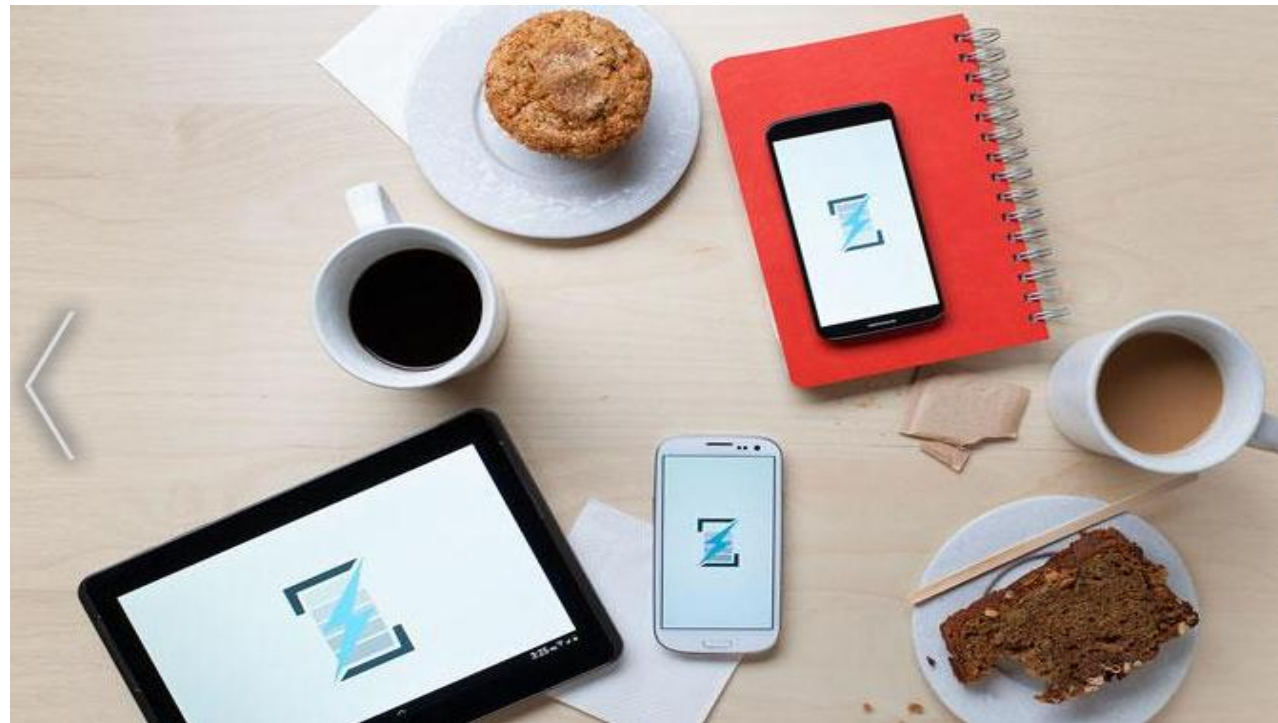


Power Integration to Enable Wireless Power Transfer @ 6.78MHz

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**PowerSoc 2014
Boston, Sept. 3 2014**

