Abstracts

High-Frequency Si-MOSFET's

C. Tsironis and U. Niggebrugge. "High-Frequency Si-MOSFET's." 1979 Transactions on Microwave Theory and Techniques 27.12 (Dec. 1979 [T-MTT] (1979 Symposium Issue)): 1052-1058.

Silicon (Si-) MOSFET's with 0.8-µm channel, made by conventional technology and optimized for microwave applications, have noise figures of 3.7 dB at 4 GHz and maximum frequencies of oscillation of 10 to 12 GHz. The noise and radio-frequency (RF) small signal performance are only slightly affected by double ion implantation of the channel region, used to shift the threshold voltage from -2 V to +0.2 V. Excess noise is generated in the implanted MOSFET's for lower V/sub DS/ values than in unimplanted ones. The variation of the noise parameters with drain current is lower in implanted devices. The RF equivalent circuit analysis indicates negligible parasitic lead resistances, but high feedback capacitance. A comparison with GaAs MESFET's of the buried channel type showed the Si-MOSFET's to have lower third-order harmonic distortion when driven by a 1-GHz signal source.

❑ Return to main document.