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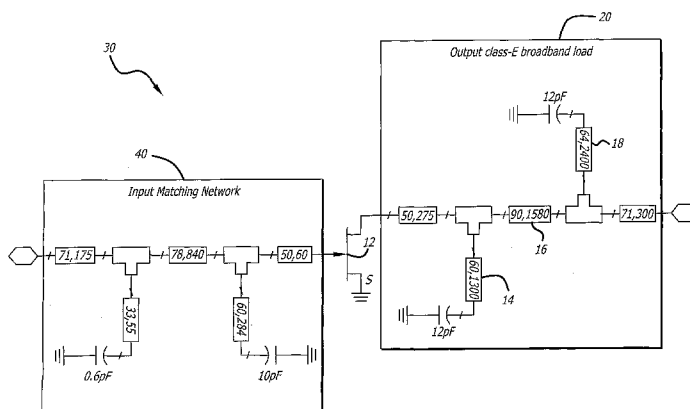
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(54) Title: BROADBAND MICROWAVE AMPLIFIER



(57) Abstract: A Class-E load circuit topology suitable for switching mode Power Amplifiers (PAs). The inventive load includes a shunt inductive element coupled to an output of said amplifier; a series inductive element coupled to said output of said amplifier; and a series capacitive element coupled to said series inductive element. In the illustrative embodiment, the inventive load is operable at frequencies in the range of 8 - 10 GHz and the shunt inductive element is an inductive bias line for said amplifier. The invention enables an advantageous Class-E amplifier design comprising an input matching network; an active device coupled to the input matching network and a load coupled to the active device and implemented in accordance with the present teachings. Also disclosed is a method for designing a load for use with a Class-E amplifier including the steps of: providing a lumped equivalent circuit representation of the load; optimizing the lumped equivalent circuit representation of the load to achieve near ideal current and voltage operational characteristics over a predetermined frequency range using a time domain simulation; transforming the optimized lumped equivalent circuit representation of the load to a distributed circuit representation; and optimizing the distributed circuit representation of the load to achieve near ideal current and voltage operational characteristics over a predetermined frequency range using a time domain simulation.



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