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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Silicon-based Frequency References -- Frequency References Based on the Thermal Properties of Silicon.-A Digitally-Assisted Electrothermal Frequency-Locked Loop in Standard CMOS -- An Electrothermal Frequency Reference in Standard 0.7µm CMOS -- A Scaled Electrothermal Frequency Reference in Standard 0.16µm CMOS -- Conclusions and Outlook -- Appendix.
Sommario/riassunto	This book describes an alternative method of accurate on-chip frequency generation in standard CMOS IC processes. This method exploits the thermal-diffusivity of silicon, the rate at which heat diffuses through a silicon substrate. This is the first book describing thermal-diffusivity-based frequency references, including the complete theoretical methodology supported by practical realizations that prove the feasibility of the method. Coverage also includes several circuit and system-level solutions for the analog electronic circuit design challenges faced. · Surveys the state-of-the-art in all-silicon frequency references; · Examines the thermal properties of silicon as a solution for the challenge of on-chip accurate frequency generation; · Uses simplified modeling approaches that allow an electronics engineer easily to simulate the electrothermal elements; · Follows a top-down methodology in circuit design, in which system-level design is promoted by behavioral simulations.