

## 基于初始磁导率的铁氧体裂纹检测

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摘要:

铁氧体是电子电路中广泛使用的抗干扰元件, 生产中应力引发的内部缺陷裂纹严重影响其电气性能。其传统检测方法准确率低、速度慢, 难以满足产品的快速检测需求。将基于初始磁导率的缺陷检测方法运用于铁氧体工件的检测, 对检测传感器进行优化, 使之能够在微小激励下获得准确的输出响应。对改进前后的传感器进行了对比实验, 分别就其结构、尺寸、磁导率等参数进行了针对性分析, 证明了该检测方法和参数优化的有效性。

关键词: 无损检测, 裂纹, 初始磁导率, 铁氧体, 优化

## Crack Detection of Ferrite Based on the Initial Permeability

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**Abstract:**

Ferrite is widely used as anti-interference components in circuitry and its electrical properties is seriously affected by crack defects caused by production stress; the traditional method of ferrite detection is inaccurate, slow, and difficult to meet the demand for rapid detection of the product. The detection method based on initial magnetic permeability will be applied to the detection of ferrite workpieces, and the detection sensor will be optimized to enable obtain accurate output response under small excitation. Considering the structure, size, magnetic permeability and other parameters, several experiments are designed to compare the performance of the optimized sensor with the original. These experiments demonstrate the validity of our method and the parameters optimization.

**Keywords:** Non-destructive testing; crack; initial permeability; ferrite; optimization

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