

Novel Approach to Design of a Class-EJ Power Amplifier Using High Power Technology

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Abstract : This article proposes a new method for application in communication circuit systems that increase efficiency, PAE, output power and gain in the circuit. The proposed method is based on a combination of switching class-E and class-J and has been termed class-EJ. This method was investigated using both theory and simulation to confirm ~72% PAE and output power of > 39 dBm. The combination and design of the proposed power amplifier accrues gain of over 15dB in the 2.9 to 3.5 GHz frequency bandwidth. This circuit was designed using MOSFET and high power transistors. The load- and source-pull method achieved the best input and output networks using lumped elements. The proposed technique was investigated for fundamental and second harmonics having desirable amplitudes for the output signal.

Keywords : power amplifier (PA), high power, class-J and class-E, high efficiency

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