CLAIMS:

1. A method for manufacturing a semiconductor device comprising:

a step of forming a first transistor using a silicon substrate;

a step of forming a first insulating layer over the first transistor;

a step of forming a first opening in the first insulating layer and forming a first electrode electrically connected to a source region or a drain region of the first transistor;

a step of forming a second insulating layer over the first insulating layer and the first electrode;

a step of forming a second opening and a third opening in the second insulating layer, forming a first conductive layer electrically connected to the first electrode in the second opening and forming a second conductive layer in the third opening;

a step of forming a third insulating layer over the second insulating layer, the first conductive layer and the second conductive layer;

a step of forming an oxide semiconductor layer over the third insulating layer, the oxide semiconductor layer comprising a region overlapping with the second conductive layer and containing In, Ga and Zn;

a step of performing a first heat treatment at a temperature greater than or equal to 300 °C and less than a strain point of the substrate after forming the oxide semiconductor layer;

a step of forming a third conductive layer comprising a region in contact with a top surface of the oxide semiconductor layer after the first heat treatment;

a step of forming a fourth insulating layer comprising a region in contact with the top surface of the oxide semiconductor layer over the third conductive layer; and

a step of performing a second heat treatment after forming the fourth insulating layer,

wherein a gate electrode of the first transistor is electrically connected to the third conductive layer.