

A SIMPLE TECHNIQUE TO INTERFACE PYROELECTRIC MATERIALS WITH SILICON SUBSTRATES FOR INFRARED DETECTION

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A simple technique is presented to interface pyroelectric materials with Si-substrates, into which sensor array circuitry is integrated. The pyroelectric material is interfaced with the substrate via a thin dielectric layer. The feasibility of the technique is demonstrated by the realization of a single element infrared sensor.

INTRODUCTION

The pyroelectric effect has been known for about 2000 years ¹, but the technological application to infrared detection appeared relative recently ^{2,3}. Since then, a lot of experimental and theoretical work was performed. A recent review can be found in ⁴. Nowadays pyroelectric infrared detectors using various pyroelectric materials are commercially available. The growing interest for the development of pyroelectric sensor arrays raises the problem of interfacing or integrating pyroelectric materials with Si-substrates, containing the electric circuitry for the amplification and the processing of the sensor signals.

Watton et al. ^{5,6} prepared the chip and pyroelectric material with

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