Journal of Electronic Packaging

FOREWORD

VLSI circuits have stretched the limits of optimal design, material selection, process window, and power dissipation in electronics packaging and interconnection. In order to have a high yield/quality/reliability/performance and low cost system, a more precise understanding of the system behavior is required. Mechanical and thermal phenomena are among the least understood and most complex of the many phenomena encountered in electronics packaging and are found on the critical path of nearly every design and process in the electronics industry. In recognition of the growing importance of thermal and mechanical responses the ASME Electrical and Electronic Packaging Division sponsored several symposia at the 1990 ASME Winter Annual Meeting, November 25–30, in Dallas, Texas. Scientists and engineers converged together to share their problems, findings, and solutions in applying the principles of mechanics in microelectronics. This special volume of the Transactions contains 15 peer-reviewed papers (three are technical briefs) selected from the *Symposium on Mechanics of Surface Mount Assemblies*.

The papers included in this volume represent a cross section of the topics of the symposium and reflect the state of the art in mechanical and thermal testing, design, modeling, and analysis of surface mount systems. The collection begins with four papers dealing with the fundamental aspects of solder materials. The next three papers discuss fatigue phenomena of solder joints, component leads, and copper pads/barrels and are followed by two papers which examine the thermal characterization and behavior of plated through hole and leadless chip carriers. The next two papers deal with the thermal stresses in multilayered strips and are followed by a paper which examines the ways to automate the finite element modeling of actual solder joints through generating meshes form optical and x-ray inspection data. The special issue closes with three technical briefs describing innovative solder models and fatigue analysis.

The multiplicity of disciplines involved in designing, analyzing and solving the problems associated with mechanical and thermal characterization of packaging and interconnection is evident in the papers presented in the volume. The Electrical and Electronic Packaging Division, and more generally ASME, provide a common meeting ground for mutual education and enlightenment. It is hoped that the present collection of papers will stimulate the reader to the challenges and opportunities presented by mechanical and thermal phenomena. We thank the reviewers, attendees, and especially the authors for their help, contributions, and cooperation in preparing this issue. It is through their efforts that our JOURNAL OF ELECTRONIC PACKAGING remains a dynamic and interesting organ.

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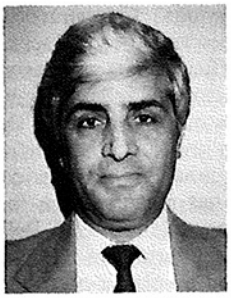
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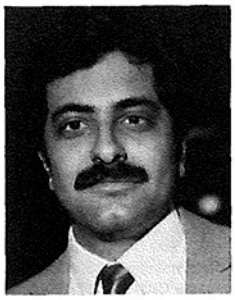
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