

Wireless Thermal Convection Accelerometer on a Flexible Substrate

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Abstract

In this paper some new ideas are proposed to integrate both an active RFID tag with a non-floating type thermal convection angular accelerometers on a flexible substrate, thus the device is a wireless sensor. The most innovative idea is that this device is made directly on the substrate without the grooved chamber of a traditional thermal convection accelerometer, thus the device is without any movable parts, so it is very reliable and easy to make. The second new idea is to apply the plastic substrate, so the thermal conductivity of the new device is much lower than silicon, and it can save much power and very useful in various fields. Comparisons with the length and position of the temperature sensors are also made. The better sensitivity of the new device is $50^{\circ}\text{C}/(\text{rad}/\text{s}^2)$.

Keyword : Angular Accelerometer, RFID Tag, Flexible substrate, Thermal Convection