WORKSHOP
Sunday, June 8, 1997

Low Voltage, Low Power Consumption RFICs for Wireless Communication Products

Location:	Denver Convention Center
Time:	8:00 am–5:00 pm
Sponsors:	IEEE RFIC Symposium – Steering Committee MTT-6 Microwave and Millimeter-wave ICs MTT- 16 Microwave Systems & Communications
Organizers	Fazal Ali, Nokia Mobile Phones Mike Golio, Rockwell, Collins Bernie Gellar, David Sarnoff Research Center
Speakers:	Experts from Industry

Abstract:

The basic RF components required for the wireless communication markets operating in the 800 MHz – 2.5 GHz frequency range are undergoing a revolutionary change in terms of DC power consumption. On both the research and production front, the reduced power consumption in ICs is recognized as a key competitive advantage. Next to low cost, minimum power consumption is the most translates into smaller, lighter batteries and longer battery lifetime. The power consumption issue is complicated by secondary considerations including cost of required auxiliary circuitry to provide dual polarity supply, reduced off current leakage and isolation or ruggedness. This workshop will consider different device technologies and circuit techniques suitable for reducing DC power especially in receiver and power amplifier portions of the RFICs. Si BJT, MOSFET, GaAS MESFET, HBT and PHEMT technologies will be examined for their inherent properties relative to low voltage requirements. Specific process improvements that would lead to improved low power consumption design will be discussed. Circuit design techniques to reduce power consumption at low voltage will also be considered. Trends in current and future portable system architectures will also affect power consumption issues, and this will be addressed.

WORKSHOP

Sunday, June 8, 1997

Measurements for Silicon and GaAs Telecommunication ICs

Location:	Denver Convention Center
Time:	All Day (8:00 am-5:OO pm)
sponsors:	MTT- 11 Microwave Measurements RFIC Symposium
Organizers	Dylan F. Williams, NIST
Speakers:	Dylan Williams, NIST Mike Fennelly, ATN Microwave, Inc. Bill Pastori, Maury Microwave Fred L. Walls, NIST Reed Gleason, Cascade Microtech, Inc. Nick Kuhn, HP Morris Engelson, JMC Bob Buxton, Tektronix, Inc. John Barr, HP

Abstract:

This tutorial short course will address the basic measurement methods required to characterize silicon and GaAs integrated circuits for telecommunications applications. The short course will cover both linear and non-linear device measurements as well as important measurements related to overall system performance. It will include discussions of on-wafer measurement, noise measurement, spectrum analysis, package characterization, non-linear characterization with load-pull techniques, measurements for modulated signals, and spectrum analysis. The workshop will emphasize the fundamental measurement concepts and procedures widely used in the industry today.

RFIC
FRIDAY WORKSHOP
Friday, June 13, 1997

Epitaxial Materials Manufacturing for HEMTs and HBTs

Location:	Denver Convention Center
Time:	1:00 pm-5:00 pm
sponsors:	MTT-6 Microwave & Millimeter-Wave ICs
Organizers	April S. Brown, Georgia Tech Michael Golio, Rockwell International
Speakers:	Dwight Streit, TRW Henry Lee, University of California Irvine Craig Farley, Rockwell Tom Hieri, QED Phil Sullivan Gary May, Georgia Tech

Abstract:

The insertion of GaAs-based microwave and millimeter wave products into RF communication systems is rapidly growing. Concurrent with this commercialization, a focus on cost and performance is arising and driving the development of manufacturing methodologies for III-V based devices and circuits. The epitaxial process for producing sophisticated PHEMT or HBT structures remains a cost bottleneck.However, the transition of both MBE and MOCVD processes from research tool to manufacturing process is rapidly occurring. The current state of epitaxial manufacturing capability as well as future developments as they apply to HEMT and HBT device production will be discussed. Specific topics include: manufacturing methodologies and cost analysis of device materials in industry and in "merchant epi" companies, trends in the evolution of equipment to enable improved manufacturing, and coupling of device choice and cost effectiveness of manufacturing. A wide range of participants will benefit, including engineers involved in the production of epitaxial microwave devices, RF design using HEMTs and HBTs, and engineers involved in microwave and mm-wave circuit and system optimization.