Abstracts

A 94-GHz Monolithic Balanced Power Amplifier Using 0.1-µm Gate GaAs-Based HEMT MMIC Production Process Technology

M. Aust, H. Wang, M. Biedenbender, R. Lai, D.C. Streit, P.H. Liu, G.S. Dow and B.R. Allen. "A 94-GHz Monolithic Balanced Power Amplifier Using 0.1-µm Gate GaAs-Based HEMT MMIC Production Process Technology." 1995 Microwave and Guided Wave Letters 5.1 (Jan. 1995 [MGWL]): 12-14.

A monolithic W-band two-stage balanced power amplifier has been developed using 0.1-µm AIGaAs/InGaAs/GaAs pseudomorphic T-gate power HEMT technology. This monolithic power amplifier has demonstrated an output power of 102 mW and a small signal gain of 9 dB with input/output return losses of better than 10 dB at 94 GHz. Moreover, this monolithic chip is fabricated using production GaAs-based HEMT MMIC technology and a good yield is obtained. The circuit design relies on extensive EM analysis of matching structures and accurate device modeling. The success of this monolithic circuit development indicates the maturity of power HEMT MMIC technology at W-band.

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