# Abstracts

## Packaging using microelectromechanical technologies and planar components

*K. Takahashi, U. Sangawa, S. Fujita, M. Matsuo, T. Urabe, H. Ogura and H. Yabuki. "Packaging using microelectromechanical technologies and planar components." 2001 Transactions on Microwave Theory and Techniques 49.11 (Nov. 2001 [T-MTT] (Special Issue on the 2000 Asia-Pacific Microwave Conference)): 2099-2104.*

A novel millimeter-wave packaging structure was developed in which a micromachined low-loss planar component and flip-chip devices were integrated on a silicon substrate. A low-loss planar filter was achieved on a 7-mm-square silicon substrate employing an inverted microstrip line and a unique resonator. High attenuation in the stopband was also obtained by introducing a pole control technique. Fabrication of a compact K-band receiver front-end incorporating a built-in filter was realized using multilayered benzocyclobutene (BCB) and flip-chip bonding techniques. Furthermore, we propose an alternative BCB suspended structure and demonstrate a planar antenna for Ka-band applications. These technologies bring to reality high-performance compact packaged systems in millimeter-wave region applications.

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