1. Record Nr. UNINA9911020421703321

Autore	Borgarino Mattia
Titolo	Analog Microelectronics / / by Mattia Borgarino
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-031-94286-8
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (979 pages)
Disciplina	621.3815
Soggetti	Electronic circuit design Embedded computer systems Electronics Electronics Design and Verification Embedded Systems Electronics and Microelectronics, Instrumentation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	History of Electronics -- Transistors and Amplifiers -- Fundamental Patterns -- Exercises on basic patterns -- Frequency Response -- Feedback -- Feedback and Stability -- Examples of Feedback Amplifiers.
Sommario/riassunto	This textbook uses an innovative, fresh and rigorous approach to the analysis of analog circuits. The author guides students to leverage the psycho-cognitive concept of basic pattern as an efficient calculation tool, going beyond its traditional use for the qualitative visual inspection. In this journey, the reader is not left alone to face statements such as “it is easy to prove that” or “it has been proven elsewhere that”. All formulas and theorems are proven step-by-step. In particular, the proofs of the theorems on frequency response and stability have been made as intuitive as possible. The author thus demystifies and makes available to the student these relevant theorems, which are usually scattered over decades of reading and/or in several textbooks and papers. Two chapters focus on exercises of increasing difficulty, most of them discussed fully and solved step-by-step, allowing students to strengthen and test their knowledge. Moreover, the first two chapters introduce the history of

microelectronics and physics of fundamental electron devices. Uses a learning method to exploit the concept of pattern as a tool for calculation and not only for visual inspection; Guides students, step-by-step, through mathematical proof of theoretical formulas; Covers physics of fundamental electron devices.