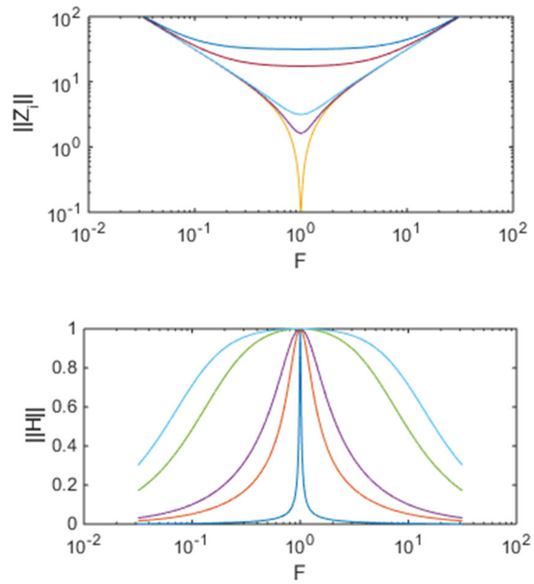
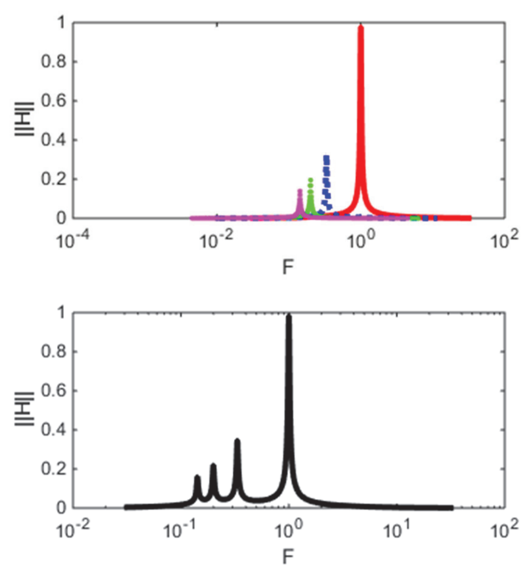
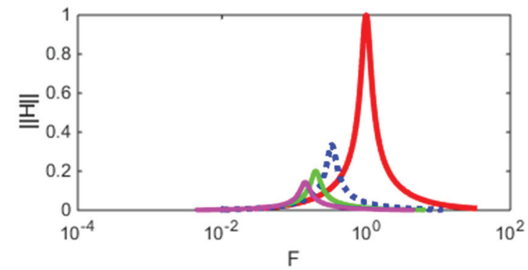
Series Resonant Tank – Subharmonic Modes

