Abstracts

A High Electron Mobility Transistor with a Mushroom Gate Fabricated by Focused Ion Beam Lithography (1988 [MCS])

Y. Sasaki, K. Nagahama, K. Hosono, T. Katoh and M. Komaru. "A High Electron Mobility Transistor with a Mushroom Gate Fabricated by Focused Ion Beam Lithography (1988 [MCS])." 1988 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 88.1 (1988 [MCS]): 143-146.

A super low noise HEMT with a mushroom-shaped quarter micron gate was fabricated by using focused ion beam lithography. The mixed exposure of Be/sup ++/ and Si/sup ++/ focused ion beams was used to form T-shaped resist profiles. This method has the advantages of a high reproducibility and controllability of resist profiles. The gate resistance was extremely reduced by mushroom-shaped gate. As a result, the fabricated HEMT showed a minimum noise figure (NFmin) of 0.68dB with an associated gain (Ga) of 9.7dB at 12GHz. This device also showed an NFmin of 0.83dB with a Ga of 7.7dB at 18GHz.

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