

# MINIATURIZATION of HIGH PERFORMANCE DESIGNS



RF & Wireless Engineering

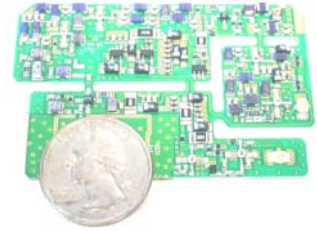
## ADVANCED CAPABILITIES

- Experienced in all aspects of Surface Mount Devices (SMD)
- Detailed System Analysis Capabilities Supports the Miniaturization Process
- Comprehensive CAD software utilized throughout the miniaturization effort
- All manufacturing meets IPC Class III assembly requirements
- Reflow Oven for Soldering Surface Mount Components
- Pick-N-Place Machine for Placing Components for Surface Mount Assembly
- Complete Mechanical Design Capabilities
- Computerized video inspection system
- Technical Staff has many years of Experience in Miniaturization
- State-of-the art PCB processes exploited

## SMALL FORM FACTORS FOR HIGH-TECH PROJECTS



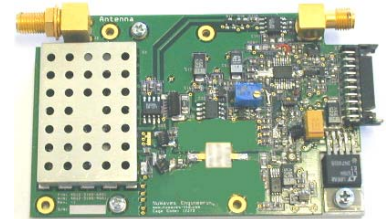
3.5" x 5.5" Receiver



1.75" x 2.75" Frequency Multiplier



2.55" x 5.55" RF Data Transceiver



2.5" x 3.5" PA Module

## YOUR SOURCE FOR RF ENGINEERING SOLUTIONS

NuWaves provides state-of-the-art RF design services to commercial, industrial, and military customers. We are a turnkey provider for RF custom designs with full project management and design responsibilities; taking ownership from the conceptual idea to production.

Miniaturization of high performance electronics is more involved than simply making everything smaller. Miniaturization of one phase of a product usually reveals limitations and weaknesses in other parts of the overall design and manufacturing process. Successful miniaturization demands a thorough understanding of the many technologies and processes inherent in a high performance electronic printed circuit board (PCB) or assembly. These technologies and processes include PCB layout, mechanical design, and IPC Class III manufacturing capabilities. Detailed knowledge of the performance characteristics of small profile components and a mastery of the circuit design are essential to successful miniaturization.

Miniaturization typically extracts a cost penalty, which is why it is most suitable to products where low cost is not critical. Markets such as instrumentation, security, military/aerospace, and especially medical electronics can often accept the additional cost of miniaturization. NuWaves has tremendous experience in developing miniature designs of high performance communication PCBs and miniaturizing current designs.

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