Abstracts

Power Combining Ladder Network with Many Active Devices

K. Fukui and S. Nogi. "Power Combining Ladder Network with Many Active Devices." 1980 Transactions on Microwave Theory and Techniques 28.10 (Oct. 1980 [T-MTT]): 1059-1067.

This paper presents a thoretical treatment of a line array of van der Pol oscillators mutually coupled by inductances and connected to a load (i.e., a multiple-deveice ladder ocillator) aiming to investigate its power-combing capability. A mode analysis approach is used, and it is shown that this system can provide output power just equal to the sum of the available powers from all active devices when it operates at the first mode. In the case where the optimum load is connected at an end of the ladder structure, some stable modes other than the first mode exist, but no stable simultaneous multimodes are found. A method for suppressing undesired modes is discussed. A distributed-line coupled ladder structure is also treated to give a thoretical basis for building a microwave multiple-device ladder oscillator.

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