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均質化法を用いた BGA パッケージの反り挙動予測

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Warpage Prediction of Ball Grid Array Package with the Homogenization Method

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Abstract

We developed a simple method for accurately predicting the warpage of the ball grid array (BGA) interposer in consideration of the wiring layers. In recent years, this interposer has become thinner, so the influence of the wiring layers has become larger. Consequently, modeling the wiring layers is important for predicting the warpage of the BGA package. However, detailed modeling of the wiring layers causes an increase of the analysis scale. For this reason, we calculated the anisotropic material properties of the wiring layers using the homogenization method. From this, we reveal that it is possible to achieve the same precision as that of a real wiring shape model while decreasing the analysis scale by using this method. We also reveal that this method is effective for high temperatures.

Key Words: *Homogenization Method, Anisotropic Material Property, Finite Element Method, Ball-Grid-Array-Type Package, Printed Circuit Board, Warpage, Wiring layer, Glass cloth*