Abstracts

A 33 GHz power amplifier based on an extended resonance technique

A.L. Martin and A. Mortazawi. "A 33 GHz power amplifier based on an extended resonance technique." 2000 MTT-S International Microwave Symposium Digest 00.2 (2000 Vol. II [MWSYM]): 999-1002.

A Ka-band power amplifier based on an extended resonance power combining technique is presented. This technique enables the design of planar microstrip power amplifiers that are much more compact than those based on traditional quarter-wave hybrid designs. The extended resonance power combining amplifier presented here combines four GaAs MESFETs at 32.8 GHz using a planar structure that is more than 40% smaller than a quarter-wave hybrid power combining amplifier design, while the power-combining efficiency is 92%. The measured small-signal gain at 32.8 GHz is 4.6 dB, and at 1-dB compression the output power is 23.3 dBm with a power-added efficiency of 12.8%.

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