

ABSTRACT:

ULTRASONIC/MEGASONIC CLEANING DEVICE

An ultrasonic/megasonic cleaning device comprising a casing and an ultrasonic/megasonic frequency control unit. An ultrasonic/megasonic generator and a quartz component are provided within the casing. The ultrasonic/megasonic generator is connected with the ultrasonic/megasonic frequency control unit and at least one signal source to generate ultrasonic/megasonic wave. The quartz component is provided with a quartz rod array, which extends downward from the bottom of the quartz component and out of an opening at a bottom surface of the casing, to selectively eliminate the ultrasonic/megasonic energy propagating in directions non-vertical to the wafer surface. The ultrasonic/megasonic frequency control unit constantly changes the frequency of the electrical signal output by the at least one signal source to dynamically tune the oscillation frequency of the ultrasonic/megasonic wave, so as to prevent permanent interference and bubble implosion in the cleaning solution and achieve non-destructive cleaning for the wafer.

Figure. 1