Abstracts

An Advanced Millimeter-Wave Flip-Chip IC Integrating Different Kinds of Active Devices

K. Takahashi, S. Fujita, T. Yoshida, H. Sakai and M. Sagawa. "An Advanced Millimeter-Wave Flip-Chip IC Integrating Different Kinds of Active Devices." 1996 MTT-S International Microwave Symposium Digest 96.3 (1996 Vol. III [MWSYM]): 1619-1622.

On the basis of our proposed Millimeter- wave Flip-chip IC (MFIC) concept, K-band receiver front-end circuits integrated with both HFETs and HBTs using flip-chip bonding on the same Si substrate are newly developed. Two key technologies are newly introduced for the advanced MFIC structure. (1) BCB (Benzocyclobutene) is adopted to the dielectric material to produce low-loss lines. (2) Thin-film technology is introduced for the integration of a bias network. The newly developed advanced MFIC shows good performance, such as ldB of conversion loss and 6dB of noise figure. The advanced MFIC is also expected as a low-cost millimeter(mm)-wave device for use in V-band as well as K-band.

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