Abstracts

A Ka-band monolithic quasi-optic amplifier

E.A. Sovero, J.B. Hacker, J.A. Higgins, D.S. Deakin and A.L. Sailer. "A Ka-band monolithic quasi-optic amplifier." 1998 MTT-S International Microwave Symposium Digest 98.3 (1998 Vol. III [MWSYM]): 1453-1456.

Recent advances in the development of a Ka-band quasi-optic amplifier are reported. The amplifier consists of a two-dimensional array of PHEMT power amplifiers, each of which is coupled to individual input and output slot antennas. The array of 112 amplifiers (49 mm total gate periphery) is organized into pairs operating in push-pull between a 7/spl times/8 array of input slots and an 8/spl times/8 array of orthogonal output slots. The total chip size is 12.8 mm by 13.4 mm and has a thickness of 75 /spl mu/m. It is fabricated with standard MMIC processing techniques. The amplifier provided gain from 37.5 GHz to 39.5 GHz with a peak gain approaching 9 dB at 38.6 GHz. The maximum measured output power is 29 dBm.

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