

Semiconductor wafer composed of monocrystalline silicon
and method for producing it

Abstract:

The invention relates to a semiconductor wafer composed of monocrystalline silicon, which contains fluorine, the fluorine concentration being $1 \cdot 10^{10}$ to $1 \cdot 10^{16}$ atoms/cm³, and which is free of agglomerated intrinsic point defects whose diameter is greater than or equal to a critical diameter. The invention also relates to a method for producing semiconductor wafers composed of monocrystalline silicon, comprising providing a melt composed of silicon, which is doped with fluorine, and crystallizing the melt to form a single crystal, which contains fluorine within the range of $1 \cdot 10^{10}$ to $1 \cdot 10^{16}$ atoms/cm³, at a rate at which agglomerated intrinsic point defects having a critical diameter or a larger diameter would arise if fluorine as dopant were dispensed with, and separating semiconductor wafers from the single crystal.

Fig. 1