

Pattern Recognition Using Feature Based Die-Map Clustering in the Semiconductor Manufacturing Process

Authors : Seung Hwan Park, Cheng-Sool Park, Jun Seok Kim, Youngji Yoo, Daewoong An, Jun-Geol Baek

Abstract : Depending on the big data analysis becomes important, yield prediction using data from the semiconductor process is essential. In general, yield prediction and analysis of the causes of the failure are closely related. The purpose of this study is to analyze pattern affects the final test results using a die map based clustering. Many researches have been conducted using die data from the semiconductor test process. However, analysis has limitation as the test data is less directly related to the final test results. Therefore, this study proposes a framework for analysis through clustering using more detailed data than existing die data. This study consists of three phases. In the first phase, die map is created through fail bit data in each sub-area of die. In the second phase, clustering using map data is performed. And the third stage is to find patterns that affect final test result. Finally, the proposed three steps are applied to actual industrial data and experimental results showed the potential field application.

Keywords : die-map clustering, feature extraction, pattern recognition, semiconductor manufacturing process

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