# Silicon-on-Insulator Chip with Multiple Crystal Orientations

ABSTRACT OF THE DISCLOSURE

A silicon-on-insulator chip includes an insulator layer, typically formed over a substrate. A first silicon island with a surface of a first crystal orientation overlies the insulator layer and a second silicon island with a surface of a second crystal orientation also overlies the insulator layer. In one embodiment, the silicon-on-insulator chip also includes a first transistor of a first conduction type formed on the first silicon island, and a second transistor of a second conduction type formed on the second silicon island. For example, the first crystal orientation can be (110) while the first transistor is a p-channel transistor, and the second crystal orientation can be (100) while the second transistor is an n-channel transistor.

Fig. 9C