Abstracts

RF performance characteristics of InP millimeter-wave n/sup +/-n/sup -/-n/sup +/ Gunn devices

H. Eisele, G.O. Munns and G.I. Haddad. "RF performance characteristics of InP millimeter-wave n/sup +/-n/sup -/-n/sup +/ Gunn devices." 1997 MTT-S International Microwave Symposium Digest 2. (1997 Vol. II [MWSYM]): 451-454.

A selective etching technology for the fabrication of InP Gunn devices on diamond heat sinks was established recently. Using MOCVD-grown material, state-of-the-art RF power levels of more than 130 mW at 131.7 GHz and more than 60 mW at 151 GHz were obtained in the fundamental mode. No deterioration was observed in one of these devices monitored for more than 6500 hours. Power combining of two devices resulted in an RF output power of 130 mW at 136 GHz with a combining efficiency of more than 85%. After evaluating CBE-grown material with devices on integral heat sinks, different doping profiles for devices operating at D-band frequencies were designed and grown in a CBE system. Preliminary results with RF power levels of more than 100 mW around 130 GHz indicate that CBE can provide the high-quality material required for InP Gunn devices and that RF power levels above 150 GHz can be increased significantly with optimized device structures. No differences in the excellent noise performance of devices fabricated from either MOCVD- or CBE-grown material were found.

❑ Return to main document.