Abstracts

35 GHz GaAs Power MESFET's and Monolithic Amplifiers

B. Kim, N. Camilleri, H.-D. Shih, H.Q. Tserng and M. Wurtele. "35 GHz GaAs Power MESFET's and Monolithic Amplifiers." 1989 Transactions on Microwave Theory and Techniques 37.9 (Sep. 1989 [T-MTT] (Special Issue on FET Structures Modeling and Circuit Applications)): 1327-1333.

GaAs MESFET's have been optimized for power operation at 35 GHz. Various doping levels and potential barrier layers at the interface between the buffer and the active layer have been studied. The best power performance has been obtained from the FET on a very heavily doped active layer. The device on AIGaAs heterobuffer had further improved output power. The best devices delivered output power densities of 0.8 W/mm with 23 percent efficiency, 0.71 W/mm with 34 percent efficiency, and 0.61 W/mm with 41 percent efficiency. Monolithic power amplifiers with a 400 µm FET have generated 200 mW of output power. These amplifiers were monolithically power combined, resulting in 600 mW of output power at 34 GHz.

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