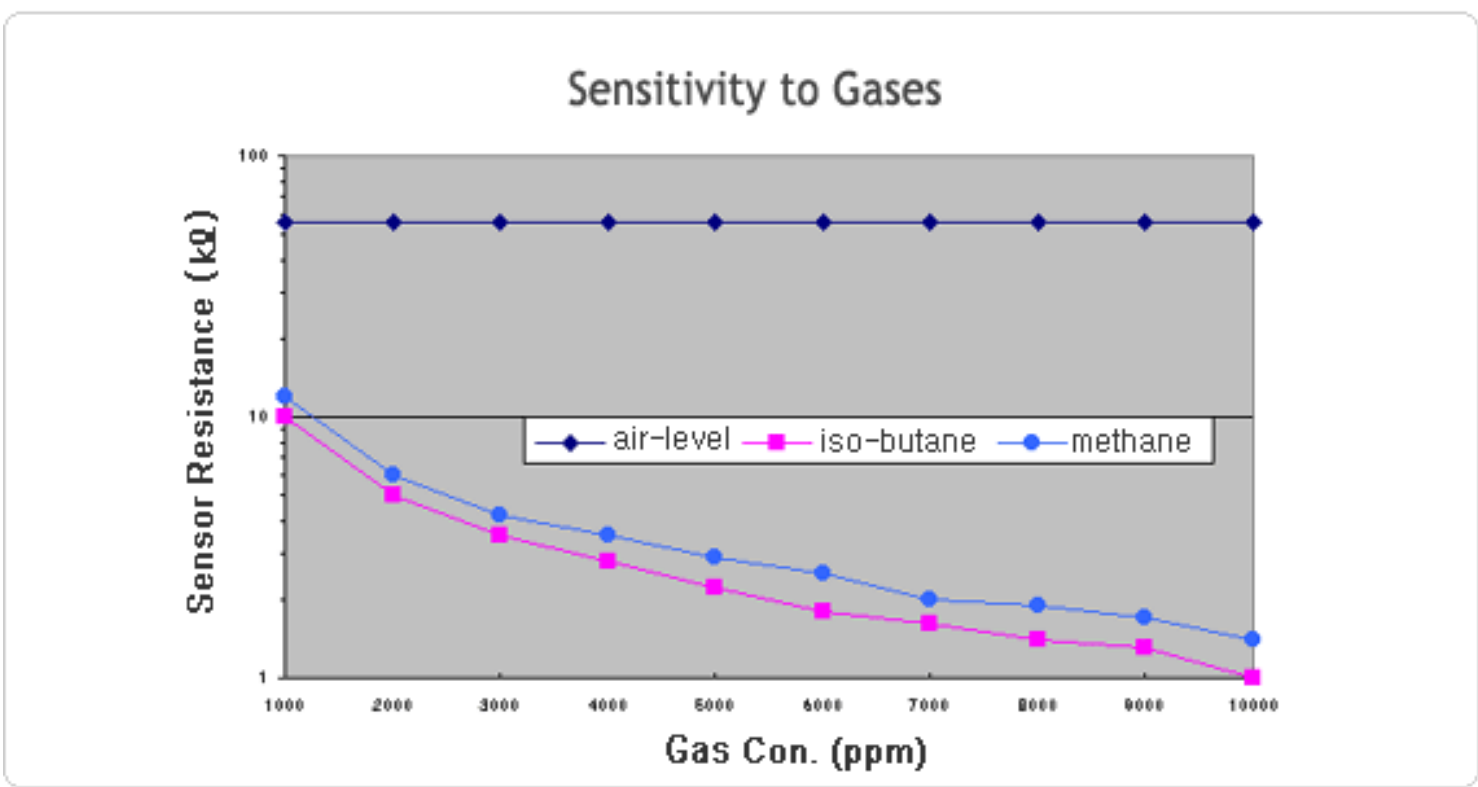
NOTE
 Heater Coil : 2 & 5
 Sensor : 1 & 3, 4 & 6
 Internally Connected

* All dimensions in millimeters

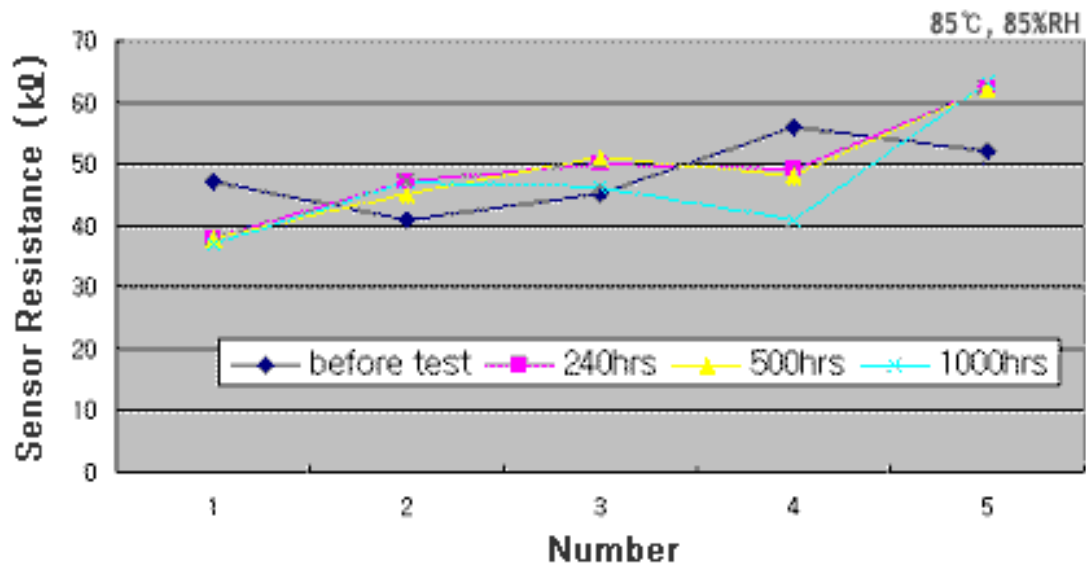
R air Variation with Aging Time



Characteristics Data



High Temp. High Humidity Test



Thermal Shock Test

