Abstracts

K/sub a/- and V-Band MMIC Components for Personal Communication Networks

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The "wireless revolution" has created a number of new opportunities not only at lower microwave communication frequencies at 0.9GHz and 1.8GHz, but also at millimeterwave frequencies. The 38±2GHz frequency range has emerged as an internationally accepted frequency band for typical radio applications with a promising market for transmit and receive modules in the next years. Another frequency allocation has been granted for mobile broadband communication networks in the 62GHz to 66GHz band aiming to extend the scope of the broadband integrated services digital networks (B-ISDN). This system is envisaged to give mobile users access to future broadband services like speech, data, and video. In order to produce radio-frontends for these communication systems, low cost, reliable, high performance components in monolithic form are a basic necessity. This paper describes GaAs technologies developed at Daimler-Benz which can serve the needs and requirements of wireless millimeterwave communication systems at K/sub a/- and V-band frequencies. Based on different available technologies (HBT, Schottky diodes, MESFET, PM-HFET) oscillators, low-noise amplifiers, medium power amplifiers, variable-gain amplifiers, single-gate mixers, dual-gate mixers, and diode mixers have been fabricated and will be described.

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