

SELF-ALIGNED LATERAL HETEROJUNCTION BIPOLAR TRANSISTOR

ABSTRACT

A lateral heterojunction bipolar transistor (HBT), and manufacturing method therefor, comprising a semiconductor substrate having having a first insulating layer over the semiconductor substrate. A base trench is formed in a first silicon layer over the first insulating layer to form a collector layer over an exposed portion of the semiconductor substrate and an emitter layer over the first insulating layer. A semiconductive layer is formed on the sidewalls of the base trench to form a collector structure in contact with the collector layer and an emitter structure in contact with the emitter layer. A base structure is formed in the base trench. A plurality of connections is formed through an interlevel dielectric layer to the collector layer, the emitter layer, and the base structure. The base structure preferably is a compound semiconductive material of silicon and at least one of silicon-germanium, silicon-germanium-carbon, and combinations thereof.

Figure 20