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Pubbl/distr/stampa	Kraków, : Universitas, 2000 [1999]-
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Livello bibliografico	Periodico
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2. Record Nr.	UNINA9911019340303321
Titolo	Lead-free electronics : iNEMI projects lead to successful manufacturing // edited by Edwin Bradley ... [et al.]
Pubbl/distr/stampa	Hoboken, N. J., : Wiley Piscataway, N. J., : IEEE Press, c2007
ISBN	9786611032487 9781281032485 1281032484 9780470171479 0470171472 9780470171462 0470171464
Descrizione fisica	1 online resource (468 p.)
Altri autori (Persone)	BradleyEdwin
Disciplina	621.381531
Soggetti	Lead-free electronics manufacturing processes Solder and soldering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface (Ronald W. Gedney) -- Contributors -- Introduction (Jasbir Bath and Carol A. Handwerker) -- Lead-Free Assembly Project -- Alloy Group -- Process Group -- Component Group -- Reliability Group -- Follow-On Projects/Work -- 1. Alloy Selection (Carol A. Handwerker, Ursula Kattner, Kilwon Moon, Jasbir Bath, Edwin Bradley, and Polina Snugovsky) -- 1.1. Introduction -- 1.2. Lead-Free Alloys Considered by iNEMI in 1999 as Replacements for Tin-Lead Eutectic Solder -- 1.3. Fundamental Properties of Lead-Free Solder Alloys Affecting Manufacturing and Reliability -- 1.4. R&D Issues Remaining in Lead-Free Solder Implementation -- 1.5. Summary -- References -- 2. Review and Analysis of Lead-Free Solder Material Properties (Jean-Paul Clech) -- 2.1. Introduction -- 2.2. Tin-Lead Properties and Models -- 2.3. Tin-Silver Properties and Creep Data -- 2.4. Tin-Silver-Copper Properties and Creep Data -- 2.5. Alloy Comparisons -- 2.6. General Conclusions/Recommendations -- Appendix A: Tin-Silver Creep Data

-- Appendix B: Tin-Silver-Copper Creep Data -- Acknowledgments --
References -- 3. Lead-Free Solder Paste Technology (Ning-Cheng Lee)
-- 3.1. Introduction -- 3.2. Materials -- 3.3. Rheology -- 3.4.
Applications -- 3.5. Reflow Soldering -- 3.6. Microstructures of
Reflowed Joints -- 3.7. Challenges of Lead-Free Reflow Soldering --
3.8. Summary -- References -- 4. Impact of Elevated Reflow
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McCullen, Nick Lycoudes, and R. J. Arvikar) -- 4.1. Introduction to
Component "Lead-Free" Issues -- 4.2. Moisture/Reflow
Impact on Packaged Integrated Circuits -- 4.3. Impact of Increased
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-- 4.4. Impact of Increased Solder Peak Reflow Temperatures -- 4.5.
Observations on Profiling for the Lead-Free Reflow Processes -- 4.6. IC
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4.7. Frequency Control Products -- 4.8. "Lead-Free" Cost
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Packaged ICs -- 4.10. Conclusions -- Acknowledgments -- References
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Isothermal (Mechanical) Fatigue -- 5.7. Out-of-Plane Bending -- 5.8.
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Migration -- 5.12. Tin Whiskering -- 5.13. Tin Pest -- 5.14. Summary
-- Acknowledgments -- References -- 6. Lead-Free Assembly
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6.3. Component-Paste-Board Finish Combinations -- 6.4. Components
-- 6.5. Test Vehicles -- 6.6. Pre-Test/Post-Assembly Information --
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iNEMI Team Conclusions -- 6.17. Overall Summary, Conclusions --
6.18. ASTM Test Methods -- References -- 7. Tin Whiskers: Mitigation
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Joints -- 8.17. Conclusions -- 8.18. Future Work -- Acknowledgments
-- References -- 9. Case Study: Pb-Free Assembly, Rework, and
Reliability Analysis of IPC Class 2 Assemblies (Jerry Gleason, Charlie
Reynolds, Matt Kelly, Jasbir Bath, Quyen Chu, Ken Lyjak, and Patrick

Roubaud) -- 9.1. Introduction -- 9.2. Approach and Strategy -- 9.3. Observations and Results -- 9.4. Conclusions -- 9.5. Summary -- Acknowledgments -- References -- 10. Implementing RoHS and WEEE-Compliant Products (Jim MCELroy and Cynthia Williams) -- 10.1. Introduction -- 10.2. Are Your Products within the Scope of the EU ROHS? -- 10.3. Ten Steps to ROHS Compliance -- 10.4. Part Numbering Important for Differentiating Lead-Free from Tin-Lead Components and Boards -- 10.5. A Standards-Based Approach to Materials Declaration -- 10.6. Standards -- 10.7. High-Reliability Requirements -- 10.8. Business Impact of Supply Chain Conversion -- 10.9. Summary -- References -- Index.

Sommario/riassunto

Based on the results of a more than two-year study, Lead-Free Electronics: iNEMI Projects Lead to Successful Manufacturing is the first practical, primary reference to cover Pb-free solder assembly as well as the analysis and reasoning behind the selection of Sn-Ag-Cu as the recommended Pb-free replacement for Sn-Pb. Reflecting the results of a two-year study, Lead-Free Electronics: iNEMI Projects Lead to Successful Manufacturing provides full coverage of the issues surrounding the implementation of Pb-free solder into electronic board assembly. This book is extremely timely???most electronic manufacturers are going to change over to Pb free soldering by 2006 to meet new European laws. All manufacturers around the globe are going to be affected by this change. The text provides specific results from the thirty company NEMI project activities. It contains integrated and fully documented book chapters with references to existing published work in the area. These serve as tremendous resources for engineers and companies faced with making the switch to Pb-free solder assembly.

3. Record Nr.	UNISANNIOSBL0297588
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