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2.6 Analysis of SC Failure Trends in 2000-20092.7 Analysis of LV and SC Accident Causes in 2000-2009; 2.8 Analysis of Computer System and Software Failures; 2.9 Analysis of Onboard System Failures at the International Space Station in 2000s; 2.10 Methods of Ensuring Onboard Equipment Reliability of Spacecraft of Long-Life Operation; References; Chapter 3 Microwave Electronics for Space and Military Applications; 3.1 Basics of Microwave Electronics; 3.2 Structure and Properties of Gallium Arsenide; 3.3 Comparative Characteristics of GaAs and Si Properties
3.4 Microelectronic Devices Based on GaAs3.4.1 Diodes Based on GaAs; 3.4.2 Field Transistors; 3.5 Heterojunction Bipolar Transistors; 3.6 Optoelectronic Devices on GaAs; 3.6.1 LEDs; 3.6.2 Solar Batteries; 3.7 New Devices on GaAs; 3.8 Condition and Prospects of Development of Monolithic Microwave Integrated Circuits; 3.8.1 Main Spheres of Usage of Monolithic Microwave Integrated Circuits; 3.8.2 Main Materials for MMIC Production; 3.8.3 MMIC Active Elements and Their Reliability; 3.8.4 Advanced MMIC Design and Technology Solutions; 3.9 Basic Areas and Peculiarities of GaAs MMIC Application

Sommario/riassunto

This authoritative first volume provides a solid understanding of modern spacecraft classification, failure, and electrical component requirements. This book focuses on the study of modern spacecraft, including their classification, packaging and protection, design versions, launch failure and accident analysis, and the main requirements of electronic components used. Readers find comprehensive coverage of the design and development of individual components as well as systems, their packaging, and how to make them last in space. This is a useful resource for military and civil applications.n nSpecific topics include:nThe manufacturing of electronics for space; nThe main physical mechanisms of the impact of destabilizing factors of outer space, including various kinds of radiation, high-energy galactic icons, and particles of cosmic dust;nThe design of advanced space-grade microelectronic products such as memory microcircuits, microprocessors, interface and logic of microcircuits and power control microcircuits;nFacts and features about the "space race" that have not been available until now.