

[Document Name] Abstract

[Title of the Invention] Manufacturing Method of Single Crystal

[Abstract]

[Objective] To provide a manufacturing method of a single
5 crystal which can stably pull a single crystal which is totally
free from dislocation and has a good crystal shape.

[Means for Solution] The method comprises steps of
actuating a crystal driving unit 14 so as to immerse a seed crystal
30 in a silicon melt 3, and controlling the crystal driving unit
10 14 and a crucible driving unit 15 under predetermined conditions
so as to pull the seed crystal. In this pulling step, a horizontal
magnetic field device 16 is driven so as to apply a magnetic field
in the horizontal direction to the inside of the silicon melt 3
in a crucible 4. The horizontal magnetic field device 16 fixes
15 a magnetic field axis 1 of the applied magnetic field at a constant
position from a liquid surface 3a of the silicon melt 3. More
specifically, positional adjustment of the horizontal magnetic
field device 16 in the vertical direction is carried out in advance
by a horizontal magnetic field position adjusting device 19, and
20 the magnetic field axis 1 of the applied magnetic field is fixed
at a position of a constant distance which is lower than the liquid
surface 3a of the silicon melt 3 by more than 50 mm and at the
same level or higher than a depth L from the liquid surface of
the remaining silicon melt at the point of tail-in.

[Selected Drawing] FIG. 2