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Predicting Failure of Glassy Thermoset Polymers in Packaged Surface Mount Electronics

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Failure of electronic components subjected to harsh thermal and mechanical environments is a topic of great interest to engineers in the electronic packaging community. With the advent of the nonlinear viscoelastic Simplified Potential Energy Clock (SPEC) model for polymers, predicting failure mechanisms such as underfill delamination and PCB cratering may now be possible in mechanical shock environments for glassy thermoset materials. Quasistatic and dynamic experiments were performed and subsequently modeled using the finite element method with promising results.

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