Abstracts

GaAs Single-Barrier Varactors for Miliimeter-Wave Triplers: Guidelines for Enhanced Performance

K. Krishnamurthi, S.M. Nilsen and R.G. Harrison. "GaAs Single-Barrier Varactors for Miliimeter-Wave Triplers: Guidelines for Enhanced Performance." 1994 Transactions on Microwave Theory and Techniques 42.12 (Dec. 1994, Part II [T-MTT] (1994 Symposium Issue)): 2512-2516.

Earlier single-barrier varactors (SBVs) fabricated on GaAs suffered from low Q because of leaky barriers. By placing a thin AlAs layer in the center of an Al/sub 0.4/Ga/sub 0.6/As barrier, and using In/0.8/Ga0.8/As spacers, one can increase the effective barrier height, thereby achieving SBVs with both high Q and good capacitance-modulation characteristics. Simulation of a 192-GHz tripler using these varactors shows purely reactive multiplication, without the output-power saturation both predicted and observed in triplers using leaky-barrier SBVs.

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