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THE EFFECT OF DELAMINATION BETWEEN MOLD COMPOUND AND Ni/Pd/Au LEADFRAME ON QFN PACKAGE

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ABSTRACT
The susceptibility of QFN package to delamination, particularly in the area between the Ni/Pd/Au leadframe die pad and mold compound, has been a major concern to many IC manufacturers. The presence of a Ni/Pd/Au oxide layer on the leadframe of QFN packages was found to cause delamination at the die pad or mold compound interface. Delamination refers to the disbonding between a surface of the mold compound and that of another material such as leadframe, die, die paddle or die attach material. It also means the loss of adhesion between the mold compound and one or more of the other materials. The objective of this study is to investigate the effect of delamination between 3 different types of compound and Ni/Pd/Au leadframe die pad. Some of the parameters are adjusted in the molding process in order to investigate the effects of delamination. In these studies the delamination of the QFN package measured by C-mode Scanning Acoustic Microscopy (C-SAM). The delamination is initiated under moisture condition if the maximum-shear-stress for the package exceeds the measured. The result shows that different mold compound properties will result in different percentage of delamination.

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