Abstracts

A New Self-Alignment Technology for Sub-Quarter-Micron-Gate FET's Operating in the Ka-Band

E. Yanokura, M. Mori, K. Hiruma and S. Takahashi. "A New Self-Alignment Technology for Sub-Quarter-Micron-Gate FET's Operating in the Ka-Band." 1989 Transactions on Microwave Theory and Techniques 37.9 (Sep. 1989 [T-MTT] (Special Issue on FET Structures Modeling and Circuit Applications)): 1466-1471.

A new self-alignment technology is proposed and applied to GaAs MESFET's. With this technology, sub-quarter-micron gates are fabricated using conventional optical lithography and selective etching of different insulators. Furthermore, an offset gate structure is realized using the self-alignment method. Gate lengths between 340 nm and 90 nm are attained with excellent controllability. This technology is successfully applied to high-power GaAs MESFET's operating in the Ka-band. A linear gain of 4.0 dB and a saturation power of 0.8 W are obtained at 28 GHz from an FET with a gate width of 3.6 mm, thus demonstrating the effectiveness of the self-aligned offset gate structure.

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