Wireless Power - Vision and Challenges



Customer wants

- Spatial freedom
- Multiple receivers
- Small and big devices



Physics Reality

Low and varying coupling



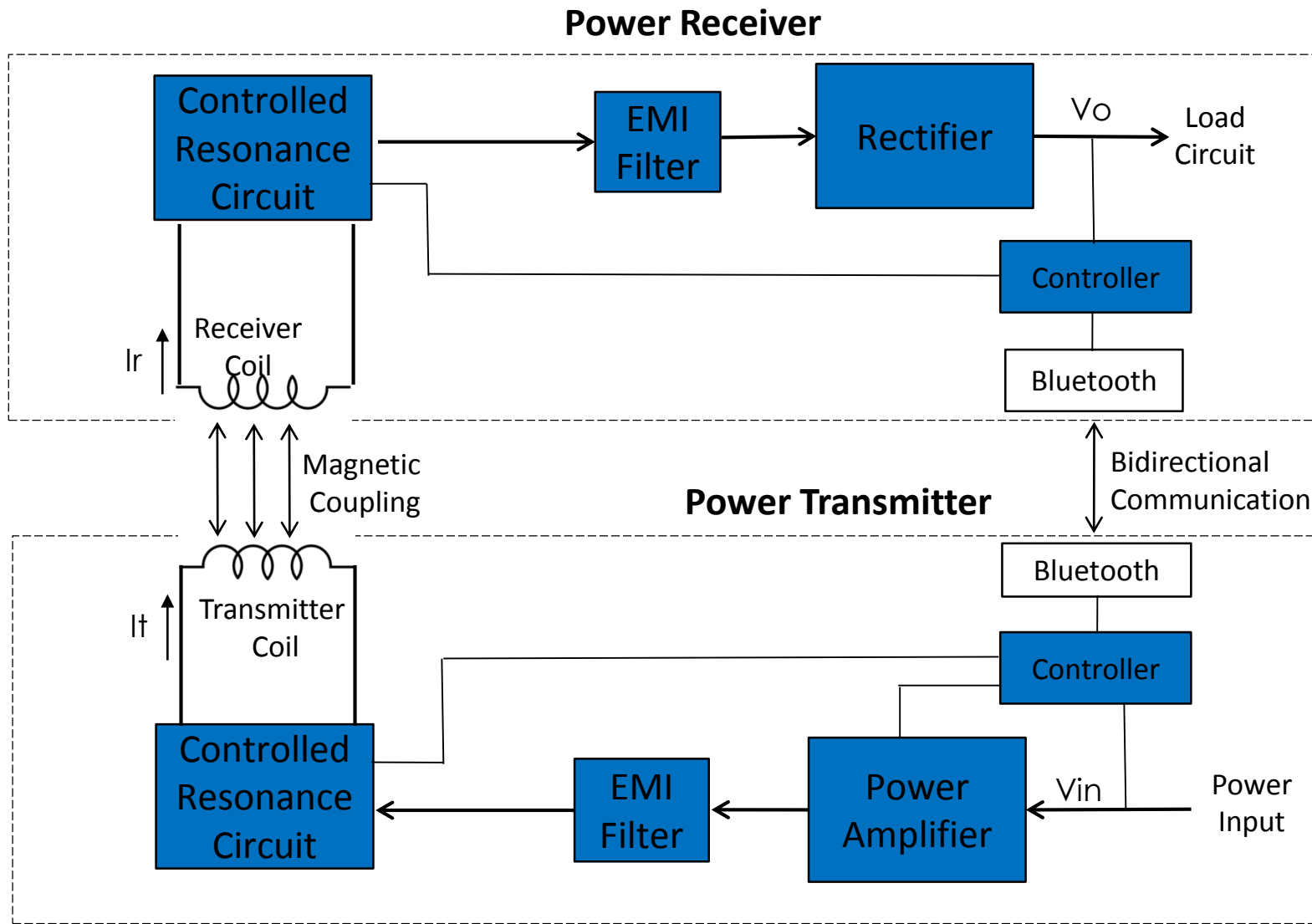
Design Challenges

- **Efficiency**
- **Cost**

- **Need innovation in architecture, circuit design, and process technology**
- **Power integration is a key enabler for low-mid power applications**

