Abstracts

K-band direct detect MMIC Si micromachined radiometer

M. Smith, T. Weller, J. Culver, B. Roeder, C. Trent and J. Naylor. "K-band direct detect MMIC Si micromachined radiometer." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 2255-2258 vol.3.

This paper describes the design of a K-Band direct detect MMIC radiometer using bulk micromachining techniques to create the conformal package, interconnecting structures and CPW-fed slot-coupled patch antenna array. Parylene encapsulation is used following die-attach and wire bonding. Also, a unique on-board calibration technique using an MHEMT based cold/warm noise source offers an alternative to other forms of calibration of radiometers and radar receivers. Experimental results are given for the 20.7 GHz radiometer printed on high-resistivity silicon.

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