

Session V

Commercial MMIC Applications II

Chairman:

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As costs decrease and yields of MMICs improve, an increasing number of commercial applications of these circuits have become possible. This session includes papers describing MMIC applications to automotive collision avoidance radar portable communication systems, some of which make use of both MMICs and optoelectronics, and instrumentation.

The first paper describes the design, components, system integration and test results of a 77 GHz GaAs monolithic transmitter intended for use in automobiles. A projected cost of \$60 for reasonable quantities (100,000 units) should be acceptable for wide-spread commercial use.

The second paper describes a very small low noise, L-band, variable gain MMIC amplifier. The amplifier has a current drain of only 1.8 mA during use, making it attractive for portable communication systems.

The third paper presents a optical/microwave receiver that features a photodiode that is “flip-chip” mounted on a MMIC amplifier. The approach greatly reduces amplifier input circuit mismatch, resulting in an improved noise figure.

The fourth paper describes very small 30-GHz band monolithic, image rejection optoelectronic up-converters. The combination of MMIC technology with fiber optics leads to a component for mobile radio use that provides excellent wide band performance and can be manufactured at low cost.

The final paper describes an MMIC that dramatically sharpens the off-on (leading edge) transition of pulses. Input transition times have been reduced from over 100 picoseconds to less than 5 picoseconds for input rates from near DC to over 5 GHz. This type of circuit is useful for instrumentation applications.

3:30 p.m.–5:10 p.m., Monday, June 14, 1993
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