Abstracts

Reliability of microwave SiGe/Si heterojunction bipolar transistors

Zhenqiang Ma, P. Bhattacharya, Jae-Sung Rieh, G.E. Ponchak, S.A. Alterovitz and E.T. Croke. "Reliability of microwave SiGe/Si heterojunction bipolar transistors." 2001 Microwave and Wireless Components Letters 11.10 (Oct. 2001 [MWCL]): 401-403.

The degradation behavior of NPN Si/SiGe/Si heterojunction bipolar transistors, grown by solid-source molecular beam epitaxy (MBE), has been studied by accelerated lifetime testing at different ambient temperatures. The degradations of the dc current gain and the microwave performance of the devices are explained in terms of recombination enhanced impurity diffusion (REID) of boron atoms from the base region and the subsequent formation of parasitic energy barriers at the base-emitter and base-collector junctions.

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