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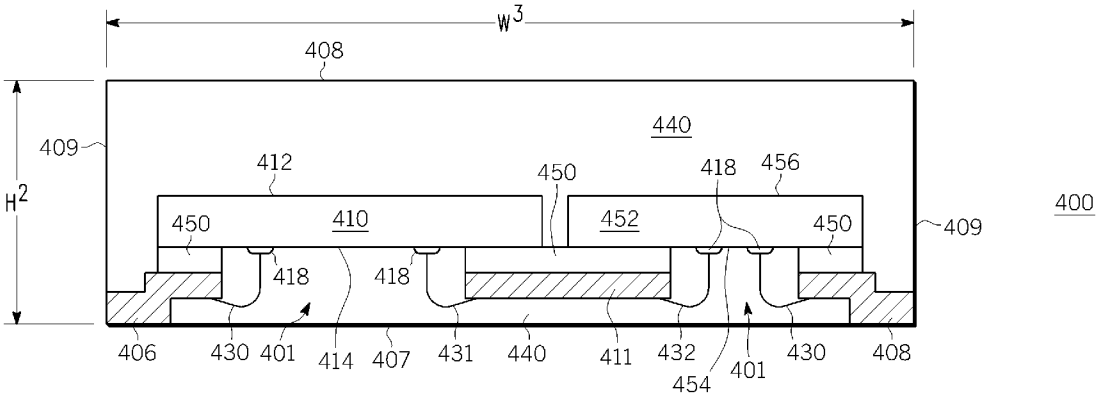
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(54) **Title:** METHODS AND APPARATUS FOR A QUAD FLAT NO-LEAD (QFN) PACKAGE



(57) **Abstract:** Methods and apparatus are provided for decreasing the size of Quad Flat No-Lead (QFN) packages (300, 400) down to chip-scale packages. Such QFN packages include a first semiconductor chip (310, 410), a plurality of recessed leads (306, 406, 408, 411) having mold lock features, and a mold material 340, 440 substantially encasing all sides of the semiconductor chip. An active surface (314, 414) of the semiconductor chip is oriented toward a mounting side (307, 407) of the QFN package, and a plurality of wire bonds 330, 430 disposed between the active surface and the mounting side couple the active side to the leads. The QFN packages may also include a second semiconductor chip (452) coupled to a plurality of leads (408) and to the first semiconductor chip via wire bonds (431, 432) in a manner similar to the first semiconductor chip.

WO 2008/054929 A2