

CMOS RFIC Design Portfolio

CMOS RFIC Expertise in Wireless Power Transfer

RFIC Solutions Inc. delivers advanced RFIC and mixed-signal semiconductor solutions for wireless power transfer applications. With extensive experience in CMOS and CMOS SOI technologies, our team has developed highly integrated wireless power transfer transceivers optimized for efficient power transmission and reception.

Our proven development includes:

- 5.8 GHz Wireless Power Transfer (WPT) Transceiver
- Integrated RF Power Transmission and Reception Subsystems
- Advanced PLL Frequency Synthesizers and RF Building Blocks

From architecture and circuit design to silicon validation, we provide complete semiconductor development services focused on high efficiency, compact integration, low power operation, and reliable wireless power delivery for next-generation IoT and wireless energy transfer applications.

Wireless Power Transfer Complete Transceiver at 5.8 GHz ISM Band

RFIC Solutions Inc. has successfully designed and developed a complete 5.8 GHz Wireless Power Transfer (WPT) Transceiver in CMOS SOI 130 nm technology for a USA-based client, demonstrating strong expertise in RFIC and mixed-signal integrated circuit development. This project represents a significant achievement in the development of advanced wireless power transfer solutions operating within the 5.8 GHz ISM band.

The transceiver integrates several critical RF building blocks required for efficient wireless power transmission and reception. These include a low phase-noise synthesizer, power amplifier driver stages, receiver front-end circuits, mixers, and high-isolation switching networks. Each of these functional blocks was carefully designed and integrated to support stable operation and reliable performance at the target frequency of 5.8 GHz.

A major focus of the project was the optimization of overall system performance while maintaining key design objectives such as high efficiency, low power consumption, compact die area, and stable RF operation. The integrated architecture enabled the realization of a complete transceiver solution while meeting the performance requirements specified for wireless power transfer applications.

