

MEMS电容式湿度传感器后处理工艺研究

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摘要：

利用标准CMOS工艺结合MEMS后处理制得一种梳齿状结构的电容型湿度传感器。这种湿度传感器采用聚酰亚胺（PI）作为感湿介质。实验研究了聚酰亚胺薄膜的厚度和固化条件对湿度传感器敏感性能的影响，结果显示：聚酰亚胺薄膜厚度为2.4 μm ，采用阶梯升温加热法，并以250 $^{\circ}\text{C}$ 作为最高固化温度时，该湿度传感器具有优异的敏感性能。

关键词：聚酰亚胺；湿度传感器；电容型传感器；后处理工艺

A Study on the Post-processing Technology of the MEMS Capacitive-type Humidity Sensor

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Abstract:

An interdigital capacitive humidity sensor was fabricated with standard CMOS process and MEMS post-processing. Polyimide (PI) was used as the sensing material of the sensor. The effect of the thickness and curing conditions of the polyimide film on the sensitivity of the sensor was studied in this paper. And the measurements show that the performance of the sensor can be improved when the Polyimide film was coated with 2.4 μm thickness, heated by programmed heating, and cured with 250 $^{\circ}\text{C}$ as the highest temperature.

Keywords: polyimide; humidity sensor; capacitive sensor; post-processing technology

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