Abstracts

Optical Tuning in GaAs MESFET Oscillators

H.J. Sun, R.J. Gutmann and J.M. Borrego. "Optical Tuning in GaAs MESFET Oscillators." 1981 MTT-S International Microwave Symposium Digest 81.1 (1981 [MWSYM]): 40-42.

Optical tuning in GaAs MESFET oscillators indicate that the tuning range is an order of magnitude greater in common-source and common-gate mode oscillators compared to common-drain mode circuits. Tuning ranges of 2 to 3% at C and X band have been demonstrated with an incandescent source illumination intensity of approximately 1mW/mm/sup2/. The optical tuning sensitivity is attributed to C/sub gs/ variations with light, resulting from an increase in the effective space charge density in the gate depletion layer (attributed to hole trapping). Analysis of the oscillator starting condition for the three oscillator circuits is in qualitative agreement with the measured frequency sensitivity, using C/sub gs/ variations with light measured at 1MHz.

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