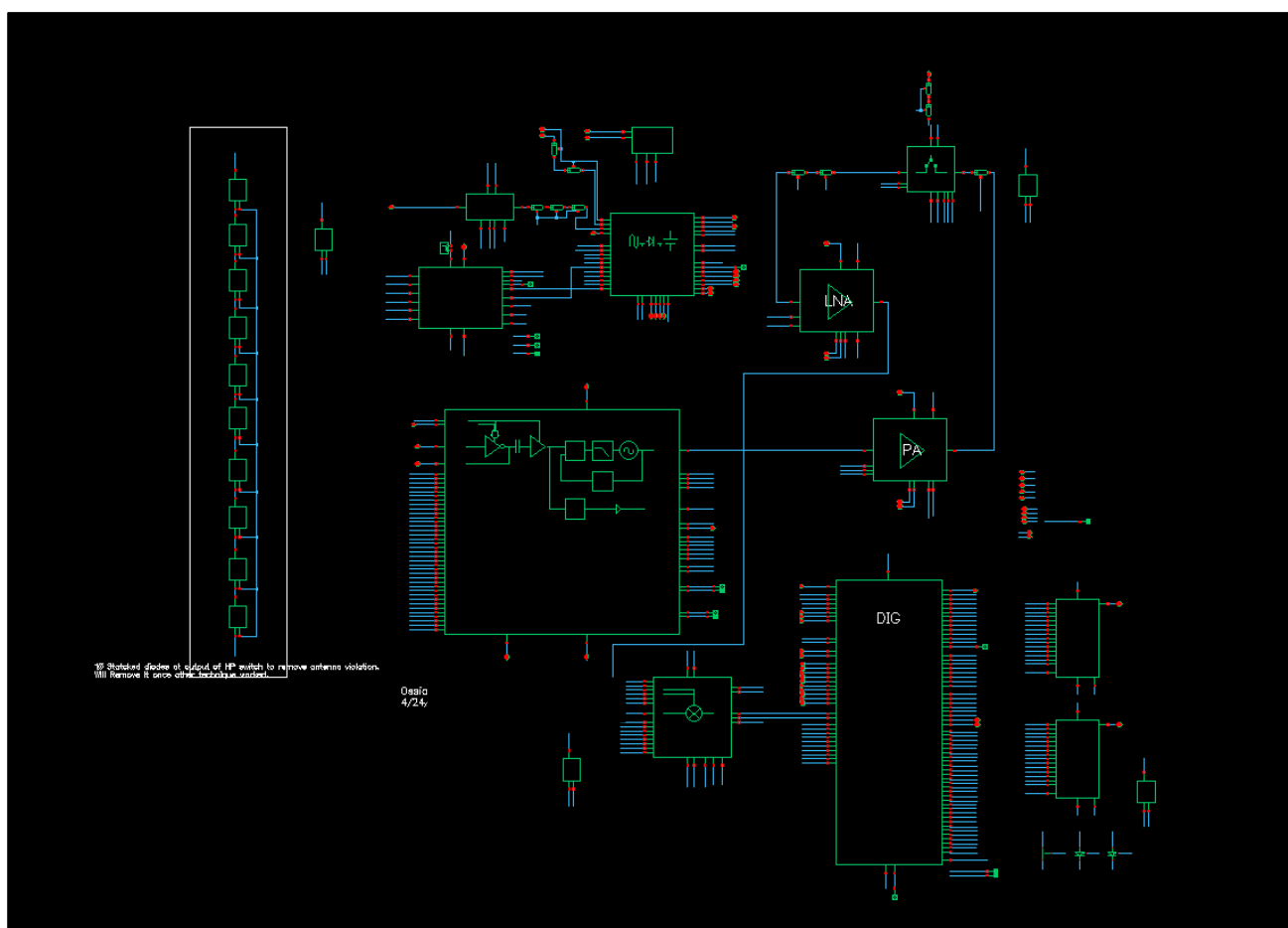


Figure 1: Complete Top-level Schematic

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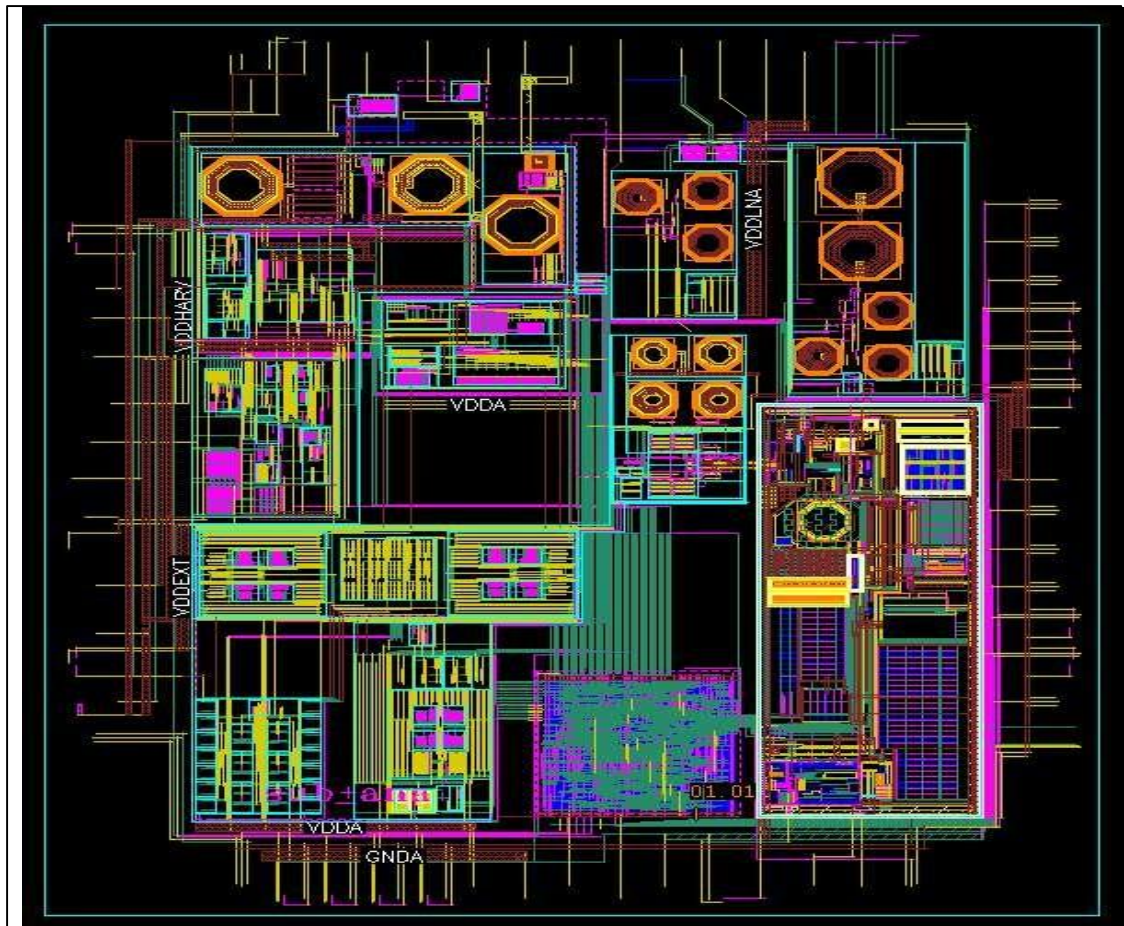


Figure 2: Complete Top-level Layout

The development effort leveraged RFIC Solutions' extensive experience in CMOS RF design, mixed-signal integration, and high-frequency circuit implementation. Throughout the project, emphasis was placed on achieving a robust and efficient design capable of supporting wireless power transfer functionality within the designated ISM frequency band.

In addition, one of the key employees from SM Technologies had previously worked with the same client on multiple advanced RFIC development programs. This prior experience provided valuable domain knowledge, technical understanding, and long-term collaboration expertise, contributing significantly to the successful execution of the project and ensuring effective alignment with the client's technical requirements and development objectives.

The successful completion of this project further demonstrates RFIC Solutions' capability to deliver complex RF and mixed-signal integrated circuit solutions for advanced wireless applications, reinforcing its commitment to providing high-quality semiconductor design services to customers worldwide.