

# The Feature Extraction and Analysis of Flaw Detection and Classification in BGA Gold-Plating Areas

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## Abstract

The color change on a bond finger or ball pad usually indicates an anomaly occurs in the bond finger or ball pad. For example, a scratch on the bond finger may exposure nickel underneath and cause the change of color. Accordingly, the research of flaw detection on a bond finger can be conducted based on color machine vision technique. The present research applies color space transformation along with color image segmentation techniques to detect all the possible defects. Then, we use feature extraction and analysis as well as back propagation neural network classification techniques to classify the detected defects. There are variables defects to be detected and classified including stain, scratch, solder mask, pinhole, etc. The experimental results show that the proposed algorithm is successful in detecting and classifying defects on gold-plating regions.

Keyword : BGA, Color Image Segmentation, Neural Network, Flaw  
Detection/Classification