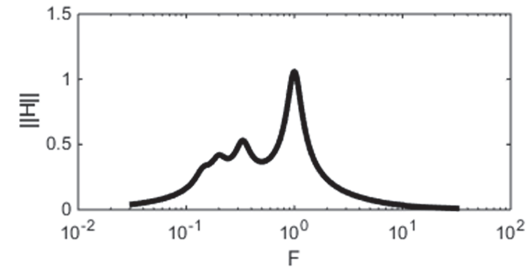


Subharmonic Modes - High Q

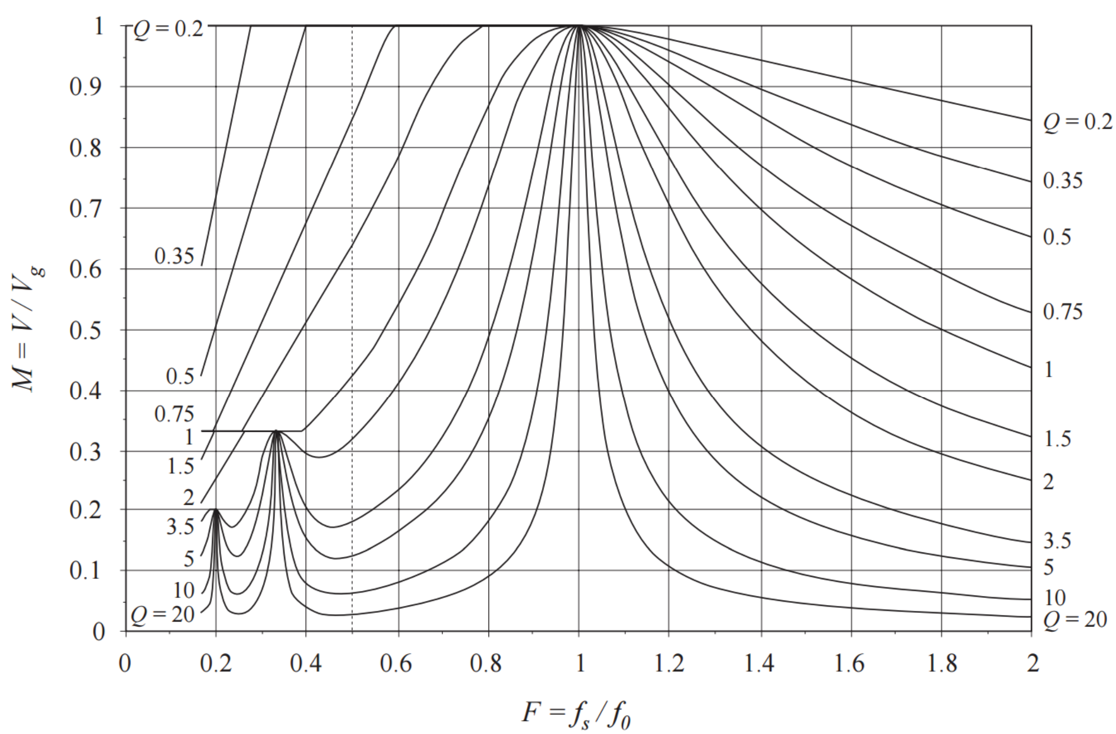


Subharmonic Modes – Low Q





SRC Control Plane



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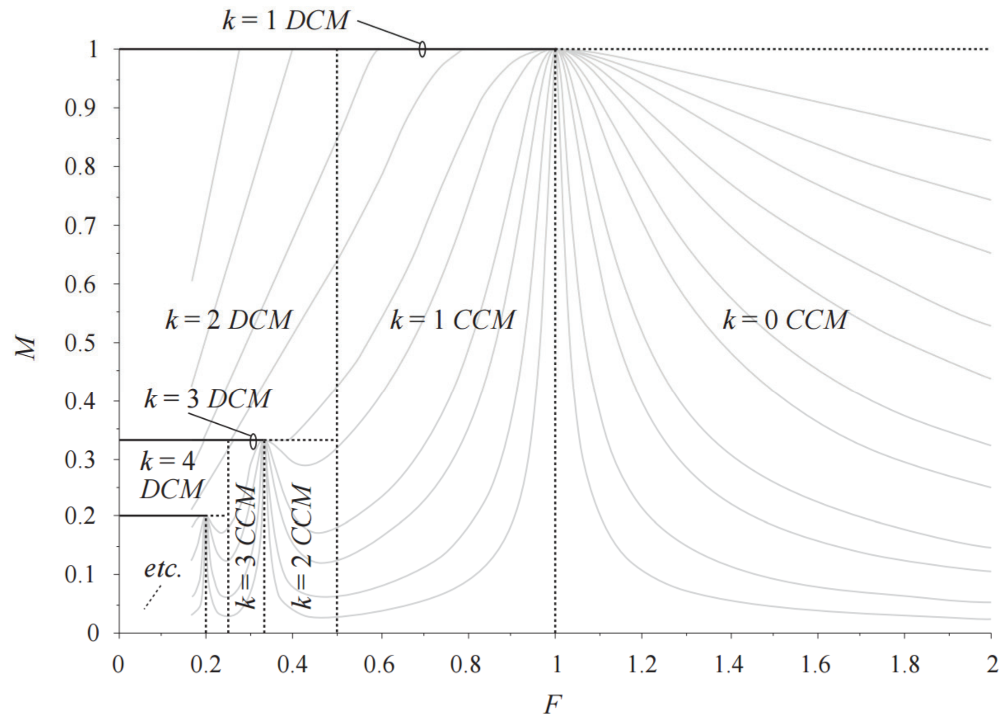
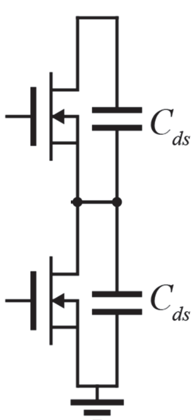
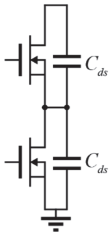
SRC Mode Boundaries

