Abstracts

10- and 39-GHz-band InP/InGaAs HPT direct optical injection-locked oscillator ICs for optoelectronic clock recovery circuits

H. Kamitsuna, T. Shibata, K. Kurishima and M. Ida. "10- and 39-GHz-band InP/InGaAs HPT direct optical injection-locked oscillator ICs for optoelectronic clock recovery circuits." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 1699-1702 vol.3.

This paper presents two kinds of direct optical injection-locked oscillator (DOILO) ICs, which utilize an InP/InGaAs HPT that is fully compatible with the high-performance InP/InGaAs HBT fabrication process. A 10-GHz-band DOILO achieves an ultra-wide locking range of 1401 MHz (bandwidth of 13.6 %), which is state-of-the-art for indirect and/or direct OILOs reported to date. A 39-GHz-band DOILO achieves a wide locking range of 768 MHz. Clock extraction from 10-Gbit/s NRZ optical data streams is achieved by combining a DOILO and a planar lightwave circuit Mach-Zehnder interferometer. Error-free performance is confirmed-for 2/sup 31/-1 PRBS data signal for clock and data recovery application.

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