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Autore	Pascoe Norman
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Questions; References; 2 Product Lifecycle Management; 2.1 Overview; 2.2 Project Management; 2.3 Project Initiation; 2.4 Project Planning; 2.5 Project Execution; 2.6 Project Closure; 2.7 A Process Capability Maturity Model; 2.8 When and How to Define The Distribution Strategy
2.9 Transfer of Design to Manufacturing - The High-Risk Phase2.10 Outsourcing - Understanding and Minimising the Risks; 2.11 How Product Reliability is Increasingly Threatened in the Twenty-First Century; Summary and Questions; References; 3 The Physics of Failure; 3.1 Overview; 3.2 Background; 3.3 Potential Failure Mechanisms in Materials and Components; 3.4 Techniques for Failure Analysis of Components and Assemblies; 3.5 Transition from Tin-Lead to Lead-Free Soldering; 3.6 High-Temperature Electronics and Extreme-Temperature Electronics; 3.7 Some Illustrations of Failure Mechanisms Summary and QuestionsReferences; 4 Heat Transfer - Theory and Practice; 4.1 Overview; 4.2 Conduction; 4.3 Convection; 4.4 Radiation; 4.5 Thermal Management; 4.6 Principles of Temperature Measurement; 4.7 Temperature Cycling and Thermal Shock; Summary and Questions; References; 5 Shock and Vibration - Theory and Practice; 5.1 Overview; 5.2 Sources of Shock Pulses in the Real Environment; 5.3 Response of Electronic Equipment to Shock Pulses; 5.4 Shock Testing; 5.5 Product Shock Fragility; 5.6 Shock and Vibration Isolation Techniques; 5.7 Sources of Vibration in the Real Environment
5.8 Response of Electronic Equipment to Vibration5.9 Vibration Testing; 5.10 Vibration-Test Fixtures; Summary and Questions; References; 6 Achieving Environmental-Test Realism; 6.1 Overview; 6.2 Environmental-Testing Objectives; 6.3 Environmental-Test Specifications and Standards; 6.4 Quality Standards; 6.5 The Role of the Test Technician; 6.6 Mechanical Testing; 6.7 Climatic Testing; 6.8 Chemical and Biological Testing; 6.9 Combined Environment Testing; 6.10 Electromagnetic Compatibility; 6.11 Avoiding Misinterpretation of Test Standards and Specifications; Summary and Questions; References 7 Essential Reliability Technology Disciplines in Design

Sommario/riassunto

A unique book that describes the practical processes necessary to achieve failure free equipment performance, for quality and reliability engineers, design, manufacturing process and environmental test engineers. This book studies the essential requirements for successful product life cycle management. It identifies key contributors to failure in product life cycle management and particular emphasis is placed upon the importance of thorough Manufacturing Process Capability reviews for both in-house and outsourced manufacturing strategies. The readers? attention is also drawn to the ma