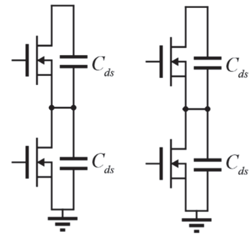


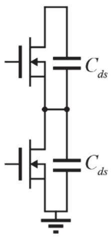
ZVS Assist Circuits

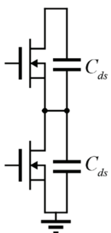


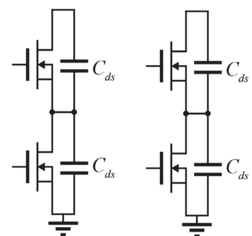
ZVS Tank Examples



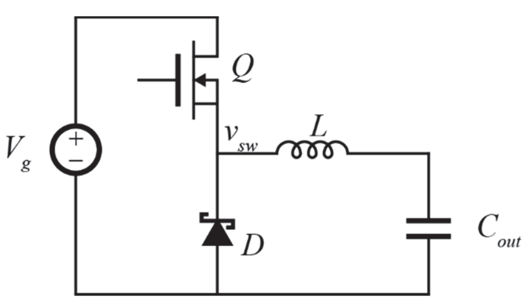


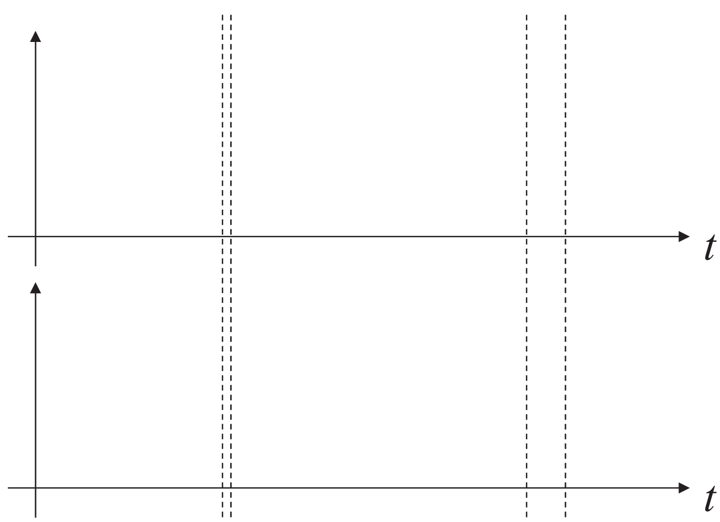




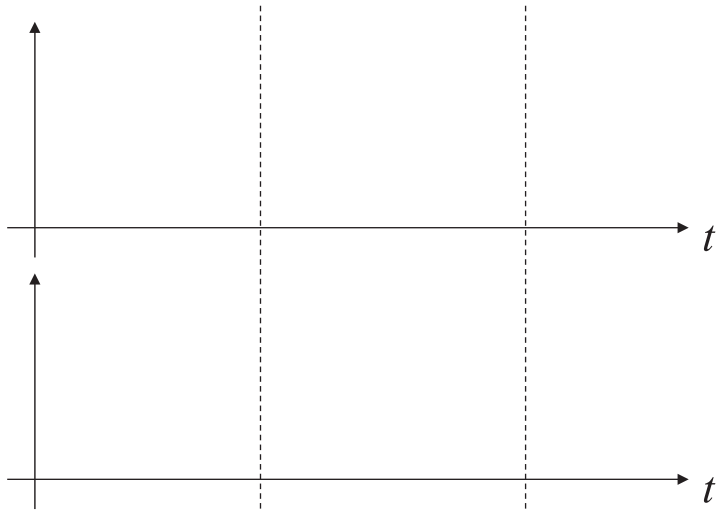


