Abstracts

High-Power, Short-Pulse Forming Circuits

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Fast-rise, short microwave pulses at 100 kW peak power have been obtained. Arc-activated expanders have been developed in coaxial transmission line at S-band and in waveguide at X-band that provide fast-rise rf pulses (1 to 10 ns) from slow-rise inputs. These expanders are placed on the output of 1-MW magnetrons to provide fast-rise pulses in the 50- to 100-kW range. When the expander is followed by a single shunt Zo/2 transmission line as a pulse-forming network, it provides short pulses with fast risetimes and fast falltimes. These pulse-forming networks also suppress "front porch" leakage caused by the finite isolation of the expanders.

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