

Abstracts

K/_u- and K-Band GaAs MMIC Varactor-Tuned FET Oscillators Using MEV Ion-Implanted Buried-Layer Back Contacts (1990 [MCS])

P.J. McNally, T. Smith, F.R. PHELLEPS, K.M. Hogan, B. Smith and H. Deitrich. "K/_u- and K-Band GaAs MMIC Varactor-Tuned FET Oscillators Using MEV Ion-Implanted Buried-Layer Back Contacts (1990 [MCS])." 1990 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 90.1 (1990 [MCS]): 107-110.

An all ion-implant, planar process has been used to fabricate high-Q, hyper-abrupt carrier profile, varactor diodes as components of GaAs MMIC VCOs with state-of-the-art performance. These GaAs varactor-tuned FET oscillators operate up to 24 GHz with a tuning bandwidth of 5 GHz in K-band. The high-Q varactors feature a buried N⁺ layer created by ion-implantation at up to 6 MEV. Separately masked implanted N⁺ areas connect the buried layer to ohmic contacts at the surface. Varactor f_c of 1600 GHz was obtained at 0.09 pF.

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