Abstracts

On the effects of hot carriers on the RF characteristics of Si/SiGe heterojunction bipolar transistors

M. Borgarino, J.G. Tartarin, J. Kuchenbecker, T. Parra, H. Lafontaine, T. Kovacic, R. Plana and J. Graffeuil. "On the effects of hot carriers on the RF characteristics of Si/SiGe heterojunction bipolar transistors." 2000 Microwave and Guided Wave Letters 10.11 (Nov. 2000 [MGWL]): 466-468.

This work for the first time experimentally investigates the hot carrier effects on the RF characteristics (up to 30 GHz) of Si/SiGe heterojunction bipolar transistors (HBT's). Reverse base-emitter voltage stresses were applied at room temperature on BiCMOS compatible, sub-micron transistors. The main observed degradation is a decrease of S/sub 21/. It was found that this degradation is minimized (maximized) when biasing at constant collector (base) current. These results may be valuable indications also for degradations induced by ionizing radiations.

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