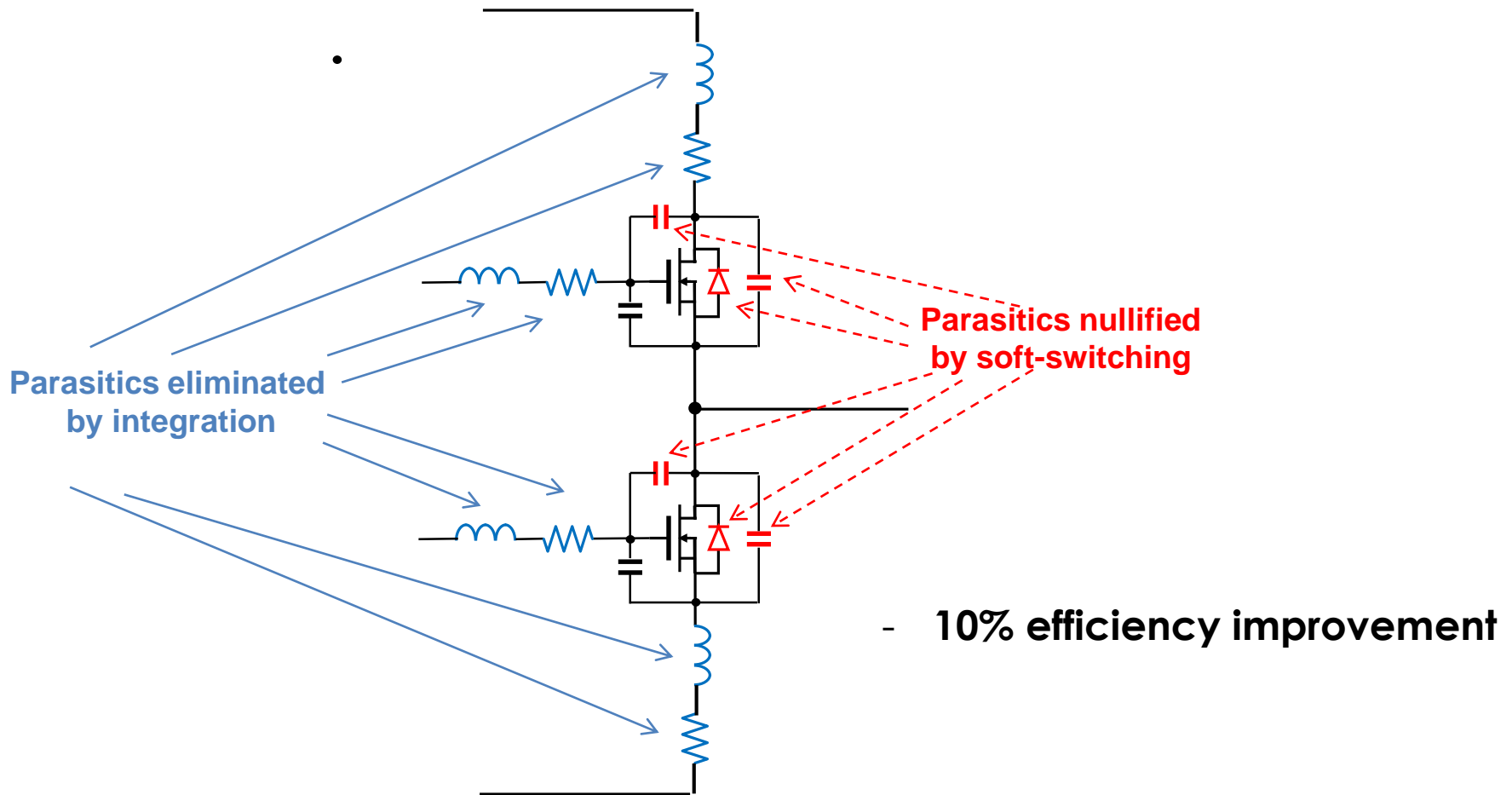
Simpler and More Efficient Controlled Resonance Architecture

Patents
Pending



Less conversion stage → higher efficiency, lower cost
Lower voltage stress → easier Silicon implementation

