Abstracts

A millimeter-wave multifunction HEMT mixer

M. Kim, J.B. Hacker, E.A. Sovero, D.S. Deakin and J.H. Hong. "A millimeter-wave multifunction HEMT mixer." 1999 Microwave and Guided Wave Letters 9.4 (Apr. 1999 [MGWL]): 154-156.

A monolithic chip with a single 80 /spl mu/m HEMT device, 1.25/spl times/3.0 mm/sup 2/ in size, has been tested as both a fundamental and a subharmonic mixer. With input filter networks for K- and Q-bands providing two separate radio frequency/local oscillator (RF/LO) channels to the gate, the chip produces an IF signal from DC to 4 GHz at the drain. The mixer operates in three independent modes with the highest conversion gain of 6.9 dB in K-band fundamental mode, the best DSB noise figure of 4.4 dB in Q-band fundamental mode, and better than 20 dB of on-chip LO-to-RF isolation in Q-band subharmonic mode. In all three modes, the active mixer has shown positive conversion gain.

❑ Return to main document.