NM6614 RF SILICON ELECTRONICS

Fundamentals of semiconductor physics, band structure and transport, lattice vibrations, low dimensional semiconductor physics, silicon as the base material the p-n junction, diodes, the p-n diode, pin diodes, metal-semiconductor barriers, the Schottky diode, the Si bipolar transistor, the SiGe heterostructure bipolar transistor, equivalent circuits, high frequency properties, nonlinear behaviour and noise properties of the Si bipolar transistor and the SiGe HBT, Si field effect transistors, SiGe-hetero FETs, high frequency properties nonlinear behaviour and noise properties of Si field effect transistors and SiGe-hetero FETs, tunnelling phenomena, silicon transit time devices, the resonant phase transistor, rf silicon monolithic integrated circuits, silicon integrated millimeterwave circuits (SIMMWICs), transmission line and interconnect structures in monolithic integrated circuits. Monolithic integration of planar circuit elements, rf circuits: amplifiers, oscillators, mixers, high-speed digital circuits, computer modelling and optimisation of devices, passive structures and circuits, measurement and parameter extraction.