Abstracts

Class E high-efficiency power amplifiers, from HF to microwave

N.O. Sokal. "Class E high-efficiency power amplifiers, from HF to microwave." 1998 MTT-S International Microwave Symposium Digest 98.2 (1998 Vol. II [MWSYM]): 1109-1112.

Class E power amplifiers achieve significantly higher efficiency than for conventional class B or C. Class E operates the transistor as an on/off switch and shapes the voltage and current waveforms to prevent simultaneous high voltage and high current in the transistor; that minimizes the power dissipation, especially during the switching transitions. In the published low-order class-E circuit, a transistor performs well at frequencies up to about 70% of its frequency of good class-B operation. An unpublished higher-order class E circuit operates well up to about double that frequency. The paper covers circuit operation, explicit design equations for the low-order class E circuit, optimization principles, and experimental results.

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