

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.
(TSMC) and SAMSUNG ELECTRONICS, CO. LTD.
Petitioner

v.

DSS TECHNOLOGY MANAGEMENT, INC.
Patent Owner

Patent 5,652,084
IPR2014-01030¹

Title: METHOD FOR REDUCED PITCH LITHOGRAPHY

PETITIONERS' REPLY TO PATENT OWNER'S RESPONSE

¹ Case IPR2014-01493 has been joined with this proceeding.

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I. INTRODUCTION

The present Reply is directed to the following challenges to claims 1-12 and 15-16 of the U.S. Patent No. 5,652,084 (“the ‘084 Patent”) (TSMC-1001):

(1) anticipation of claims 1-8, 12, 15, and 16 under 35 U.S.C. §102(b) based on Japanese Patent Application No. HEI 4[1992]-71222 (“Jinbo”) (TSMC-1004²);

(2) obviousness of claim 9 under 35 U.S.C. §103(a) based on Jinbo in view of U.S. Patent No. 4,931,351 (“McColgin”) (TSMC-1006); and

(3) obviousness of claims 10 and 11 under 35 U.S.C. §103(a) based on Jinbo in view of U.S. Patent No. 4,548,688 (“Matthews”) (TSMC-1007).

There are two challenged independent claims in the present IPR, claims 1 and 15, with claim 1 being representative (terms at issue are emphasized below):

1. A lithography method for semiconductor fabrication using a semiconductor wafer, comprising the steps of:

(a) forming a first imaging layer over the semiconductor wafer;

(b) patterning the first imaging layer in accordance with a **first pattern** to form a first patterned layer having a first feature;

(c) stabilizing the first patterned layer;

(d) forming a second imaging layer over the first pattern layer;

and

(e) patterning the second imaging layer in accordance with a

² All references are to the English translation of Jinbo produced at TSMC-1004.

second pattern to form a second patterned layer having a second feature distinct from the first feature, wherein the second patterned layer and the first patterned layer form a single patterned layer, and wherein the first and second features which are formed relatively closer to one another than is possible through a single exposure to radiation. (emphasis added.)

In its Institution Decision, the Board construed the ordinary meaning³ of “the term ‘second pattern’ as ‘**any suitable pattern in accordance with which the second imaging layer is selectively irradiated.**’ In other words, the second pattern can be **any geometric pattern**, including a pattern the same as the first pattern, provided that the second pattern is a separate element.” *See* Paper 7 at 8 (emphasis added).

Despite this, in its Response, the Patent Owner (“DSS”) has alleged that all three challenges fail for a single reason—DSS alleges Jinbo discloses a single “pattern” that is used for both patterning steps and therefore does not disclose the claimed “second pattern.” Paper 18 at 12. To support this argument, DSS urges the Board to modify its construction of “second pattern” to require that the second pattern is not the “same as” or a “duplicate of” the first pattern. *Id.*

³ The ‘084 Patent expired on December 22, 2014, and accordingly, “the Board’s review of the claims is similar to that of a district court.” Paper 7 at 6.

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