Abstracts

On-Wafer RF Measurement Setup for the Characterization of HEMT's and High TC Superconductors at Very Low Temperatures Down to 20 K

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The possibility of microwave measurements at cryogenic temperatures is very important to investigate the pronounced RF performance of high electron mobility transistors (HEMT) /1,2/. In order to perform an exact small signal analysis of the investigated devices the On-Wafer measurement technique is an indispensable tool. A measurement setup which is cooled by liquid nitrogen has been presented by Laskar et al. /3,4/. However, to investigate the combination of high T/sub c/ superconducting materials and HEMT devices lower temperatures have to be achieved. For this reason a microwave On-Wafer measurement setup at temperatures down to 20 K and frequencies up to 40 GHz has been developed. Using this equipment a detailed RF analysis of pseudomorphic HEMT at low temperatures and measurements on a superconducting filter will be presented.

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