Abstracts

Applications of virtual modeling to the development of a 39 GHz MMIC transceiver on multilayer Multi Chip Assembly (MCA) substrate

J. Mondal, E. Bogus, S. Ahmed, G. Dietz, P. Sahm, T. Nguyen and M. Yusim. "Applications of virtual modeling to the development of a 39 GHz MMIC transceiver on multilayer Multi Chip Assembly (MCA) substrate." 2000 Radio Frequency Integrated Circuits (RFIC) Symposium 00. (2000 [RFIC]): 47-50.

Development and hardware performance of a 39 GHz millimeter wave (MM-wave) transceiver that uses highly integrated Monolithic Microwave Integrated Circuits (MMIC) and a multilayer MM-wave board are described. The design process involved virtual prototyping using behavioral models of the transmit-receive functions and the MM-wave interconnects on a multilayer Multi Chip Assembly (MCA) substrate, The paper describes optimum system partitioning, specification generation of various blocks that include highly integrated MMICs, MCA interconnects, and the integrated antenna. The MMICs and MCA were designed and fabricated after going through specification flow down and capability up cycles using virtual prototyping. The transceiver modules have been demonstrated for short distance communication links at data rates exceeding 1 Mbps. The data rate is limited by the application software used. To our knowledge this is the first time virtual prototyping has been applied to a complex MM-wave system that involves highly integrated MMIC and MCA.

❑ Return to main document.