

ABSTRACT

SINGLE CRYSTAL FURNACE AND METHOD FOR FABRICATING SINGLE CRYSTAL SILICON

A single crystal furnace and a method for fabricating single crystal silicon are provided, and the present disclosure relates to the field of semiconductor manufacturing. The single crystal furnace includes a furnace body, a crucible support assembly is arranged inside the furnace body, a crucible is arranged on the crucible support assembly, a guiding cylinder is arranged right above the crucible, a heater is arranged between an inner wall of the furnace body and a periphery of the crucible, and a seed pulling mechanism is arranged at a top of the furnace body. The single crystal furnace further includes: a water-cooling structure arranged at a side of the guiding cylinder away from the crucible support assembly, the water-cooling structure including a plurality of water-cooling regions independent of each other, and the plurality of water-cooling regions being arranged sequentially in a direction away from the guiding cylinder; and a mass flow controller configured to control flow rates and temperatures of cooling water in different water-cooling regions.

(Fig 1)