



# Capacitor wireless temperature measurement

These devices are designed to measure the three common passive electrical components: resistors, capacitors and inductors 1. Unlike a simple digital multimeter, an LCR meter can also measure the values at various AC frequencies instead of just DC, and also determine secondary characteristics such as equivalent series resistance and effective parallel leakage resistance.

This paper presents a passive LC wireless sensor for measuring temperature. The sensor is designed as a parallel connection of a spiral inductor and an interdigitated capacitor and it was fabricated in a conductive layer using LTCC (Low Temperature Co-fired Ceramic) technology. The interdigitated capacitor electrodes were coated with a thin film of bismuth ...

Temperature measured in Sp: (a) 49.6 C; (b) 48.5 C; (c) 47.7 C. In order to confirm the occurrence of this phenomenon, three additional thermo- grams were made on the cylindrical case of the ...

Wireless communication is growing quickly and now allows technologies like the Internet of Things (IoT). It is included in many smart sensors helping to reduce the installation and system costs. These sensors increase flexibility, simplify ...

Herein, we develop an intelligent wireless measuring contact lens (WMCL) incorporating a dual inductor-capacitor-resistor (LCR) resonant system to achieve temperature self-compensation for quantitative IOP monitoring in different application environments.

An intelligent wireless measuring contact lens (WMCL) incorporating a dual inductor-capacitor-resistor (LCR) resonant system to achieve temperature self-compensation for quantitative IOP monitoring in different application environments is developed. Flexible bioelectronic devices that can perform real-time and accurate intraocular pressure (IOP) ...

The use of an inductor-capacitor (LC) resonant tank circuit in which the capacitance or the inductance is designed to vary with temperature is an advantageous approach to wireless temperature sensing given its reliable ...

The HighTemp-400 wireless wafer measures process tool thermal uniformity, providing a complete picture of temporal and spatial temperature data collected in real-time under actual production process conditions.

Fig. 5 shows the measurement results for the LC-type passive wireless temperature sensor. Frequency spectrum can be monitored through passive telemetry by the vector impedance antenna analyser. Fig. 5a presents ...

Low-cost wireless temperature measurement has significant value in the food industry, logistics, agriculture,



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portable medical equipment, intelligent wireless health monitoring, and many areas in everyday life. A wireless passive temperature sensor based on PCB (Printed Circuit Board) materials is reported in this paper. The advantages of the sensor include simple mechanical ...

This paper presents a passive wireless sensor for simultaneously and remotely measuring pressure and temperature under harsh environments. The sensor consists of a dual LC ...

The parallel capacitive temperature micro-sensor is designed and fabricated based on the metal multi-user MEMS processes. The interdigitated capacitors parallelly connected with the plane ...

Recently, Bhar et al. reported on the advancement of wireless LC sensors for temperature measurement which includes sensor design principles, sensor fabrication technologies, and materials [42 ...

According to the development of the Internet of things, a wireless cognitive transducer based on humidity-sensitive capacitor was designed, which can be compensated by temperature data, thus ensuring higher precision and stability of humidity measuring. According to the development of the Internet of things, a wireless cognitive transducer based on humidity ...

It is difficult to accurately measure internal temperature of power capacitor. To accurately measure internal and external temperatures of an operating capacitor, a capacitor temperature measurement system based on fiber Bragg grating (FBG) temperature sensors is developed. First, technical parameters of the sensors and the optical sensing interrogator are determined ...

A new method of contactless temperature measurement is presented in this paper. Through analysis of the transient process of the wireless energy transfer, a linear function of the thermistor resistance is obtained, which could be employed to measure the variation of the resistance and the corresponding fluctuation of the temperature. Compared with the conventional temperature ...

The sensor has two capacitors connected at different locations (turns) on the same inductor to achieve simultaneous temperature and strain measurements. The plate ...

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A capacitor's temperature coefficient indicates how the temperature changes impact its capacitance value. ... RF/wireless applications Critical timing circuits Phase shift applications Triggering circuits Tantalum capacitors: Polarised, with values ranging from 0 ...

A passive wireless high-temperature sensor for far-field applications was developed for stable temperature



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sensing up to 1000 °C. The goal is to leverage the properties of electroceramic materials, including ...

Polydimethylsiloxane (PDMS) silicon oil has been chosen as the dielectric material between the electrodes, which is temperature sensitive and makes a change in the capacitance value. DuPont 951 ceramic is proposed and used as the temperature sensing ...

In power system, temperature rising caused by longtime overload operation or loading heavy current is one of main factors of malfunction for high voltage electrical equipment. Therefore, the temperature monitoring of high voltage power equipment during operation is very important to ensure the stability and security of power supply. In this paper, a passive wireless temperature ...

What is more, the performances of the sensor at different temperature are measured in wireless coupling way, as shown in Figure 1. ... step is to screen-print the conductive paste on the substrate to form a planar spiral inductor and a parallel plate capacitor by ...

The paper describes the development of a demonstrator for a chipless wireless temperature sensor tag operating in the ultra-wideband (UWB) spectrum. For temperature measurement, the backscattered time domain response is analyzed. Specific in this work is, that with the use of an Alumina substrate and screen printing layer deposition, the fabrication technology has been ...

This paper proposed a wireless passive temperature sensor based on a ferroelectric dielectric ceramic, which can be used for monitoring temperatures in harsh environments. Temperature sensitive high Curie ...

In this paper, the online temperature measurement device of distribution network cable is discussed and researched, and a contact-type inductive wireless temperature measurement sensor suitable ...

A completely passive LC resonant telemetry scheme, relying on a frequency variation output, which has been applied successfully in pressure, humidity and chemical measurement, is integrated with a unique high-k ...

To meet measurement needs in harsh environments, such as high temperature and rotating applications, a wireless passive Low Temperature Co-fired Ceramics (LTCC) temperature sensor based on ferroelectric dielectric material is presented in this paper. As a LC circuit which consists of electrically connected temperature sensitive capacitor and invariable ...

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