Abstracts

A MMIC Radar Chip for Use in Air-to-Air Missile Fuzing Applications

M.D. Pollman, P. Katzin, B. Bedard, V. Aparin, W. Grammer and R. Orgusaar. "A MMIC Radar Chip for Use in Air-to-Air Missile Fuzing Applications." 1996 MTT-S International Microwave Symposium Digest 96.1 (1996 Vol. I [MWSYM]): 253-256.

The next generation of air-to-air missiles will require Target Detecting Devices (TDD) that must utilize directional target sensing to optimize weapon effectiveness. Conventionally, a centralized radar proximity sensor is switched sequentially between fixed directional antennas elements to provide the required directionality. This implementation involves expensive and bulky RF cabling and switching circuits to connect the TDD to each antenna element. By utilizing Microwave Monolithic Integrated Circuit (MMIC) technology, a single radar chip has been developed which allows for the simultaneous operation of ultra-miniature, low-cost fuze sensors which are mounted onto the backside of each antenna element, obviating the need for RF switches and cabling. The MMIC described includes all the RF circuitry required to operate each radar sensor synchronously (phased-locked) to a common low frequency clock signal. This allows all directional fuze sensors to be operated simultaneously without mutual interference, and results in an attractive, low-cost, miniaturized TDD electronic package.

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