Power Integration for Efficiency Improvement

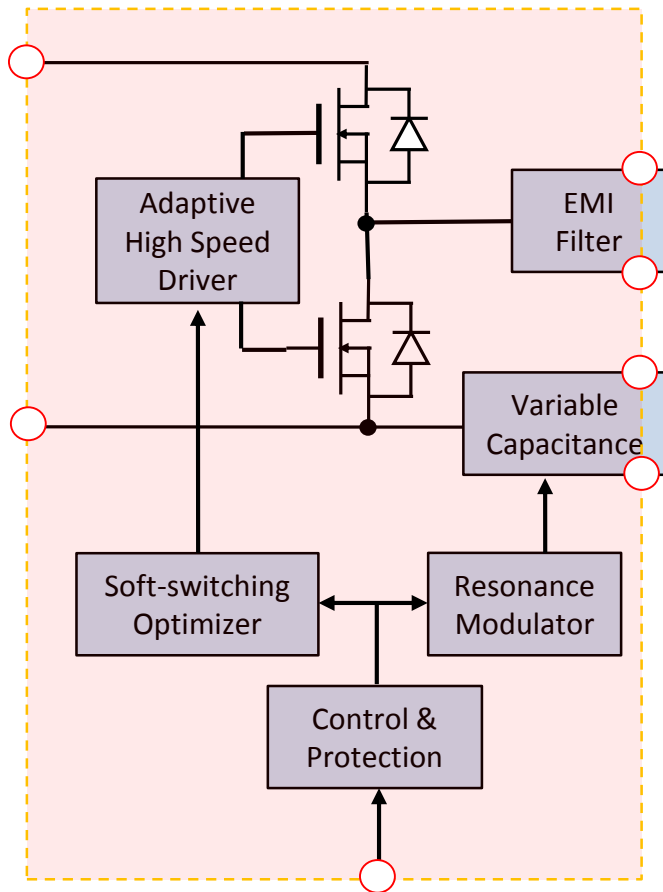


Power integration alleviates layout and packaging parasitics

- Facilitate soft-switching operation
- Minimize switching losses

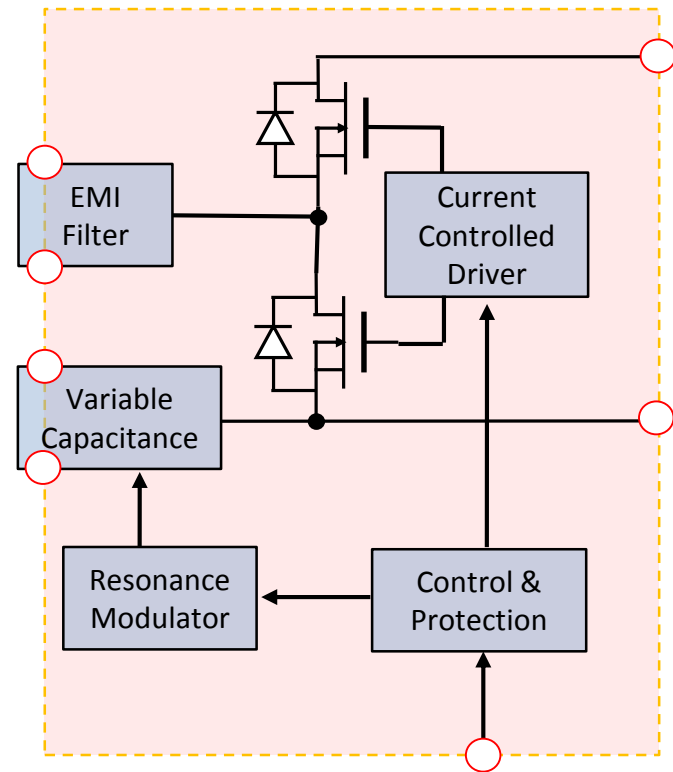
Power Integration for System Simplification

Patents
Pending



TxSoC

and



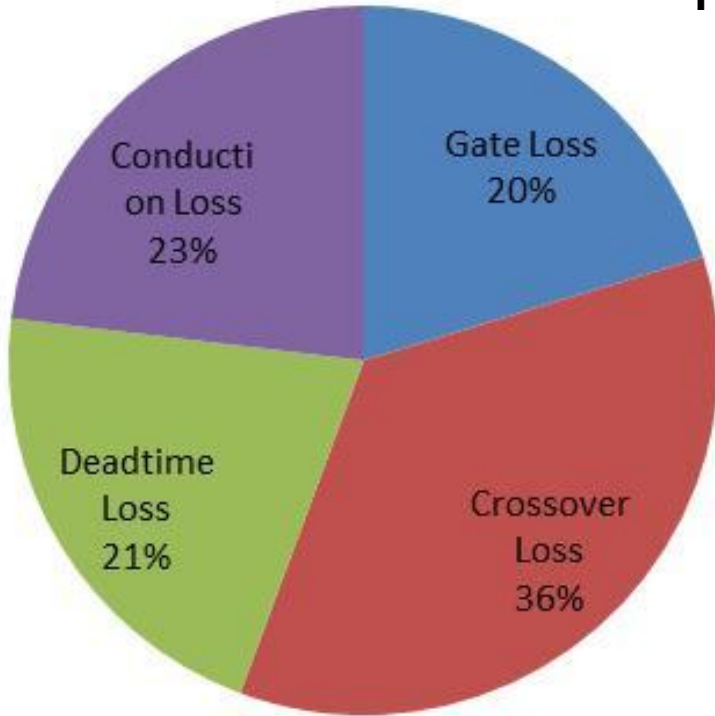
RxSoC

Integrate power stage, driver, controller and key passive components

- enhanced system performance
- simpler system design
- lower BOM cost

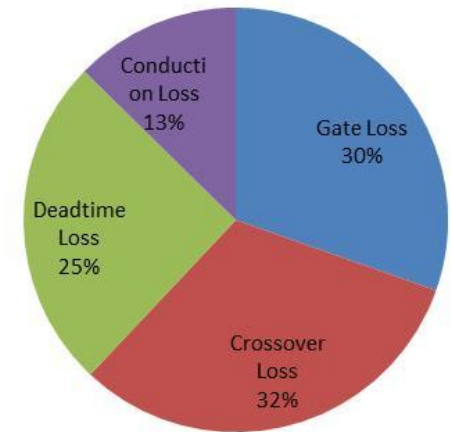
Efficiency Improvement Based on Simulation Data

Power Loss in Power Amplifier



In Conventional System

63% Reduction



In New System

- System Power Loss reduced by 60%
- System efficiency increased to 71% from 48%