

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9910143420603321 |
| Titolo | Lead-free electronics [[electronic resource] /] / edited by Sanka Ganesan, Michael Pecht |
| Pubbl/distr/stampa | Hoboken, N.J., : Wiley-Interscience, c2006 |
| ISBN | 1-280-34963-8 9786610349630 0-470-00780-X 0-470-00779-6 |
| Descrizione fisica | 1 online resource (796 p.) |
| Altri autori (Persone) | GanesanSanka PechtMichael |
| Disciplina | 621.381 |
| Soggetti | Electronic apparatus and appliances Lead-free electronics manufacturing processes Electronic books. |
| 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 | Lead-free Electronics; Contents; Preface; Editors; Contributors; Acknowledgments; Chapter 1 Lead-free Electronics: Overview; 1.1 What Is Lead-free?; 1.2 Why Lead-free?; 1.2.1 Legislation; 1.2.2 Market differentiation; 1.2.3 Environmental stewardship; 1.3 Who Are the First Consumers for Lead-free Products?; 1.3.1 Affluent societies; 1.3.2 Social/cultural motivation; 1.3.3 Consumer response to lead-free electronics; 1.4 Are There Any Technical Barriers to Lead-free Electronics?; 1.4.1 Technical issues; 1.4.2 Reliability concerns; 1.5 How Will We Migrate to Lead-free Electronics? 1.5.1 Potential mismatches: obsolescence and compatibility1.5.2 Supply chain issues; 1.6 When Will Lead-free Products Be Widely Available?; 1.6.1 Recycling and material recovery systems; 1.7 summary; 1.8 References; Chapter 2 Lead-free Legislations, Exemptions, and Compliance; 2.1 Overview of the Lead-free Legislation; 2.1.1 WEEE Directive; 2.1.2 RoHS Directive; 2.1.3 Electronic Waste Recycling Act in California; 2.1.4 Hazardous material ban in China; 2.2 Exemptions; 2.2.1 Lead in glass of cathode ray tubes, |

electronic components and fluorescent tubes
2.2.2 Lead in high melting temperature type solders
2.2.3 Lead in solders for servers, storage and storage array systems;
2.2.4 Lead in solders for network infrastructure equipment;
2.2.5 Lead in electronic ceramic parts;
2.3 Impact of Exemptions;
2.3.1 Military electronics;
2.3.2 Automotive electronics;
2.3.3 Avionics;
2.3.4 Oil and gas well electronics;
2.3.5 Medical electronics;
2.3.6 Industrial. network infrastructure, server and storage electronics;
2.3.7 Risks due to exemptions;
2.4 Compliance with the Legislation;
2.5 Recommendations and Conclusions;
2.6 References
Chapter 3 Lead-free Alloys: Overview
3.1 Lead-Free Alloys Requirements;
3.2 Binary Alloys;
3.3 Ternary and Quaternary Alloys;
3.3.1 Tin-silver-copper alloys;
3.3.2 Tin-silver-bismuth alloys;
3.3.3 Tin-silver-copper-bismuth alloy;
3.3.4 Tin-silver-copper-antimony alloy;
3.3.5 Tin-zinc-bismuth alloy;
3.3.6 Worldwide suppliers for lead-free alloys;
3.4 Summary;
3.5 References;
Chapter 4 Lead-free Manufacturing;
4.1 Introduction;
4.2 Alloy Selection;
4.2.1 Sn58Bi;
4.2.2 SnZnBi;
4.2.3 SnAgBi;
4.2.4 Sn3.5Ag;
4.2.5 Sn0.7Cu;
4.2.6 SnAgCu;
4.2.7 Summary of alloy selection for reflow soldering
4.3 Alloy Selection for Wave Soldering
4.4 Characteristics of Selected Tin-Silver-Copper Alloy;
4.4.1 Various compositions;
4.4.2 Reflow characteristics;
4.5 Considerations and Tests for Lead-free Components;
4.5.1 Suggested test requirements for lead-free components;
4.6 Assuring Material Readiness for Lead-free Assembly;
4.7 Tracing Lead-free Systems;
4.7.1 Process change notices (PCN);
4.7.2 Component part numbers (CPN);
4.8 Solder Paste Handling;
4.9 Surface-Mount Assembly Process;
4.9.1 Screen printing;
4.9.2 Pick and place;
4.9.3 Reflow;
4.10 Wave Solder Process
4.10.1 Materials considerations for wave soldering

Sommario/riassunto

Lead-free Electronics provides guidance on the design and use of lead-free electronics as well as technical and legislative perspectives. All the complex challenges confronting the electronics industry are skillfully addressed:

- * Complying with state legislation
- * Implementing the transition to lead-free electronics, including anticipating associated costs and potential supply chain issues
- * Understanding intellectual property issues in lead-free alloys and their applications, including licensing and infringement
- * Implementing cost effective manufacturing and testing
- * Reducin
