Abstracts

Velocity-matched distributed photodetectors and balanced photodetectors with p-i-n photodiodes

M.S. Islam, S. Murthy, T. Itoh, M.C. Wu, D. Novak, R.B. Waterhouse, D.L. Sivco and A.Y. Cho. "Velocity-matched distributed photodetectors and balanced photodetectors with p-i-n photodiodes." 2001 Transactions on Microwave Theory and Techniques 49.10 (Oct. 2001, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1914-1920.

We report on the first demonstration of velocity-matched distributed photodetectors and balanced photodetectors with p-i-n photodetectors. Record-high linear dc photocurrent of 45 mA has been achieved without suffering from thermal damage, thanks to the superior power handling capability of p-i-n photodiodes. A novel fiber alignment technique has been developed to achieve high linear photocurrent. More than 37 dB of common-mode-rejection ratio and 45-dB suppression of laser relative intensity noise over a broad frequency range have been achieved using the distributed balanced photodetectors in an RF fiber-optic link. The frequency response is flat from 1 to 35 GHz.

❑ Return to main document.