

## TGS26 19 Gas Sensor for Methane Detection

### characteristic : \_\_\_\_\_

- \* low power consumption
- \* High sensitivity to methane gas
- \* Long service life and low cost
- \* Simple application circuit

### apply : \_\_\_\_\_

- \* Household gas leak alarm
- Portable gas detector
- \* Leak detection of gas facilities

The TGS2619 sensor demonstrates exceptional methane detection sensitivity. Its low sensitivity to volatile alcohol (a common household interference gas) makes it an ideal choice for residential gas leak alarms. Featuring a compact sensor element, the device requires only 56mA of heating current. The detection unit is housed within a standard TO-5 metal package, ensuring both compact design and reliable performance.

TGS2619-C00 is not only small in size, but also excellent in response. It is the best choice for gas leak detector.

The TGS2619-E00 is equipped with a filter that eliminates interference gases such as alcohol, featuring highly sensitive selectivity for methane gas. It is particularly suitable for detecting complex atmospheres and stringent household environments, making it the ideal sensor for home gas leak detectors.

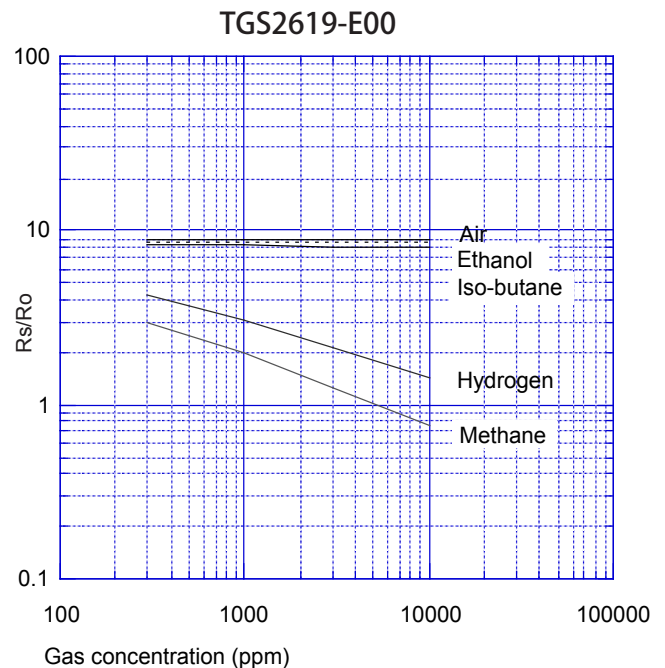
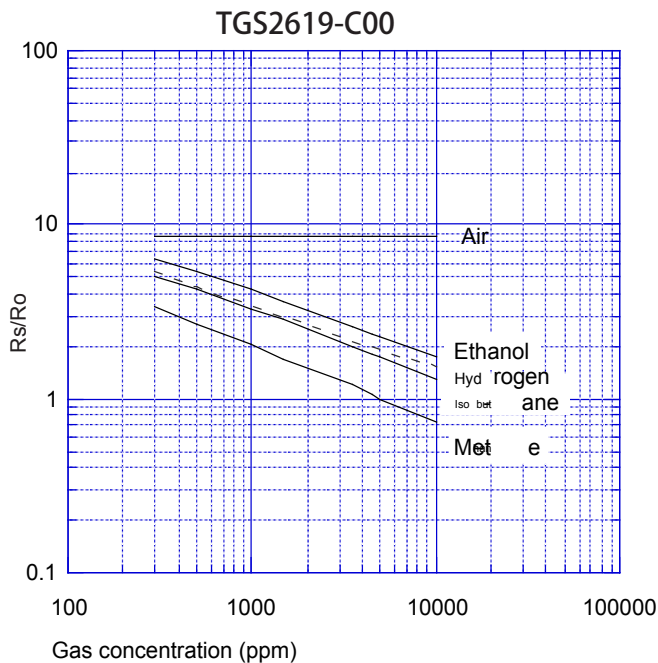


### Sensitivity characteristics: \_\_\_\_\_

The representative sensitivity characteristic curve is shown in the figure below under standard test conditions (see back).

The vertical axis represents the sensor resistance ratio  $R_s/R_o$ , where

- $R_s$  = the resistance of the sensor in a variety of gas concentrations
- $R_o$  = Resistance of the sensor in 5000ppm methane

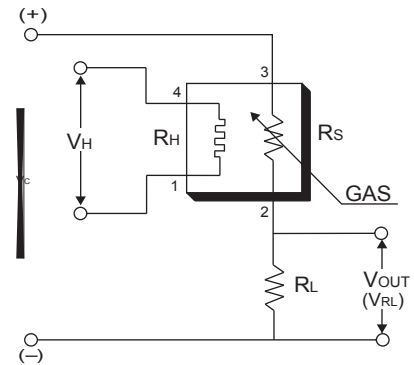


Important Notice: The application conditions for Feigaro sensors may vary depending on specific customer requirements. Feigaro strongly recommends consulting our technical team prior to use, particularly when the detected gas is not listed. Feigaro assumes no liability for any usage that has not undergone professional testing by Feigaro.

