Abstract:

Device and Method for Producing a Single Crystal, Single Crystal and Semiconductor Wafer

The invention relates to a device and a method for producing a single crystal of semiconductor material. The device comprises a chamber and a crucible which is arranged in the chamber and is enclosed by a crucible heater, a radiation shield for shielding a growing single crystal and thermal insulation between the crucible heater and an inner wall of the chamber. The device is distinguished in that it comprises a resilient seal which seals a gap between the inner wall and the thermal insulation and forms an obstacle for the transport of gaseous iron carbonyls to the single crystal. The invention also relates to a method for producing a single crystal of semiconductor material by using a device, the single crystal which is produced and a semiconductor wafer cut therefrom. The single crystal and the semiconductor wafer are distinguished by an edge region, which extends from the circumference to a distance of up to R-5 mm radially into the single crystal or the semiconductor wafer and has an iron concentration, wherein the iron concentration in the edge region is less than $1*10^9$ atoms/cm^3.

Fig. 1