

RF AND MICROWAVE PASSIVE AND ACTIVE TECHNOLOGIES

In the high frequency world, the passive technologies required to realize RF and microwave functionality present distinctive challenges. SAW filters, dielectric resonators, MEMS, and waveguide do not have counterparts in the low frequency or digital environment. Even when conventional lumped components can be used in high frequency applications, their behavior does not resemble that observed at lower frequencies. Similarly, many active devices utilized in microwave applications are unique or are uniquely manufactured to address high frequency requirements. The behavior of standard materials is also distinct at high frequencies. Metals, dielectrics, ferroelectrics and semiconductors are all discussed in terms of their complex behavior observed at microwave frequencies. **RF and Microwave Passive and Active Technologies** provides detailed information about a wide range of component technologies used in modern RF and microwave systems.

Extensive new material is included on RFCMOS, Fresnel zone plate antennas, and bringing RFICs to market. Updated chapters include new material on such technologies as MEMS, antenna technology, active diodes, BJTs, MESFETs, and RF materials properties. The book also features a completely rewritten section on wide bandgap transistors.

Features

- Examines the challenges of integrated circuits for microwave and RF applications (MMCs and RFICs) present for design, layout, characterization, and test
- Covers device technologies such as transit time devices, HEMTs, HBTs and certain vacuum tubes used almost exclusively for high frequency applications
- Explores the potential of Widebandgap Nitride transistors and their properties characteristic to high frequency applications
- Discusses the behavior of materials such as metals, dielectrics, ferroelectrics, and semiconductors in terms of the more complex models required when used as part of a microwave system
- Includes discussions of microwave packaging and antenna considerations



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6000 Broken Sound Parkway, NW
Suite 300, Boca Raton, FL 33487
270 Madison Avenue
New York, NY 10016
2 Park Square, Milton Park
Abingdon, Oxon OX14 4RN, UK



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