Abstracts

Slow-Wave Coplanar Waveguide on Periodically Doped Semiconductor Substrate (Dec. 1983 [T-MTT])

Y. Fukuoka and T. Itoh. "Slow-Wave Coplanar Waveguide on Periodically Doped Semiconductor Substrate (Dec. 1983 [T-MTT])." 1983 Transactions on Microwave Theory and Techniques 31.12 (Dec. 1983 [T-MTT] (1983 Symposium Issue)): 1013-1017.

A metal-insulator-semiconductor (MIS) coplanar waveguide with periodically doped substrate is described. An efficient numerical method is introduced in order to obtain the propagation constants and the characteristic impedances of the constituent sections of each period. Using the results, the characteristic of the periodic MIS coplanar waveguide is analyzed by Floquet's theorem. The theoretical study shows reduction of attenuation and enhancement of the slow-wave factor at certain frequencies, compared to the uniform MIS coplanar waveguide. This structure is experimentally simulated and shows good agreement theory.

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