Abstracts

A Circuit Design for mm-Wave IMPATT Oscillators

N.D. Kenyon. "A Circuit Design for mm-Wave IMPATT Oscillators." 1970 G-MTT International Microwave Symposium Digest of Technical Papers 70.1 (1970 [MWSYM]): 300-303.

It is often required that a microwave source be of high power and fixed frequency and at the same time give low noise and be highly stable. Conventional coaxial circuits are somewhat impractical at millimetre wavelengths. The "hat" has been used with some success but its tuning characteristics are not readily understood, and so it is difficult to design for specific applications. A new coax-waveguide configuration has evolved which, it is believed, satisfies these requirements rather well in the 3-7 mm band, and it has accordingly been adopted for the power source of a path-length modulation transmitter. Results obtained have shown powers of 200 mw at 5% efficiency, temperature sensitivity as low as 300 kHz/ °C, and external Q factor around 200.

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