ABSTRACT

THERMAL PROCESSING SYSTEM, COMPONENTS, AND METHODS

Thermal treatment is an important process in the manufacture of integrated circuits. As integrated circuits evolve to become smaller and faster, there is an increasing need to for higher precision thermal treatment systems that can efficiently and uniformly heat these circuits without damaging them. Accordingly, the present inventors devised, among other things, an exemplary thermal treatment system that includes a microwave-reflective containment chamber, an inner microwave-transparent process chamber within the containment chamber, a microwave-transparent wafer carrier within the process chamber; and a 5.8 Gigahertz microwave source for introducing microwave radiation within the outer chamber. The system can be used to efficiently oxidize a batch of vertically stacked of silicon wafers using a 10% concentration of ozone.

Figure 1A