

Wireless Non-Floating Type Thermal Bubble Accelerometer with Semi-Cylindrical Chamber(101.01)

林君明, 張博光

Communication Engineering

Engineering

jmlin@chu.edu.tw

Abstract

This research proposes a wireless RFID-based thermal bubble accelerometer design, and relates more particularly for the technology to manufacture and package it on a flexible substrate. The key technology is to integrate both a thermal bubble accelerometer and a wireless RFID antenna on the same substrate, such that the accelerometer is very convenient for fabrication and usage. In this paper the heaters as well as the thermal sensors are directly adhering on the surface of the flexible substrate without the traditional floating structure. Thus the structure is much simpler and cheaper for manufacturing, and much more reliable in large acceleration impact condition. In addition, the shape of the chamber is changed as a semi-cylindrical or semispherical one instead of the conventional rectangular type. Comparisons are also made; one can see the sensitivity of the proposed new shape design is better.

Keyword : Wireless RFID Tag, Thermal Bubble Accelerometer, Flexible Substrate, Thermal Sensor, Heater, E-beam Evaporation, Thermal Piles, Polysilicon Doped with P-type Impurity.