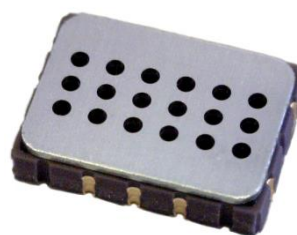




The MiCS-2714 is a compact MOS sensor.

The MiCS-2714 is a robust MEMS sensor for nitrogen dioxide and leakage detection.

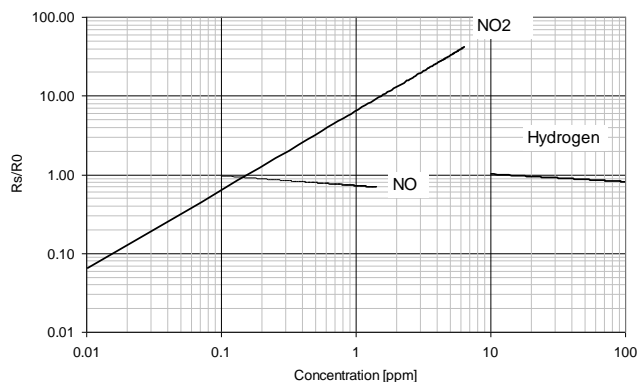


### Features

- Smallest footprint for compact designs (5 x 7 x 1.55 mm)
- Robust MEMS sensor for harsh environments
- High-volume manufacturing for low-cost applications
- Short lead-times

### Detectable gases

- Nitrogen dioxide NO<sub>2</sub> 0.05 – 10ppm
- Hydrogen H<sub>2</sub> 1 – 1000ppm



Continuous power ON, 25°C, 50% RH

## Performance sensor

Characteristic OX sensor	Symbol	Typ	Min	Max	Unit
Sensing resistance in air (see note 1)	$R_0$	-	0.8	20	$k\Omega$
Typical NO <sub>2</sub> detection range	FS		0.05	10	ppm
Sensitivity factor (see note 2)	$S_{0.25}$	-	2	-	-

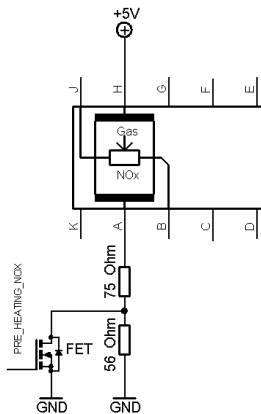
### Notes:

1. Sensing resistance in air  $R_0$  is measured under controlled ambient conditions, i.e. synthetic air at 23 ± 5°C and 50 ± 10% RH. Sampling test.
2. Sensitivity factor is defined as  $R_s$  at 0.25 ppm NO<sub>2</sub>, divided by  $R_s$  in air. Test conditions are 23 ± 5°C and ≤ 5% RH. Indicative values only. Sampling test.

### IMPORTANT PRECAUTIONS:

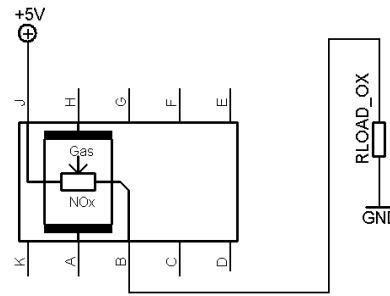
Read the following instructions carefully before using the MiCS-2714 described here to avoid erroneous readings and to prevent the device from permanent damage.

- The sensor must be reflow soldered in a neutral atmosphere, without soldering flux vapours.
- The sensor must not be exposed to high concentrations of organic solvents, silicone vapours or cigarette-smoke in order to avoid poisoning the sensitive layer.
- Heater voltage above the specified maximum rating will destroy the sensor due to overheating.
- This sensor is to be placed in a filtered package that protects it against water and dust projections.
- SGX sensortech strongly recommends using ESD protection equipment to handle the sensor.



MiCS-2714 with recommended supply circuit (top view)

R is 131  $\Omega$ . This resistor is necessary to obtain the right temperature on the heater while using a single 5 V power supply. The resulting voltage is typically  $V_H = 1.7$  V.

