Abstracts

Wide-band high-efficiency optical-to-electrical conversion stimulus probe heads for testing large-signal responses of high-speed electronic devices

T. Otsuji, K. Kato, S. Kimura and T. Nagatsuma. "Wide-band high-efficiency optical-to-electrical conversion stimulus probe heads for testing large-signal responses of high-speed electronic devices." 1999 Transactions on Microwave Theory and Techniques 47.5 (May 1999 [T-MTT]): 525-533.

Wide-band high-efficiency optical-to-electrical conversion stimulus probe heads have been developed for testing large-signal responses of high-speed electronic devices. Two types of such probes were demonstrated using a 1.55-/spl mu/m 85-GHz-bandwidth waveguide p-i-n photodiode. The type-I probe employs a simple semirigid coaxial cable with a bias network for the electrical-signal transmission, resulting in a very low modal dispersion of <1.0 ps. The highest -3-dB bandwidth of 60 GHz was obtained for an output voltage of 230 mV /sub p-p/, and was maintained beyond 50 GHz for output voltages of up to 400 mV/sub p-p/. The type-II probe employs a broad-band InP high electron-mobility transistor distributed amplifier that boosts the electrical output signal amplitude over 1 V/sub p-p/. The -3-dB bandwidth is 40 (35) GHz for output voltages up to 500 (1000) mV/sub p-p/.

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