

ABSTRACT

SEMICONDUCTOR ON INSULATOR SUBSTRATE AND DEVICES FORMED THEREFROM

A semiconductor on insulator (SOI) device is comprised of a layer of a dielectric material (52) having a perovskite lattice, such as a rare earth scandate. The dielectric material (52) is selected to have an effective lattice constant that enables growth of semiconductor material (54) having a diamond lattice directly on the dielectric (52). Examples of the rare earth scandate dielectric include gadolinium scandate (GdScO_3), dysprosium scandate (DyScO_3), and alloys of gadolinium and dysprosium scandate ($\text{Gd}_{1-x}\text{Dy}_x\text{ScO}_3$).

Figure 6f