

PULSE TRAIN ANNEALING METHOD AND APPARATUS

ABSTRACT

The present invention generally describes apparatuses and methods used to perform an annealing process on desired regions of a substrate. In one embodiment, pulses of electromagnetic energy are delivered to a substrate using a flash lamp or laser apparatus. The pulses may be from about 1 nsec to about 10 msec long, and each pulse has less energy than that required to melt the substrate material. The interval between pulses is generally long enough to allow the energy imparted by each pulse to dissipate completely. Thus, each pulse completes a micro-anneal cycle. The pulses may be delivered to the entire substrate at once, or to portions of the substrate at a time. Further embodiments provide an apparatus for powering a radiation assembly, and apparatuses for detecting the effect of pulses on a substrate.

(Fig. 6A)