Abstracts

Designing FET's for Broad Noise Circles

B. Hughes. "Designing FET's for Broad Noise Circles." 1993 Transactions on Microwave Theory and Techniques 41.2 (Feb. 1993 [T-MTT]): 190-198.

This paper shows that the keys to broader noise circles are a lower minimum noise figure and a small optimum generator reflection coefficient. There is an optimum FET width for the smallest generator reflection coefficient and the broadest noise circles. This was demonstrated with 0.25 µm MODFET's. A FET of optimum width also has the lowest noise figure with a 50 omega generator. An expression is derived showing that the optimum gate width is inversely proportional to frequency, and that the optimum width should be a weak function of gate length for FET's optimally scaled for gate length.

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