Abstracts

State-of-the-Art Ion-Implanted Low-Noise GaAs MESFET's and High-Performance Monolithic Amplifiers

K.-G. Wang and S.-K. Wang. "State-of-the-Art Ion-Implanted Low-Noise GaAs MESFET's and High-Performance Monolithic Amplifiers." 1987 Transactions on Microwave Theory and Techniques 35.12 (Dec. 1987 [T-MTT] (1987 Symposium Issue)): 1501-1506.

State-of-the-art GaAs low-noise MESFET's and high-performance monolithic amplifiers have been fabricated using a high-yield, planar ion-implantation process. A 0.5-µm-gate FET has achieved a 1.2-dB noise figure with 8.8 dB associated gain at 12 GHz and a 1.7-dB noise figure with 6.6 dB associated gain at 18 GHz. A 0.25 x 60 µm FET has achieved 1.7 dB and 2.5 dB noise figures with 6.3 dB and 5.0 dB associated gains at 22 GHz and 35 GHz, respectively. A two-stage monolithic amplifier using the 0.5-µm FET process has achieved a 1.8-dB noise figure with 23.6 dB associated gain at 9.5 GHz. The dc yield of the amplifier chips is better than 40 percent. These results have demonstrated that direct ion implantation is capable of producing low-cost, high-performance low-noise monolithic microwave integrated circuits (MMIC's).

❑ Return to main document.