传感技术学报

中国微米纳米技术学会
全国高校传感技术研究会 主办

MEMS耐高温压力传感器封装工艺研究*

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基金项目：

摘　要：

为解决特种压力传感器结构的封装难题，提出了三种能够适用于200℃高温条件下的先进封装技术。通过有限元模拟，确定了采用低温玻璃键合技术对多种压力传感器进行封装，分析得出了适合的中间键合层厚度。选定了高强度低膨胀基底合金材料，制定了低温玻璃键合的工艺流程，采用先进的丝网印刷工艺确保中间键合层厚度。实验表明经过该工艺封装的压力传感器在高温下具有可靠的性能，能满足现代工业测量需求。

关键词：微机电系统 高温压力传感器 封装 低温玻璃键合

Research on Packing Technology of High Temperature Pressure Transducer*

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Abstract:

Three advanced packaging methods which could stand high temperature up to 200℃ were raised to package some pressure transducers with special structure. By stimulating using finite element method, we decided to take low temperature glass frits bonding technology to package pressure transducers and determined the appropriate thickness of the intermedia bonding layer. We chose a alloy substrate material with high strength and low expansion coefficient, designed the technological process of low temperature glass frits bonding, using advanced screen printing technology to ensure the intermediate bonding layer thickness. Experiments show that by the packaging process, pressure transducers have reliable performance in high temperature and can meet needs of modern industrial measurements.

Keywords: MEMS High temperature pressure transducer Packaging Glass frits bonding

投稿时间：**2010-03-31**

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