Abstracts

High-Output, Single- and Dual-Diode, Millimeter-Wave Frequency Doublers

J.W. Archer and M.T. Faber. "High-Output, Single- and Dual-Diode, Millimeter-Wave Frequency Doublers." 1985 Transactions on Microwave Theory and Techniques 33.6 (Jun. 1985 [T-MTT]): 533-538.

A balanced, dual-diode varactor frequency doubler for 85-116 GHz is described and its performance compared to that of a single-diode device. The balanced doubler can provide a minimum of 18 mW between 85 and 116 GHz for 190-mW maximum safe input power, while the single-diode doubler using the same diode-type exhibits a minimum output power of 10 mW over the same frequency range for a maximum safe input power of 90 mW. An improved single-diode design using a higher break-down voltage diode has achieved a minimum output power of 18 mW between 97 and 116 GHz for a maximum safe input power of 150 mW. These devices have been used in cascade with a frequency tripler to implement a 6X multiplier chain to 310-350 GHz with a minimum output power in this submillimeter band of 0.6 mW.

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