IMPLEMENTATION OF TEMPERATURE-DEPENDENT PHASE SWITCH LAYER FOR IMPROVED TEMPERATURE UNIFORMITY DURING ANNEALING

ABSTRACT OF THE DISCLOSURE

The present invention provides a method of annealing a semiconductor by applying a temperature-dependant phase switch layer to a semiconductor structure. The temperature-dependant phase switch layer changes phase from amorphous to crystalline at a predetermined temperature. When the semiconductor structure is annealed, electromagnetic radiation passes through the temperature-dependant phase switch layer before reaching the semiconductor structure. When a desired annealing temperature is reached the temperature-dependant phase switch layer substantially blocks the electromagnetic radiation from reaching the semiconductor structure. As a result, the semiconductor is annealed at a consistent temperature across the wafer. The temperature at which the temperature-dependant phase switch layer changes phase can be controlled by an ion implantation process.

Figure 1