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A Study on Implementation of Optimal Soldering Temperature Profile through Deformation Analysisin Infrared Lamp Soldering of Photovoltaic Cells

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Abstract : Most of the photovoltaic (PV) module manufacturers have recently interested in reducing the manufacturing cost. One of available solution is the use of the thin photovoltaic cell because of reducing of raw material cost. Thin PV cells, however, are damaged large deformation which causes possible microcracks inside PV cell, leading to failure problem. In this paper, deformation characteristics by heat conduction in soldering process of PV cells are analyzed through ANSYS software tool. They have been tested for different PV cell thickness and soldering temperature profile. Accordingly optimal soldering process to minimize the deformation of PV cell has been suggested.

Keywords : photovoltaic (PV) cell, infrared(IR) lamp soldering, optimal soldering temperature profile, deformation, temperature distribution, 3D scanner, ANSYS
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