THIN FILM TRANSISTORS AND SEMICONDUCTOR DEVICE

ABSTRACT

The TFT has a channel-forming region formed of a crystalline semiconductor film obtained by heat-treating and crystallizing an amorphous semiconductor film containing silicon as a main component and germanium in an amount of not smaller than 0.1 atomic % but not larger than 10 atomic % while adding a metal element thereto, wherein not smaller than 20% of the lattice plane {101} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, not larger than 3% of the lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and not larger than 5% of the lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film as detected by the electron backscatter diffraction pattern method.

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