

RFID BASED THERMAL BUBBLE TYPE ACCELEROMETER AND METHOD OF MANUFACTURING  
THE SAME

林君明

Communication Engineering

Engineering

jmlin@chu.edu.tw

Abstract

An RFID based thermal bubble type accelerometer includes a flexible substrate, an embedded system on chip (SOC) unit, an RFID antenna formed on the substrate and coupled to a modulation/demodulation module in the SOC unit, a cavity formed on the flexible substrate, and a plurality of sensing assemblies, including a heater and two temperature-sensing elements, disposed along the x-axis direction and suspended over the cavity. The two temperature-sensing elements, serially connected, are separately disposed at two opposite sides and at substantially equal distances from the heater. Two sets of sensing assemblies can be connected in differential Wheatstone bridge. The series-connecting points of the sensing assemblies are coupled to the SOC unit such that an x-axis acceleration can be obtained by a voltage difference between the connecting points. The x-axis acceleration can be sent by the RFID antenna to a reader after it is modulated and encoded by the modulation/demodulation module.

Keyword : RFID BASED, THERMAL BUBBLE TYPE, ACCELEROMETER