

Carbon Monoxide Sensor



AS-MLC

Whether for air quality, safety or control, sensor applications have one common requirement: a reliable sensor component. AppliedSensor's ability to micro-machine sensor chips using standard silicon wafer technology allows to produce consistently reliable sensors in high volumes for mass market applications.

Unique micro machined, low power sensor design

AppliedSensor's high-performance ML sensor components offer reduced power consumption and increased packaging flexibility. The sensors are produced by combining the benefits of thick film, thin film and patents pending technologies on silicon substrate. Heater and interdigital electrode structures are positioned on a 1 µm-thin membrane on top of which is deposited a tin dioxide sensitive layer that creates gas concentration-dependent conductivity.

The sensor component has high sensitivity and selectivity to carbon monoxide and is packaged in a standard TO-39 (solid TO-5), 4-pin header. For further cost efficiency, the low heat-generating micro-machined chip may be adhered directly to a printed circuit board (Chip on Board packaging).

AppliedSensor achieves high selectivity to CO by applying an optimized operation mode in combination with an active charcoal filter. Comprehensive application development, including complete electronics and firmware integration, is available.

Key Benefits

- High sensitivity to CO (0.5 to 500 ppm)
- Very low power consumption
- Long lifetime
- Low cross sensitivity
- Long term stability

Typical Applications

• Carbon monoxide monitoring and leakage detection

Features

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	Concentration range	Can withstand 1% CO in air
ical reasonable (reasonable)	Sensitivity range	0.5 - 500 ppm
ical response / recovery time Seconds	ypical response / recovery time	Seconds
pected lifetime Years	xpected lifetime	Years
Limited cross sensitivity to humidity,	Cross sensitivity	Limited cross sensitivity to humidity,
hydrogen and hydrocarbons		hydrogen and hydrocarbons
ckaging Options	Packaging Options	
ndard TO-39 (solid TO-5) package with protection membrane.	tandard TO-39 (solid TO-5) package	with protection membrane.
-mould packages.	Pre-mould packages	

Chip on board solutions.

Restrictions

Contact of the sensitive layer with liquids shall be avoided.

Do not operate gas sensors in the vicinity of silicone and polysiloxanes.

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Typical Sensor Response



Pin Layout



Top view AS-MLC Sensor Component

Pin Function

- 1 Sensor electrode 1
- 2 Heater power
- 3 Sensor electrode 2
- 4 Heater ground

Basic Measuring Circuit (Exemplified and Simplified)



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