

METHOD AND APPARATUS FOR SELECTIVE REMOVAL OF MATERIAL

ABSTRACT

5 A bumped molded semiconductor wafer (115) is held on a movable
mount (120), and a laser beam (135) is directed at an angle (137) at a
target location(132). The movable mount (120) moves the molded
semiconductor wafer (115) to scan the target location (132) across the
molded surface of the semiconductor wafer (115) twice. First at high
10 power to remove filler (425) in the mold compound (415), then at low
power to remove polymer (420). When the laser beam (135) is applied,
reactive gas is directed at the target location (132) and a vacuum
applied to remove ablated material (430) and reacted ablated material.
In this way, the bumps (425) are exposed and extend beyond the
15 ablated layer of mold compound. When the molded semiconductor
wafer is singulated to produce WLCSPs, the exposed surfaces of the
bumps (425) do not require further cleaning prior to solder mounting.

FIG. 4B accompanies the abstract.