ABSTRACT

MANAGING THERMAL BUDGET IN ANNEALING OF SUBSTRATES

A method and apparatus are provided for treating a substrate. The substrate is positioned on a support in a thermal treatment chamber. Electromagnetic radiation is directed toward the substrate to anneal a portion of the substrate. Other electromagnetic radiation is directed toward the substrate to preheat a portion of the substrate. The preheating reduces thermal stresses at the boundary between the preheat region and the anneal region. Any number of anneal and preheat regions are contemplated, with varying shapes and temperature profiles, as needed for specific embodiments. Any convenient source of electromagnetic radiation may be used, such as lasers, heat lamps, white light lamps, or flash lamps.

Fig. 1A