Remaining Switching Losses





Idealized Switching Waveforms



Class-E Amplifier

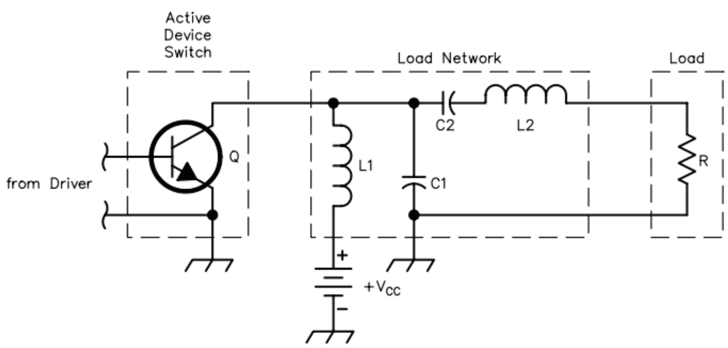


Fig 2—Schematic of a low-order Class-E amplifier.

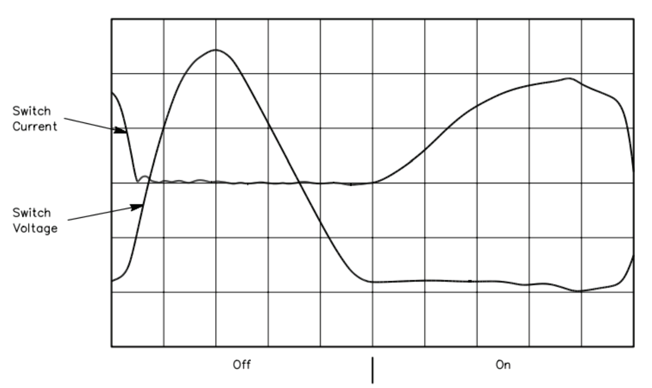
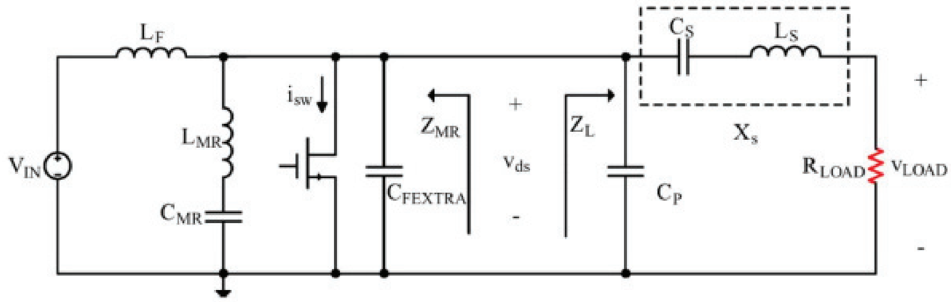
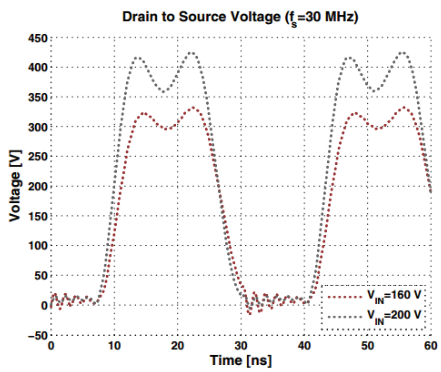
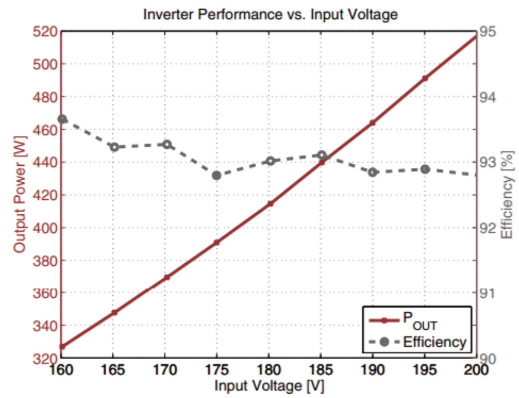


