

一种LC谐振无线无源温度传感器的研究

作者: 王渊朝, 彭斌, 黄武林
单位: 成都市 电子科技大学
基金项目: 自然科学基金项目

摘要:

无线无源传感器在工业领域具有重要的应用。本文设计了一种基于高介电常数陶瓷基板的无线无源LC谐振温度传感器, 采用电感耦合的方式无线测试了传感器在不同温度下的特性。测试结果表明所制作的无线无源温度传感器谐振频率为1.2MHz, 随着温度的升高其谐振频率线性降低, 灵敏度为2.3kHz/°C。本文制作的器件实现了非接触式的温度测量, 可以在比较恶劣的环境下使用。

关键词: 无线无源传感器, 温度, 无线检测, LC谐振

Research on a wireless passive temperature sensor of LC resonant

Author's Name:

Institution:

Abstract:

Wireless passive sensors have great potential applications in industry. A wireless passive LC resonant temperature sensor based on ceramic with high dielectric constant was designed and prepared in this work. The characteristics of the sensor had been measured under different temperature by wireless inductor coupling. The results show that the resonant frequency of the wireless passive temperature sensor is 1.2MHz, The resonant frequency of the sensor decreases linearly with the increasing of the ambient temperature. The temperature sensitivity of the sensor is 2.3kHz/°C. Temperature detection is realized wirelessly with the sensor. The designed sensor is suitable for working in harsh environments for temperature sensing.

Keywords: wireless passive sensor, temperature, wireless detection, LC resonance

投稿时间: 2013-06-27

[查看pdf文件](#)