

【ABSTRACT】

The present disclosure discloses a substrate heat-treatment apparatus using a VCSEL element, the substrate heat-treatment apparatus comprising: a process chamber in which a flat plate substrate to be heat-treated is mounted; and an irradiation module for irradiating a laser beam onto the flat plate substrate, the irradiation module including a sub-irradiation module which includes an element array plate, an element area which is mounted on an upper surface of the element array plate and on which the VCSEL element is mounted, and a terminal area on which an electrode terminal is mounted and which is located at the front or rear side of the element area, wherein, in the irradiation module, the element area and the terminal area are respectively arranged in the x-axis direction, and the element area and the terminal area are alternately arranged along the y-axis direction perpendicular to the x-axis direction.