Abstracts

Distributed balanced photodetectors for broad-band noise suppression

M. Saiful Islam, T. Chau, S. Mathai, T. Itoh, M.C. Wu, D.L. Sivco and A.Y. Cho. "Distributed balanced photodetectors for broad-band noise suppression." 1999 Transactions on Microwave Theory and Techniques 47.7 (Jul. 1999, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1282-1288.

A novel velocity-matched distributed balanced photodetector with a 50-/spl Omega/ coplanar waveguide output transmission line has been experimentally demonstrated in the InP/InGaAs material system. Distributed absorption and velocity matching are employed to increase the saturation photocurrent. A common-mode rejection ratio greater than 27 dB has been achieved. The radio-frequency (RF) link experiment conducted at 4.16 GHz shows that the relative intensity noise of the laser has been suppressed by more than 24 dB and shot-noise limited performance has been achieved. Significant improvement of signal-to-noise ratio has been observed over a wide range of frequencies and phase mismatch of input RF signals.

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