Abstracts

Thin Skin IMPATTS (Correspondence)

B.C. De Loach, Jr.. "Thin Skin IMPATTS (Correspondence)." 1970 Transactions on Microwave Theory and Techniques 18.1 (Jan. 1970 [T-MTT]): 72-74.

This correspondence summarizes some consequences of "skin effect" for high-frequency IMPATT diodes. The enormous current densities, well in excess of 10/sup 5/ A/cm², currently employed in high-frequency IMPATT diodes are shown to cause nonuniform current distributions due to skin effect in diodes of conventional dimensions. These nonuniformities in turn preclude high efficiency. They also provide an explanation for the small increase in output power attained in pulse operation, in which even higher current densities are experienced than in CW operation. Practical means of reducing these effects exist within semiconductor technology and are briefly discussed.

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