Modelling of Transient Thermal Stress in Layered Walls

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Results of FEM modelling of transient thermal stress analysis in layered walls are given in the article. It is shown that thermal stress alone is not solely caused by differences in coefficients of thermal expansion of individual layers. The emergence of transient thermal stress is subject to both the layered structure of the wall and given boundary conditions, as well as the existence of a temperature gradient in the direction normal to the surface of the wall. A practical application focuses on the issue of recycling of PCB boards with the effort to achieve separation of layers due to thermal stress. Role modelling of thermal stress in this area lies in predicting the possibility of separation, depending on the type of thermal stress and material parameters.

Keywords: transient thermal stress analysis, layered walls, PCB boards, FEM modelling

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