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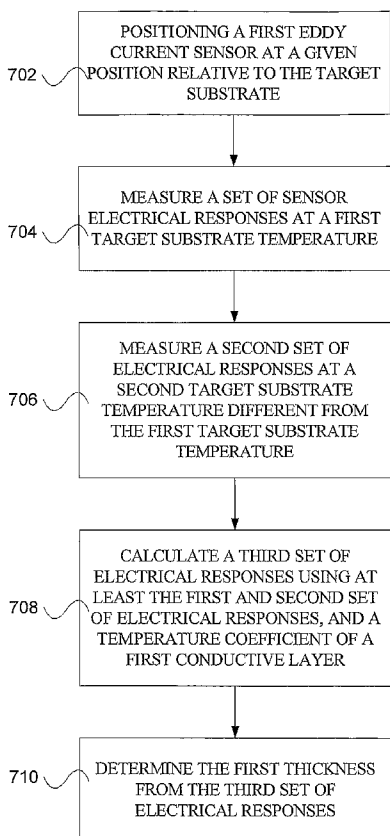
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(54) Title: METHODS AND APPARATUS FOR OPTIMIZING AN ELECTRICAL RESPONSE TO A SET OF CONDUCTIVE LAYERS ON A SUBSTRATE



(57) Abstract: A method of determining a first thickness of a first conductive layer formed of a first conductive material on a target substrate, the target substrate further having a second conductive layer formed of a second conductive material different from the first conductive material, is disclosed. The method includes positioning a first eddy current sensor at a given position relative to the target substrate, the first eddy current sensor being in a spaced-apart relationship with respect to the target substrate when positioned at the given position. The method also includes measuring, using the first eddy current sensor while the first eddy current sensor is positioned at the give position, a first set of electrical responses that includes at least one of a first voltage measurement and a first current measurement, the measuring the first set of electrical responses being performed at a first target substrate temperature. The method further includes measuring, using the first eddy current sensor while the first eddy current sensor is positioned at the given position, a second set of electrical responses that includes at least one of a second voltage measurement and a second current measurement, the measuring the second set of electrical responses being performed at a second target substrate temperature different from the first target substrate temperature. The method also includes calculating a third set of electrical responses using at least the first set of electrical responses and the second set of electrical responses, and a first temperature coefficient of the first conductive layer, the third set of electrical responses representing responses substantially attributable to the first conductive layer; and determining the first thickness from the third set of electrical responses.

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