## Basic test circuit:

This sensor requires two voltages: Heater Voltage ( $V_H$ ) and Loop Voltage ( $V_C$ ).  $V_H$  is applied to the integrated heater to maintain the sensor element at a temperature compatible with the target gas.  $V_C$  measures the loop output voltage ( $V_{OUT}$ ) across the load resistor ( $R_L$ ) connected in series with the sensor.

This sensor has polarity requirements, so the circuit must be powered by DC. As long as the electrical characteristics of the sensor are satisfied,  $V_C$  and  $V_H$  can share the same power supply circuit. When selecting load resistance, choose values that provide optimal response range for the detected gas concentration. Additionally, ensure the maximum power consumption ( $P_S$ ) of the sensor components remains below 15mW at the maximum load resistance ( $R_L$ ) within the detected gas concentration range. The maximum power consumption occurs when the resistance value of  $R_L$  exposed to gas equals that of  $R_S$ .



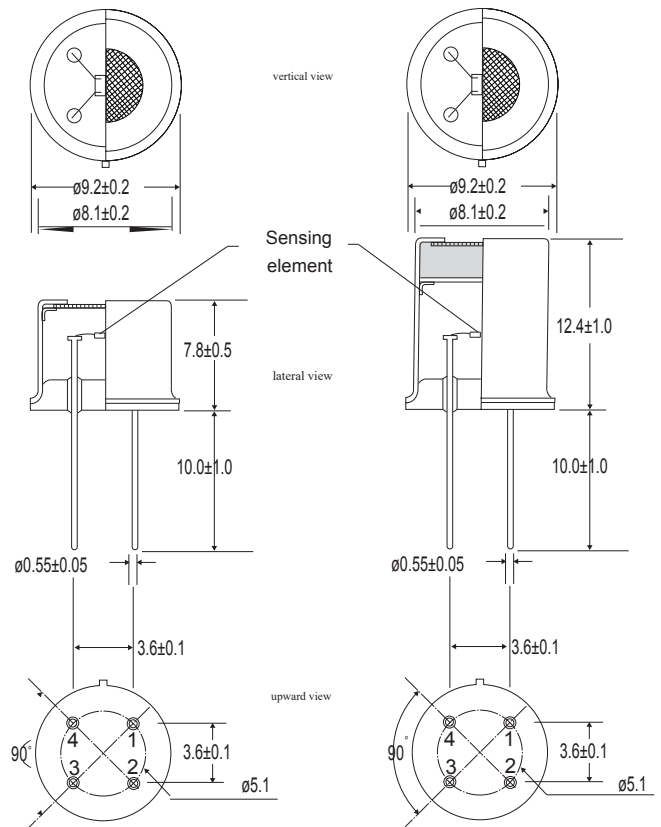
## specifications :

## Structure and size:

model		TGS2619	
Detection principle		Oxidized semiconductor type	
Standard encapsulation		TO-5 Metals	
Object gas		Methane, natural gas	
Scope of detection		500 ~ 10,000ppm	
Standard loop conditions	heater voltage	$V_H$	$5.0 \pm 0.2V$ AC/DC
	loop voltage	$V_C$	$5.0 \pm 0.2V$ DC $P_S \leq 15mW$
	load resistance	$R_L$	variable $0.45k\Omega$ min.
Electrical characteristics under standard test conditions	Heating element resistance	$R_H$	Room temperature about $59\Omega$
	Heater current	$I_H$	$56 \pm 5mA$
	Heater power consumption	$P_H$	$280mW \pm 25mW$
	Sensor resistor	$R_S$	$0.68 \sim 6.8k\Omega$ 5000 ppm methane in
	sensitivity ( $R_S$ rate of change)		$0.60 \pm 0.06$ $R_S$ (9000ppm) $R_S$ (3000ppm)
standard test conditions	Test gas conditions	Methane in air $20 \pm 2, C, 65 \pm 5\%RH$	
	Loop conditions	$V_C = 5.0 \pm 0.01V$ DC $V_H = 5.0 \pm 0.05V$ DC	
	preheating time	7 sky	

TGS2619-C00

TGS2619-E00



Unit : mm

pin connection :

- 1: Heater
- 2: Sensor electrode (-)
- 3: Sensor electrode (+)
- 4: Heater

The power consumption value ( $P_S$ ) can be calculated by the following formula: The sensor resistor ( $R_S$ ) depends on  $V_{OUT}$  ( $V_{RL}$ )

The measured value is calculated by the following formula:

$$P_S = \frac{(V_C - V_{RL})^2}{R_S}$$

$$R_S = \left( \frac{V_C}{V_{RL}} - 1 \right) \times R_L$$

The typical characteristics of the sensor are shown in this product specification. The actual characteristics of the sensor vary from product to product. Please refer to the specifications of each sensor for details.

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