Abstracts

High-frequency low-power ICs in a scaled submicrometer HBT technology

M. Hafizi. "High-frequency low-power ICs in a scaled submicrometer HBT technology." 1997 Transactions on Microwave Theory and Techniques 45.12 (Dec. 1997, Part II [T-MTT] (1997 Symposium Issue)): 2549-2554.

Fast, dense, and low-power integrated circuits (ICs) have been developed using a new scaled heterojunction bipolar transistor (HBT) IC process. HBTs have been fabricated with emitter dimensions of 0.3 /spl mu/m/sup 2/ and a circuit metallization pitch of 4 /spl mu/m to reduce power and compact the chip size. Submicrometer HBTs exhibited f/sub T/ of over 160 GHz. A number of circuits using this new technology have been demonstrated, including a low-power comparator test chip clocked at 40 GHz and an ultra-low-power phase-locked-loop-based (PLL) clock and data-recovery circuit consuming 22-mW dc power at 4 GHz.

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