Abstracts

Semiconductor Device Simulation

C.M. Lee, R.J. Lomax and G.I. Haddad. "Semiconductor Device Simulation." 1974 Transactions on Microwave Theory and Techniques 22.3 (Mar. 1974 [T-MTT] (Special Issue on Computer-Oriented Microwave Practices)): 160-177.

Two of the numerical methods most widely used in solving the set of partial differential transport equations for holes, electrons, and electric field in semiconductor devices and the various numerical instability phenomena which can be encountered are described in detail. Also presented are approaches, using these methods, to calculate dc static solutions and small-signal solutions, and to simulate devices in voltage-driven, current-driven, and circuit-loaded operation. Sample results are given for each mode of operation for the case of Si avalanche-diode oscillators. The numerical methods and approaches are those developed at our laboratory and sufficient detail is presented to permit the development of similar Fortran codes by others.

❑ Return to main document.