Abstracts

Dominant Mode Propagation in Ge and Si with Carrier Density Decaying Exponentially in Time (Correspondence)

D.A. Holmes and D.L. Feucht. "Dominant Mode Propagation in Ge and Si with Carrier Density Decaying Exponentially in Time (Correspondence)." 1964 Transactions on Microwave Theory and Techniques 12.1 (Jan. 1964 [T-MTT]): 144-145.

Nag and Das have recently made a theoretical study of microwave propagation in a semiconductor-filled rectangular waveguide when the semiconductor has a time dependent carrier density. They have assumed epsilon and sigma to be time dependent in the wave equation for the TE/sub 01/ mode wave and obtained a solution for the electric field E/sub x/ by perturbation techniques for small changes in carrier density. An equivalent propagation constant can be obtained for Germanium and Silicon by solving the wave equation for E/sub x/, assuming no time variations in epsilon and sigma, and then later inserting their dependence. This is an implicit physical assumption is an earlier work of Jacobs, et al.

❑ Return to main document.