

ABSTRACT

INSULATING FILM, METHOD FOR MANUFACTURING SEMICONDUCTOR
DEVICE, AND SEMICONDUCTOR DEVICE

In a semiconductor device including a transistor including an oxide semiconductor film and a protective film over the transistor, an oxide insulating film containing oxygen in excess of the stoichiometric composition is formed as the protective film under the following conditions: a substrate placed in a treatment chamber evacuated to a vacuum level is held at a temperature higher than or equal to 180°C and lower than or equal to 260°C; a source gas is introduced into the treatment chamber so that the pressure in the treatment chamber is set to be higher than or equal to 100 Pa and lower than or equal to 250 Pa; and a high-frequency power higher than or equal to 0.17 W/cm² and lower than or equal to 0.5 W/cm² is supplied to an electrode provided in the treatment chamber.

Fig. 1B