

DIFFERENTIAL MECHANICAL STRESS-PRODUCING REGIONS FOR INTEGRATED CIRCUIT FIELD EFFECT TRANSISTORS, AND METHODS OF FABRICATING SAME

Abstract of the Disclosure

Integrated circuit field effect transistors include a substrate, an isolation region in the substrate that defines an active region in the substrate, spaced apart source/drain regions in the active region, a channel region in the active region between the spaced apart source/drain regions and an insulated gate on the channel region. A differential mechanical stress-producing region is configured to produce different mechanical stress in the channel region adjacent the isolation region compared to remote from the isolation region. The differential mechanical stress-producing region may be formed using patterned stress management films, patterned stress-changing implants and/or patterned silicide films, and can reduce undesired corner effects. Related fabrication methods also are described.

Figure 1