Abstracts

A W-Band Medium Power Multi-Stack Quantum Barrier Varactor Frequency Tripler

A. Rahal, R.G. Bosisio, C. Rogers, J. Ovey, M. Sawan and M. Missous. "A W-Band Medium Power Multi-Stack Quantum Barrier Varactor Frequency Tripler." 1995 Microwave and Guided Wave Letters 5.11 (Nov. 1995 [MGWL]): 368-370.

Conventional multi-stack quantum barrier varactor (MSQBV) diodes on GaAs suffer from leaky barriers and low breakdown voltage, which limits their performance in high-power applications. Using a lattice-matched InGaAs/InAIAs/lnGaAs barriers on InP we have grown a new 10-stack device. Measurement results are presented that demonstrate low series resistance, large capacitance modulation, and significantly higher breakdown voltage than previously reported devices. The power capability of this new device has been investigated by simulations and measurements. An experiment in a waveguide tripler circuit shows a 19.6 dBm output power at 93 GHz. This is the highest output power reported from a single QBV device at W-band.

❑ Return to main document.