Abstracts

A Multikilowatt X-Band Nanosecond Source (Dec. 1967 [T-MTT])

H. Goldie. "A Multikilowatt X-Band Nanosecond Source (Dec. 1967 [T-MTT])." 1967 Transactions on Microwave Theory and Techniques 15.12 (Dec. 1967 [T-MTT]): 722-731.

A new technique is presented which furnishes an exceptionally narrow pulse of 6 to 12 ns duration with steep skirts of 1 to 3 ns at peak power levels of tens of kilowatts. The pulse is derived by means of two sequential discharges in a nonresonant waveguide section. An analysis of the low-pressure breakdown of a gas under the action of intense microwave fields considerably higher than the threshold of breakdown field shows that under certain optimum combinations of gas parameters the aforementioned pulse is obtained. Experimental results show that a 70 kW rectangular pulse of 12 ns width with 2 ns skirts can be reliably generated on a repetitive basis with negligible jitter.

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