Abstracts

A resonant-cap power combiner for two-terminal millimeter-wave devices

T. Bauer, J. Freyer and M. Claassen. "A resonant-cap power combiner for two-terminal millimeter-wave devices." 1997 Transactions on Microwave Theory and Techniques 45.1 (Jan. 1997 [T-MTT]): 146-148.

A power combiner for three active two-terminal devices located under a common resonant cap is presented. An equivalent circuit with lumped elements describing the coupling between the devices is derived from a numerical finite-element simulation of the resonator. The applied monolithically integrated mounting technique for the active devices minimizes parasitic elements and gains high reproducibility and symmetry. Experimental results with GaAs IMPATT diodes on diamond heatsink of up to 500 mW at 91 GHz with a dc to RF conversion efficiency of 9.0% and excellent combining efficiency demonstrate the capability for power generation in the mm-wave region.

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