

Abstract

In a laser annealing method for irradiating a non-single-crystal semiconductor film with a pulsed laser beam having a linear beam cross-sectional shape while scanning the non-single-crystal semiconductor film with the linear beam in a minor-axis direction of the linear beam in order to suppress irradiation unevenness due to variation in energy output of a laser beam, the linear beam has steepness portions located in minor-axis-direction end portions in a beam intensity profile, and the steepness portions are areas having intensities greater than or equal to 10% but smaller than or equal to 90% of a maximum intensity in the beam intensity profile, and the irradiation is performed such that a minor-axis-direction width of the steepness portion which is one of the steepness portions ~~of~~ and which is the steepness portion located on the rear side in the scan direction is 50 μm or smaller on an irradiation surface of the non-single-crystal semiconductor film. The steepness portions are thus steepened, whereby an effect of variation in the width of a melted portion that occurs when the energy output varies so that the irradiation unevenness can be suppressed.