Abstracts

Multiple-quantum-well asymmetric Fabry-Perot modulators for microwave photonic applications

R.I. Killey, C.P. Liu, M. Whitehead, P. Stavrinou, J.B. Song, J.S. Chadha, D. Wake, C.C. Button, G. Parry and A.J. Seeds. "Multiple-quantum-well asymmetric Fabry-Perot modulators for microwave photonic applications." 2001 Transactions on Microwave Theory and Techniques 49.10 (Oct. 2001, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1888-1893.

We describe the development of InGaAsP multiquantum-well asymmetric Fabry-Perot modulators (AFPM) for RF-over-fiber applications. Advantages of the AFPM include low drive voltage and loss, high linearity and simple fiber alignment. Experimental results of initial devices, exhibiting 5.5-dB modulation depth and >3-GHz operation, are described. The effect of the optical power on the device performance was assessed, and the modulation bandwidth was found to be unaffected by incident optical powers up to 0 dBm. The linearity of the modulation characteristic was measured by carrying out two-tone intermodulation distortion tests, and a third-order intercept point of 30 dBm was observed.

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