Abstracts

Long-Pulse, High-Power, Phase-Locked Magnetron Studies

T.A. Treado, P.D. Brown, R.A. Bolton and T. Hansen. "Long-Pulse, High-Power, Phase-Locked Magnetron Studies." 1992 MTT-S International Microwave Symposium Digest 92.1 (1992 Vol. I [MWSYM]): 225-228.

We have developed a 60 MW, 60% efficient, 35 Joule/pulse secondary emission magnetron at S-band. We report on experimental results from this moderate voltage (120 kV), repetitively pulsed (10 Hz), injection locked (14-15 dB gain) magnetron. Limitations imposed by high voltage breakdown, rf breakdown, and thermal loading are discussed. By increasing the voltage, the drive power, and the magnetron length and by using a tungsten alloy anode, 120 MW should be achievable for approximately 4 µs pulses at 130 kV with the pulse length limited by transient heating of the anode.

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