Abstracts

Monolithic Ka Band VCO Using Quarter Micron GaAs MESFETs and Integrated High-Q Varactors (1990 Vol. I [MWSYM])

M.G. McDermott, C. Sweeney, M. Benedek and G. Dawe. "Monolithic Ka Band VCO Using Quarter Micron GaAs MESFETs and Integrated High-Q Varactors (1990 Vol. I [MWSYM])." 1990 MTT-S International Microwave Symposium Digest 90.1 (1990 Vol. I [MWSYM]): 185-188.

High Q GaAs abrupt varactor diodes and 0.25µm GaAs MESFETs have been combined on a semi-insulating GaAs substrate for millimeter wave MMIC applications. Based on the measured series resistance and capacitance, the diodes have a calculated Q at -4V, 50MHz of approximately 19,000. The MESFETs have a measured gain of >6dB at 35GHz with extrapolated values for f/sub t/ and f/sub max/ of 32GHz and 78GHz respectively. A monolithic Ka band VCO using these devices has been built and tested. Output powers of 60mW with 70MHz of tuning bandwidth and 40mW with 120MHz of tuning bandwidth have been measured at 32GHz.

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