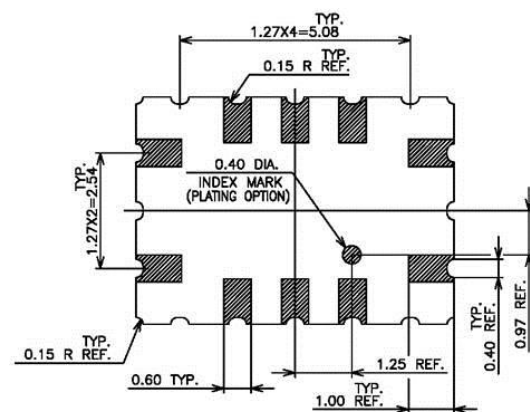
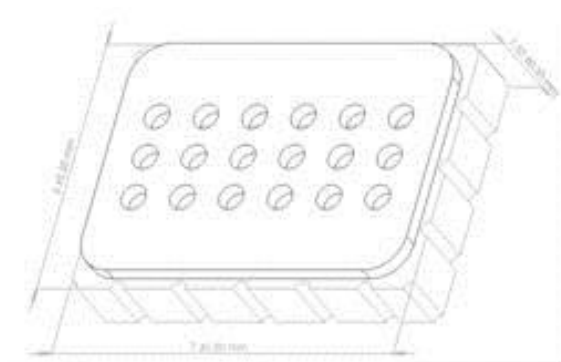


MiCS-2714 with measurement circuit (top view)

The voltage measured on the load resistor is directly linked to the resistance of the sensor. RLOAD must be 820  $\Omega$  at the lowest in order not to damage the sensitive layer.

Parameter	Symbol	Typ	Min	Max	Unit
Heating power	$P_H$	43	30	50	mW
Heating voltage	$V_H$	1.7	-	-	V
Heating current	$I_H$	26	-	-	mA
Heating resistance at nominal power	$R_H$	66	59	73	$\Omega$

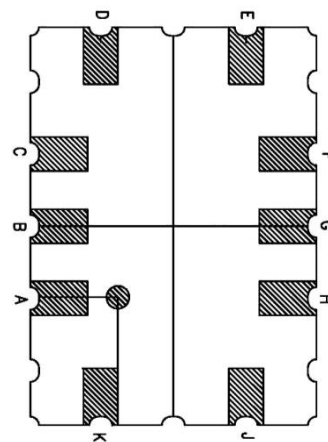
Rating	Symbol	Value / Range	Unit
Maximum heater power dissipation	$P_H$	50	mW
Maximum sensitive layer power dissipation	$P_S$	8	mW
Voltage supply Heating current	$V_{supply}$	4.9 – 5.1	V
Relative humidity range	RH	5 – 95	%RH
Ambient operating temperature	$T_{amb}$	-30 – 85	$^{\circ}C$
Storage temperature range	$T_{sto}$	-40 – 120	$^{\circ}C$
Storage humidity range	RH <sub>sto</sub>	5 - 95	%RH



## Package outline dimensions

The package is compatible with SMD assembly process.

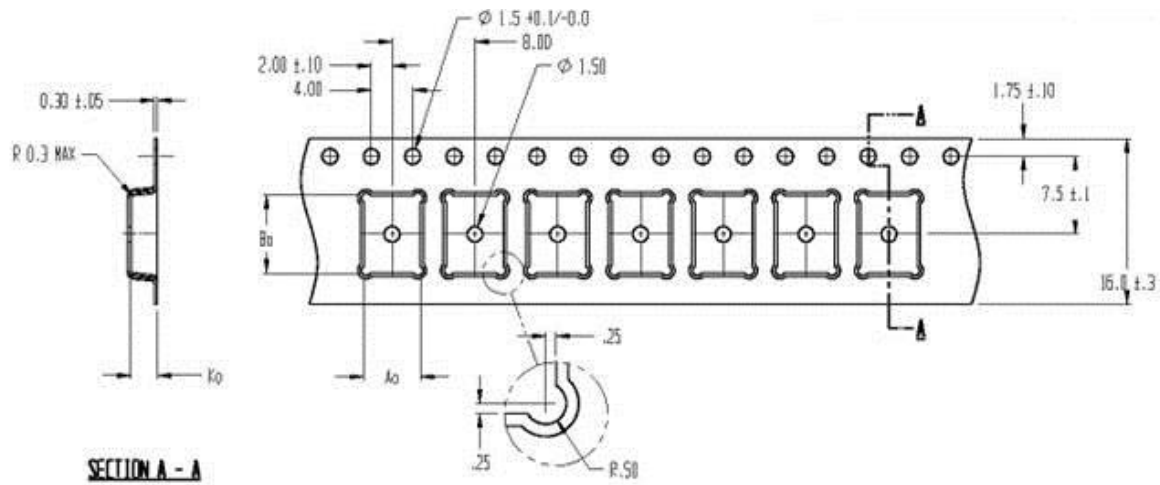
Pin	Connection
A	Rh1
B	Rs1
C	
D	
E	
F	
G	
H	Rh2
J	Rs2
K	



MiCS-2714 configuration (bottom view)

## Sensor configuration

The silicon gas sensor structure consists of an accurately micro machined diaphragm with an embedded heating resistor and the sensing layer on top. The internal connections are shown above.

