Abstract

Method for producing semiconductor wafers composed of silicon having a diameter of at least 450 mm, and semiconductor wafer composed of silicon having a diameter of 450 mm

A wafer and a method for producing wafers, comprising pulling a silicon single crystal with a conical section and an adjoining cylindrical section having a diameter of at least 450 mm and a length of at least 800 mm from a melt contained in a crucible, at a rate which, during pulling of the transition from the conical section to the cylindrical section, is at least 1.8 times higher than the average rate during pulling of the cylindrical section; cooling the growing crystal with a power of at least 20 kW; feeding heat from the side wall of the crucible to the growing crystal, wherein a gap of at least 70 mm is present between a heat shield and the surface of the melt; and slicing wafers from the cylindrical section, the wafers having a circular region with v-defects extending from the center to the edge of the wafers.

Fig. 5