

A Wideband 0.9-2.4 GHz 25 W High-Efficiency GaN RF Power Amplifier

Tanghid Rashid¹ and Heather Song²

¹University of Colorado at Colorado Springs

²Univ of Colorado

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Abstract

In this work, a 0.9-2.4 GHz, 25 Watt output power, radio frequency (RF) power amplifier based on Class-E switchmode topology has been analyzed. A load-pull simulations method is used to optimize the power performance in the operating band. To design input and output matching networks an optimized low pass filter network was used. Simulated results of the power amplifier (PA) demonstrate wideband behavior which covers a 0.9 GHz to 2.4 GHz band with an efficiency of 32-78%, and an output power of 25 W (44 dBm), and an average gain of 20 dB. The designed PA provides attractive features associated with a wider band, high gain, and efficiency, which makes it a proper candidate for the mobile transmitter and cellular infrastructure applications.

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