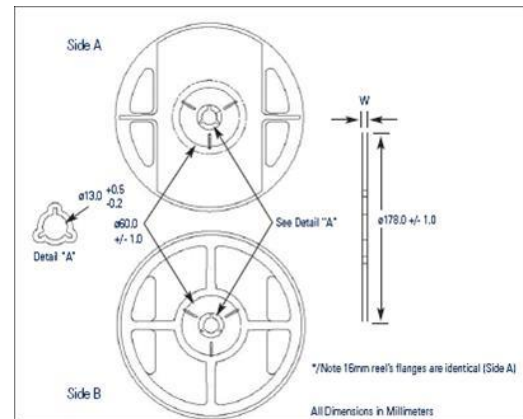


## Packaging

The sensors are packaged in a tape and reel for expedition.

The sensors are placed in a carrier type. The dimensions of the cavity are 5.5 x 7.5 x 2.55 mm (the tolerance is +/- 0.2 mm).

The outside dimension of the reel is either 178 +/- mm (for a maximum of 700 sensors ) or 330 + 0.25 / -4 mm (for a maximum of 2000 sensors).



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Headquarter Switzerland:  
Angst+Pfister Sensors and Power AG

Thurgauerstrasse 66  
CH-8050 Zurich  
Phone +41 44 877 35 00  
sensorsandpower@angst-pfister.com

Office Germany:  
Angst+Pfister Sensors and Power  
Deutschland GmbH  
Edisonstraße 16  
D-85716 Unterschleißheim  
Phone +49 89 374 288 87 0  
sensorsandpower.de@angst-pfister.com



## We are here for you. Addresses and Contacts.

### Sales Germany & Austria

Geometrical sensors  
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Kurt Stritzelberger  
Phone +49 89 374 288 87 22  
kurt.stritzelberger@angst-pfister.com

Pressure sensors  
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Phone +49 89 374 288 87 26  
gerhard.vetter@angst-pfister.com

Gas sensors and modules

Peter Felder  
Phone +41 44 877 35 05  
peter.felder@angst-pfister.com

### Sales Switzerland & Liechtenstein

Postcode 3000 – 9999

Basil Frei  
Phone +41 44 877 35 18  
basil.frei@angst-pfister.com

Postcode 1000 – 2999

Christian Mohrenstecher  
Phone +41 76 444 57 93  
christian.mohrenstecher@angst-pfister.com

### Sales International Key Accounts

Peter Felder  
Phone +41 44 877 35 05  
peter.felder@angst-pfister.com

### Sales Other Countries / Product Management

Pressure Sensors  
Load Cells

Philipp Kistler  
Phone +41 44 877 35 03  
philipp.kistler@angst-pfister.com

Gas sensors  
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Dr. Thomas Clausen  
Phone +49 89 374 288 87 24  
thomas.clausen@angst-pfister.com

Flow / Level / Medical products

Dr. Adriano Pittarelli  
Phone +49 89 374 288 87 67  
adriano.pittarelli@angst-pfister.com

Power supplies

Sebastiano Leggio  
Phone +41 44 877 35 06  
sebastiano.leggio@angst-pfister.com

Linear position sensors  
Angle sensors

Eric Letsch  
Phone +41 44 877 35 14  
eric.letsch@angst-pfister.com

Accelerometers  
Sensor elements

Christoph Kleye  
Phone +49 89 374 288 87 61  
christoph.kleye@angst-pfister.com

Drive technology  
CH Postcode 5000 – 9999 / DE

Roman Homa  
Phone +41 76 444 00 86  
roman.homa@angst-pfister.com

Drive technology  
CH Postcode 1000 – 4999 / AT / IT / FR

Christian Mohrenstecher  
Phone +41 76 444 57 93  
christian.mohrenstecher@angst-pfister.com

Harald Thomas  
Phone +49 89 374 288 87 23  
harald.thomas@angst-pfister.com