Abstracts

GaAs Monolithic Components Development for Q-Band Phased Array Application

M. Aust, H. Wang, R. Carandang, K. Tan, C.H. Chen, T. Trinh, R. Esfandiari and H.C. Yen. "GaAs Monolithic Components Development for Q-Band Phased Array Application." 1992 MTT-S International Microwave Symposium Digest 92.2 (1992 Vol. II [MWSYM]): 703-706.

Major components for monolithic Q-band phased array applications have been developed using 0.2 µm doped channel pseudomorphic InGaAs/GaAs high electron mobility transistor technology. The components include a high gain, high efficiency monolithic amplifier and a three-bit switched line, monolithic phase: shifter. At 44 GHz, measurement results of the amplifier demonstrates a small signal gain of 19.5 dB, and a power added efficiency of 20% at 3-dB compression point with an output power of 9 mW. The phase shifter has a measured insertion loss of 7.5 dB and a phase error /smaller than 7° from 43 to 45 GHz for all phase states. These components are suitable for monolithic integrated phased array transmitter applications.

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