

Dual-Chip GaAs Monolithic Integration Ku-Band Phase-Locked-Loop Microwave Synthesizer

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Two novel multifunction monolithic chips, GaAs MMIC and LSI, have been developed to realize an extremely small and lightweight microwave synthesizer. The MMIC includes a voltage-controlled oscillator, a dual-output buffer amplifier, a balun, and dynamic/static prescalers. To integrate these functions on a single chip, each circuit has been drastically reduced in size by utilizing a uniplanar MMIC configuration. The LSI includes a dual-modulus prescaler, programmable counters, and a phase/frequency comparator. By incorporating these two monolithic chips into the structure, a Ku-band microwave synthesizer has successfully been fabricated in an 11 X 23 mm² flat package.

 [Return to main document.](#)