

1. Record Nr.	UNINA9910877721803321
Titolo	Lead-free electronics // 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	621.3815
Soggetti	Electronic apparatus and appliances Lead-free electronics manufacturing processes
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 solders2.2.3 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
