

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.,

Petitioner,

v.

GODO KAISHA IP BRIDGE 1,

Patent Owner.

IPR2017-01843^a
Patent 7,893,501 B2

Record of Oral Hearing
Held: September 6, 2018

Before JUSTIN T. ARBES, JENNIFER MEYER CHAGNON, and
MELISSA A. HAAPALA, *Administrative Patent Judges*.

^a Case IPR2017-01844 has been consolidated with this proceeding.

IPR2017-01843
Patent 7,893,501 B2

APPEARANCES:

ON BEHALF OF THE PETITIONER:

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ON BEHALF OF THE PATENT OWNER:

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The above-entitled matter came on for hearing on Thursday, September 6, 2018, commencing at 3:15 p.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Julie Souza, Notary Public.

P R O C E E D I N G S

1 - - - - -

2 JUDGE CHAGNON: Welcome back everybody. We're here today
3 for our second hearing of the day in IPR2017-01843 related to U.S. patent
4 7,893,501. I'm not going to go over all the ground rules again, but I'll just
5 have both counsel introduce yourselves for the record at the microphone and
6 see if anybody has any questions before we get started.

7 MR. CAVANAUGH: David Cavanaugh for TSMC with Wilmer
8 Hale.

9 JUDGE CHAGNON: Thank you.

10 MR. HRYCYSZYN: Good afternoon, Your Honors. Gerry
11 Hrycyszyn with Wolf Greenfield for Patent Owner IP Bridge.

12 JUDGE CHAGNON: Thank you so much, and as I said we're going
13 to follow the same format of the previous hearing so whenever you're ready
14 you can get started. How much time did you want to reserve today?

15 MR. CAVANAUGH: Fifteen minutes for rebuttal.

16 JUDGE CHAGNON: Fifteen minutes.

17 MR. CAVANAUGH: And just one preliminary question. Will this
18 be a single consolidated transcript or two individual transcripts between the
19 proceedings, or is that determined?

20 JUDGE CHAGNON: Because we did them as separate hearings,
21 we'll do them as separate transcripts.

22 MR. CAVANAUGH: Okay. Good afternoon, Your Honors. I'll kind
23 of dispense with some of the preliminaries with regard to the agenda for this
24 presentation but I do want to present a little bit about the relevant

1 technology. I'll go through the relevant part of the 501 patent that is
2 apparently disputed in this proceeding, an overview of the prior art that's
3 used in this proceeding as well as some undisputed issues, and address
4 finally the issues raised by the Patent Owner.

5 The technological background is the same and so I'm not going to
6 spend any time with it other than noting that the various components of a
7 MISFET transistor are described in Plummer and that's what we presented in
8 the petition.

9 Going to slide 6. I think that the figure 1 of the 501 patent now is
10 familiar territory. Important to this proceeding is the identification of where
11 the gate is with respect to the silicon nitride film and that's the last element
12 but it would be the silicon nitride film is in blue and the gate electrode is in
13 orange.

14 Next slide. Again, and maybe we can go back to figure 1 for a
15 moment. I do also want to identify that the sidewalls 7, we've identified in
16 color the limitations of the claim but the sidewalls 7 aren't really a part of the
17 limitations of claim 1 and we haven't highlighted those but they're on either
18 side of the gate electrode.

19 Next slide. And so here's the claim 1 that's being challenged by this
20 petition and we have the last limitation, actually I'll start with the third to last
21 limitation that introduces a silicon nitride film and then the silicon nitride
22 film is not formed on the upper surface of the gate electrode which is the
23 second to last limitation, and then the last limitation which was added during
24 prosecution the gate electrode protrudes upward from a surface level of parts

1 of the silicon nitride film located at both side surfaces of the gate electrode.
2 So that's the limitation that we'll be discussing today.

3 The prior art in this petition is Misra and Misra I've identified in slide
4 10 with figure 7 and I've identified how the various limitations, the
5 disclosure of 501 corresponds to the figure 7 of Misra, and so there's an
6 active region -- Patent Owner doesn't dispute in this case whether there's an
7 active region in Misra -- a gate insulating film in red. There is a gate
8 electrode 28b and source and drain regions which are in green and that's in
9 26 and 28, and important for the last limitation of the claim the gate
10 electrode 28b extends above the silicon nitride film 20.

11 I'd like to just describe what I understand to be undisputed issues and
12 we'll hear from the Patent Owner if they disagree, as they disagree if I'm
13 incorrect. But I think there is no dispute that the Misra gate 28b protrudes
14 above the surface of the layer 20 of the film 20 and that's just like what's in
15 figure 1 of the 501 patent which the Patent Owner has alleged in prosecution
16 corresponds to the added limitation. So that I don't think is in dispute.

17 Next slide. Again, I had mentioned it briefly when I was introducing
18 Misra, but there is no dispute that Misra discloses the limitation of the
19 claimed active region in whatever iteration that the Patent Owner would
20 present it.

21 Next slide. There's no dispute that the protruding gate was known in
22 the art and in fact in the Patent Owner preliminary response indicated that
23 Igarashi teaches explicitly the protruding gate limitation, and we do think
24 that that's relevant to considering this is not a new feature that has never

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