

# **PZT thick film for integrated and miniaturised devices on silicon, LTCC and other substrates**

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**Key words:** Piezoelectric thick film, PZT, devices, LTCC

## **ABSTRACT**

The development towards smaller devices with more functions integrated calls for new and improved manufacturing processes. The screen-printing process is quite well suited for miniaturised and integrated devices, since thick films can be produced in this manner without the need for further machining. However, the process of screen printing PZT thick films (TF) involves potential problems of thermal matching and chemical compatibility at the processing temperatures between the functional film, the substrate and the electrodes. In order to solve these problems, a compromise between the lowering of the sintering temperature and the conservation of the properties has to be made.

Within the last few years InSensor has developed a PZT thick film material which is compatible with silicon, alumina, porous ceramic and stainless steel. The latest development is compatibility with Low Temperature Cofired Ceramics LTCC, which increases the range of applications due to the versatility of LTCC. This paper will give an overview of the work done within InSensor in corporation with partners in various projects and an idea of potential applications for the technology, including energy harvesting, micro fluidics etc.