Fig 3—Actual transistor voltage and current waveforms in a low-order Class-E amplifier.

Class Φ_2 Inverter



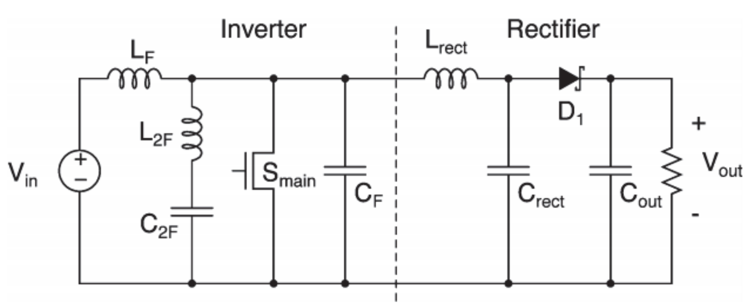


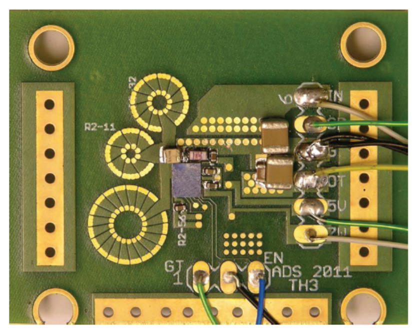


J. M. Rivas, O. Leitermann, Y. Han , A. D. Sagneri, and D. J. Perreault, " A High-Frequency Resonant Inverter Topology With Low-Voltage Stress", 2008

VHF DC-DC Converter

Φ_2 Boost Converter





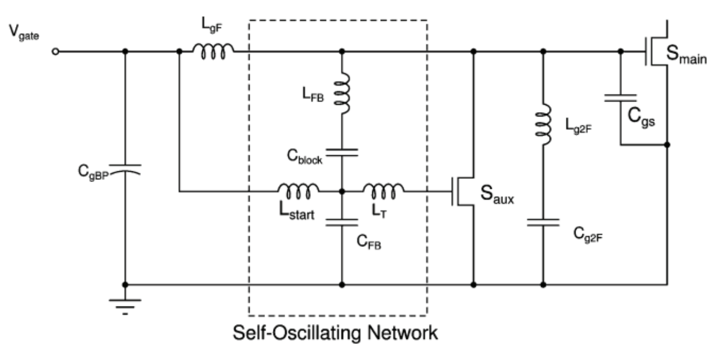


Fig. 5. Trapezoidal resonant gate drive circuit with self-oscillating network. The converter is enabled by applying the voltage V_{gate}, and disabled by setting V_{gate} to zero. This gate driver is employed in the 110-MHz converter (Fig. 9).

R. C. N. Pilawa-Podgurski, A. D. Sagneri, J. M. Rivas, D. I. Anderson and D. J. Perreault, "Very-High-Frequency Resonant Boost Converters," 2009