DUAL-LOOP CONTROL FOR LASER ANNEALING OF SEMICONDUCTOR WAFERS

ABSTRACT

Systems and methods for performing semiconductor laser annealing using dual loop control are disclosed. The first control loop operates at a first frequency and controls the output power of the laser and controls the 1/f laser noise. The second control loop also controls the amount of output power in the laser and operates at second frequency lower than the first frequency. The second control loop measures the thermal emission radiation of the wafer over an area the size of one or more die so that within-die emissivity variations are average out when determining the measured annealing temperature. The measured annealing temperature and an annealing temperature set point are used to generate the control signal for the second control loop.

(Figure 1)