# WAFER COOLING DEVICE


## ABSTRACT

A wafer cooling device (WCD) for cooling a substrate, such as a wafer, during processing is presented. The substrate is mounted to an WCD heat transfer surface, thereby forming a cavity in between the substrate and the heat transfer surface into which gas is incorporated. An array of protuberances within the cavity provide support for the wafer. Contact heat conduction between the substrate and WCD is reduced by reducing the amount of direct contact between the substrate and WCD. Thus the heat transfer coefficient from the substrate, and hence substrate temperature, is controlled by adjusting the gas pressure in the cavity. In alternative embodiments, gas distribution channels are formed in the WCD heat transfer surface to increase gas pressure uniformity between the wafer and the WCD thus improving temperature uniformity across the substrate.


Figure 2