

Exhibit A

REMARKS

The prior Office Action has been carefully considered. In response thereto, the claims have been amended as set forth above. Reconsideration in view of the foregoing amendments and the following Remarks is respectfully requested.

The undersigned thanks Examiner Joy for courtesies extended during the interview of 8/29/2013. Agreement was reached that the combination of Bertin and Kato does not teach a substantially flexible *circuit layer* as claimed in the independent claims and that the rejection of claims based on the combination of Bertin and Kato would be withdrawn.

A explained during the interview, a substantially flexible semiconductor substrate is a *necessary* but not a *sufficient* condition for a substantially flexible circuit layer. A substantially flexible semiconductor substrate may be achieved by grinding until considerably thin, for example to a thickness of less than 50 microns, and polishing the resulting surface. As noted in the rejection, the primary reference Bertin fails to teach polishing.

Kato teaches grinding the backside of a circuit layer and polishing the resulting surface. The semiconductor substrate itself (part of the circuit layer) may be argued to be substantially flexible. However, there is no teaching or suggestion that the *circuit layer* as a whole is substantially flexible. The circuit layer may be fabricated in a manner that undoes or defeats flexibility of the semiconductor substrate.

More particularly, a circuit layer requires one or more dielectric layers. Dielectric material has an associated level of stress. For a circuit layer to be substantially flexible, Applicant has found that the dielectric material must have low tensile stress, for example, 5×10^8 dynes/cm² tensile. Kato does not contain any teaching or suggestion of the circuit layer being flexible. Similarly, Bertin does not contain any such teaching or suggestion.

Withdrawal of the rejection of at least those claims rejected based solely on the combination of Bertin and Kato is respectfully requested.

Respectfully submitted,

/MichaelJUre/

Michael J. Ure, Reg. 33,089

Dated: 9/26/2013

REMARKS

The prior Office Action has been carefully considered. Reconsideration in view of the present Remarks is respectfully requested.

The undersigned thanks Examiner Joy for courtesies extended in related application 12/497,652 during the interview of 8/29/2013. Identical issues are presented in the present application, with certain relevant features of the claims and the art applied against the claims being the same. In the related application, agreement was reached that the combination of Bertin and Kato does not teach a substantially flexible *circuit layer* as claimed in the independent claims and that the rejection of claims based on the combination of Bertin and Kato would be withdrawn.

A explained during the interview, a substantially flexible semiconductor substrate is a *necessary* but not a *sufficient* condition for a substantially flexible circuit layer. A substantially flexible semiconductor substrate may be achieved by grinding until considerably thin, for example to a thickness of less than 50 microns, and polishing the resulting surface. As noted in the rejection, the primary reference Bertin fails to teach polishing.

Kato teaches grinding the backside of a circuit layer and polishing the resulting surface. The semiconductor substrate itself (part of the circuit layer) may be argued to be substantially flexible. However, there is no teaching or suggestion that the *circuit layer* as a whole is

semiconductor device fabrication. (Kato col. 6, lines 5-20.) Since no such device fabrication is performed in Bertin, it would not have been obvious to incorporate from Kato this step, which is preparatory to semiconductor device fabrication.

Moreover, both Bertin and Kato fail to teach or suggest that at least one of the first and second circuit layers is substantially flexible, and the substrate thereof is a substantially flexible semiconductor substrate. Two features are required to achieve substantial flexibility. One is that the semiconductor material must be sufficiently thin, e.g., 50 microns or less. Bertin and Kato are believed to satisfy this requirement. The other is that the dielectric material used in processing the semiconductor material must be sufficiently low stress. Otherwise, substantial flexibility is defeated. As set forth in the present specification, stress of 5×10^8 dynes/cm² or less has been demonstrated to satisfy this requirement. Neither Bertin nor Kato are believed to satisfy this requirement.

In relation to independent claim 4, which recites stress of 5×10^8 dynes/cm² or less, the Office Action cites Bertin, as follows:

[Bertin] Col. 3-5; vias are insulated with silicon dioxide which satisfies the circuit layers comprising a dielectric material having stress as claimed....

The oxide of Bertin referred to is actually *thermally grown* oxide. (Bertin, col. 4, lines 30-31: “The trench sidewalls are oxidized to provide isolation from the bulk silicon....”) Such oxide is known to be high stress, typically 5 to 10 times the level of stress demonstrated in accordance with the teachings of the present specification as being sufficient to ensure that the substantial flexibility of sufficiently thin semiconductor material is not defeated by stress of the dielectric material.

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