Abstracts

Generation of High-Power Nanosecond Pulses of Microwave Energy

M. Gilden and F.A. Jellison. "Generation of High-Power Nanosecond Pulses of Microwave Energy." 1964 PTGMTT International Symposium Program and Digest 64.1 (1964 [MWSYM]): 133-137.

The subject of this paper is the generation and measurement of high-power nanosecond pulses of microwave energy. The technique involves the sudden release of energy stored in a standing wave in a linear resonator with a resultant gain in peak power over that used to charge the resonator. Alternative techniques using traveling-wave resonators and other circuits have not achieved equivalent power levels, and are inherently limited by greater losses, complex circuitry, and lack of power gain. The key to this technique is the ability to switch in less than a nanosecond by using a triggered high-pressure gas discharge gap. The apparatus was constructed for use at X-band frequencies to study breakdown of gases on a nanosecond time scale.

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