

Wireless RFID-Based Thermal Bubble Type Accelerometer and Monitor System Design

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Abstract

This research proposes a method for wireless RFID-based thermal bubble type accelerometer design, and relates more particularly for the technology to manufacture it on a flexible substrate by using low temperature processes so as to reduce the manufacturing cost. The key technology is to integrate both a thermal bubble type accelerometer and a wireless antenna on the same substrate, such that the wireless accelerometer is very convenient for usage. In addition, in this paper we use xenon inert gas in the chamber instead of traditional air or carbon dioxide for heavier molecular weight (or mass) to increase the acceleration sensitivity. On the other hand, the specific heat of xenon gas is also lower than those of air and carbon dioxide that the bandwidth of the proposed accelerometer is larger and the power consumption is lower.

Keyword : Wireless RFID-based. Thermal bubble type. Accelerometer. Flexible substrate