

STATUS OF MICROWAVE SEMICONDUCTOR DEVICES
IN CHINA

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SUMMARY

In this paper the recent development of microwave semiconductor devices in China is reviewed. The special emphasis are laid on GaAs MESFETs millimeter wave devices, microwave diodes and some microwave integration. China has been contributing to the development of microwave semiconductor devices and their applications like other countries. Nanjing Solid State Devices Research Institute (NSR) is a main research organization in the field of solid state microwave devices in China; it has already accomplished a lot of significant projects, including mixer diodes, dual FETs, noise diodes, millimeter wave Gunn devices and IMPATTs, and so on. Some microwave devices have been produced in factories. In laboratories the Gunn diodes have a CW output power of 100-500 milliwatts in 50-60 GHz, and silicon IMPATTs of 60-120 milliwatts in 60-120 GHz. The noise figure of GaAs dual FETs packaged is 1.8 dB at 4 GHz and 2.8 dB at 8 GHz, having an associated gain of 20 dB. A non-packaged PIN diode with high reliability can be used for tunable attenuator from X to Ku band. Other devices will be introduced in this paper.

The 50K uncooled parametric amplifiers of 4 GHz have already been used in the satellite communication earth stations made in Nanjing. 12 GHz receivers and their devices are available for TV satellite broadcasting. GaAs monolithic low noise FET amplifier has been obtained, possessing a noise figure of 5.0 dB in 7-8 GHz with an associated gain of 8-10 dB. The research of monolithic microwave integrated circuits, an attractive area in solid state microwave, is also under way.