Abstracts

High power, high frequency traveling wave heterojunction phototransistors with integrated polyimide waveguide

D.C. Scott, D.P. Prakash, H. Erlig, D. Bhattacharya, M. Ali and H.R. Fetterman. "High power, high frequency traveling wave heterojunction phototransistors with integrated polyimide waveguide." 1998 MTT-S International Microwave Symposium Digest 98.3 (1998 Vol. III [MWSYM]): 1237-1240.

A high power, high speed phototransistor has been demonstrated using a traveling wave structure with an integrated polyimide optical waveguide. In our configuration, optical power transfer is distributed along the length of the device via leaky mode coupling of light from the polyimide waveguide to the active region of the phototransistor. The traveling wave electrode design allows for an electrically long structure while maintaining high bandwidths. Due to the increased absorption volume, the optical power handling capabilities of the TW-HPT are improved over that of conventional lumped element HPT detectors. The experimental results show no compression of the fundamental at 60 GHz up to 50 mA of DC photocurrent.

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