ABRUPT "DELTA-LIKE" DOPING IN SI AND SIGE FILMS BY UHV - CVD

ABSTRACT

A structure and method of forming an abrupt doping profile is described incorporating a substrate, a first epitaxial layer of Ge less than the critical thickness having a P or As concentration greater than 5 x 10^{19} atoms/cc, and a second epitaxial layer over the first epitaxial layer. The second epitaxial layer may have a change in concentration in its first 40Å from the first layer of greater than 1 x 10^{19} P atoms/cc. Alternatively, a layer of SiGe having a Ge content greater than 0.5 may be selectively amorphized and recrystalized with respect to other layers in a layered structure. The invention overcomes the problem of forming abrupt phosphorus profiles in Si and SiGe layers or films in semiconductor structures such as CMOS, MODFET's, and HBT's.

This Sheet Has Been Replaced



THIS SHEET HAS BEEN REPLACED