Abstracts

A K/sub a/ band MMIC super regenerative detector

N.B. Buchanan, V.F. Fusco and J.A.C. Stewart. "A K/sub a/ band MMIC super regenerative detector." 2000 MTT-S International Microwave Symposium Digest 00.3 (2000 Vol. III [MWSYM]): 1585-1588.

In this paper for the first time a K/sub a/ band MMIC oscillator has been designed to enable it to function as a super regenerative detector. This provides a highly sensitive detector from a single PHEMT device operating at 34 GHz. It has been possible to detect AM signal levels at -1 dBm for 12 dB SINAD, giving a 34 dB improvement over a conventional self oscillating detector using the same MMIC oscillator. Importantly, it has been found that unlike classical super regenerative detectors operating at UHF, the point of maximum detector sensitivity is not equal to the free running oscillation frequency due to the dynamic frequency pushing effects of the oscillator. This gives rise to applications in the area of low cost short range telemetry and sensor applications at K/sub a/ band.

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