

HETEROJUNCTION BICMOS SEMICONDUCTOR

ABSTRACT

5 A BiCMOS semiconductor, and manufacturing method therefore, is provided. A semiconductor substrate having a collector region is provided. A pseudo-gate is formed over the collector region. An emitter window is formed in the pseudo-gate to form an extrinsic base structure. An undercut region beneath a portion of the pseudo-gate is formed to provide an intrinsic base structure in the undercut region. An emitter structure is formed in the
10 emitter window over the intrinsic base structure. An interlevel dielectric layer is formed over the semiconductor substrate, and connections are formed through the interlevel dielectric layer to the collector region, the extrinsic base structure, and the emitter structure. The intrinsic base structure comprises a compound semiconductive material such as silicon and silicon-germanium, or silicon-germanium-carbon, or combinations thereof.

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Figure 6