

ABSTRACT

SEMICONDUCTOR DEVICE

A transistor includes oxide semiconductor stacked layers between a first gate electrode layer and a second gate electrode layer through an insulating layer interposed between the first gate electrode layer and the oxide semiconductor stacked layers and an insulating layer interposed between the second gate electrode layer and the oxide semiconductor stacked layers. The thickness of a channel formation region is smaller than the other regions in the oxide semiconductor stacked layers. Further in this transistor, one of the gate electrode layers is provided as what is called a back gate for controlling the threshold voltage. Controlling the potential applied to the back gate enables control of the threshold voltage of the transistor, which makes it easy to maintain the normally-off characteristics of the transistor.

Fig. 1A and Fig. 1B