Abstracts

Monolithic 60 GHz GaAs CW IMPATT Oscillators (Dec. 1988 [T-MTT])

B. Bayraktaroglu. "Monolithic 60 GHz GaAs CW IMPATT Oscillators (Dec. 1988 [T-MTT])." 1988 Transactions on Microwave Theory and Techniques 36.12 (Dec. 1988 [T-MTT] (1988 Symposium Issue)): 1925-1929.

A monolithic circuit design was developed for GaAs IMPATT diodes to enable their operation under CW conditions at V-band frequencies. All active and passive circuit components were fabricated on the top surface of the GaAs substrate. Good heat dissipation was achieved by distributing the device active area over a large surface area while maintaining a lumped mode of operation. More than 100 mW CW output power was obtained in the 58-65 GHz frequency range, with up to 14.5 percent conversion efficiency. In an alternative design, varactor diodes were integrated with the IMPATT circuits to produce the first monolithic VCO's operating under CW conditions. A tuning bandwidth greater than 3.5 GHz was obtained at a center frequency of 70 GHz, with a maximum CW output power of 40 mW.

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