ABSTRACT

FIELD EFFECT TRANSISTOR HAVING CHANNEL SILICON GERMANIUM

Field effect transistors and methods of making field effect transistors are provided. The field effect transistor can contain a semiconductor substrate containing shallow trench isolations; a silicon germanium layer in a trench at an upper surface of the semiconductor substrate between the shallow trench isolations; a gate feature on the silicon germanium layer; and metal silicides on the upper potions of silicon germanium layer and semiconductor substrate that are not covered by the gate feature. The silicon germanium layer has a bottom surface and a top surface having a (100) plane and side surfaces having two or more planes.

Fig. 1C