Petitioner Bluehouse Global Ltd.

Ex. 1002
(Pages 1-246)

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 9,293,545 B2
APPLICATION NO. : 14/451680
DATED : March 22, 2016
INVENTOR(S) : Shunpei Yamazaki et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Specification

At column 3, line 14, "$InMO_3(ZnO)_n$," should be --$InMO_3(ZnO)_m$--;

At column 9, line 61, "20 nm" should be --20 nm.--;

At column 13, line 50, "20 nm" should be --20 nm.--;

At column 20, line 22, "5602M" should be --5602_M--;

At column 21, line 8, "5621_)" should be --5621_J--;

At column 21, line 10, "5621_)" should be --5621_J--;

At column 21, line 12, "Ti," should be --T1,--;

At column 21, line 15, "Ti," should be --T1,--;

At column 40, line 3, "∈r" should be --εr--;

At column 42, line 67, "01" should be --θ1--.

Signed and Sealed this
Thirtieth Day of August, 2016

Michelle K. Lee

Michelle K. Lee
Director of the United States Patent and Trademark Office

Attorney Docket No. 0756-10566

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Confirmation No. 5776
Shunpei YAMAZAKI et al.	)	Group Art Unit: 2816
Serial No. 14/451,680	)	Examiner: Jeremy J. Joy
Filed: August 5, 2014	)	
U.S. Patent No. 9,293,545	)	
For: SEMICONDUCTOR DEVICE	)	

REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 C.F.R. § 1.322 FOR CORRECTION OF OFFICE MISTAKE

ATTN: Certificate of Correction Branch
Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

As provided in detail in the attached, the patentee respectfully requests that a Certificate of Correction be granted in the above-identified patent to correct a mistake in a patent, incurred through the fault of the Office.

Under 37 C.F.R. 1.322, "The Commissioner may issue a certificate of correction pursuant to 35 U.S.C. 254 to correct a mistake in a patent, incurred through the fault of the Office, which mistake is clearly disclosed in the records of the Office at the request of the patentee or the patentee's assignee."

The patentee furthermore requests Expedited Issuance of this Certificate of Correction in accordance with MPEP § 1480.01. Specifically, this section provides that:

> In an effort to reduce the overall time required in processing and granting Certificate of Correction requests, the Office will expedite processing and granting of patentee requests where such requests are accompanied by evidence to show that the error is attributable solely to the Office . . . . Where the correction requested was incurred through the fault of the Office, and the matter is clearly disclosed in the records of the

Office, and is accompanied by documentation that unequivocally supports the patentee's assertion(s), a Certificate of Correction will be expeditiously issued. MPEP § 1480.01

The following errors appear to have occurred through the fault of the Office, and the patentee respectfully requests correction thereof.

At column 3, line 14, "$InMO_3(ZnO)_n$," should be --$InMO_3(ZnO)_m$--;

At column 9, line 61, "20 nm" should be --20 nm.--;

At column 13, line 50, "20 nm" should be --20 nm.--;

At column 20, line 22, "5602M" should be --5602_M--;

At column 21, line 8, "5621_)" should be --5621_J--;

At column 21, line 10, "5621_)" should be --5621_J--;

At column 21, line 12, "Ti," should be --T1,--;

At column 21, line 15, "Ti," should be --T1,--;

At column 40, line 3, "$\in r$" should be --εr--;

At column 42, line 67, "01" should be --$\theta 1$--.

The corrections in the specification are directed to mistakes in the patent incurred through the fault of the Office, possibly resulting from the Office's document scanning processes.

As the errors were incurred through the fault of the Office, a fee is not believed to be necessary. Should it be determined that a fee is necessary, any deficiencies or overages in any fees due in connection with this patent and the requested actions should be applied to Deposit Account No. 50-2280.

Respectfully submitted,

Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, Virginia 22033
(571) 434-6789

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO : 9,293,545

DATED : March 22, 2016

INVENTOR(S) : Shunpei YAMAZAKI et al.

It is certified that errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

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At column 21, line 15, "Ti," should be --T1,--;

At column 40, line 3, "$\in$r" should be --εr--;

At column 42, line 67, "01" should be --θ1--.

MAILING ADDRESS OF SENDER:

Eric J. Robinson
Robinson Intellectual Property Law Office
3975 Fair Ridge Drive
Suite 20 North
Fairfax, Virginia 22033

PATENT NO. 9,293,545

No. of additional copies

Electronic Acknowledgement Receipt

EFS ID:	26272119
Application Number:	14451680
International Application Number:	
Confirmation Number:	5776
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Customer Number:	31780
Filer:	Eric J. Robinson
Filer Authorized By:	
Attorney Docket Number:	0756-10566
Receipt Date:	06-JUL-2016
Filing Date:	05-AUG-2014
Time Stamp:	16:29:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	COC_06JULY2016.pdf	445742 def3c95b9c4faeeb925a643a60350c8168798b27	no	4

Warnings:

Information:	
Total Files Size (in bytes):	445742

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	03/22/2016	9293545	0756-10566	5776

31780 7590 03/02/2016

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Shunpei YAMAZAKI, Setagaya, JAPAN;
Semiconductor Energy Laboratory Co., Ltd., Atsugi-shi, JAPAN;
Kengo AKIMOTO, Atsugi, JAPAN;
Daisuke KAWAE, Yamato, JAPAN;

Attorney Docket No. 0756-10566

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Confirmation No. 5776
Shunpei YAMAZAKI et al.	)	Group Art Unit: 2816
Serial No. 14/451,680	)	Examiner: Jeremy J. Joy
Filed: August 5, 2014	)	
For: SEMICONDUCTOR DEVICE	)	

LETTER REGARDING PAYMENT OF ISSUE FEE

MS Issue Fee
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

It is respectfully requested that the Issue Fee paid on October 6, 2015 be applied towards the current Issue Fee due February 16, 2016. Also, attached is the new Issue Fee Transmittal Form PTOL-85, along with a copy of the Petition granting the Withdrawal from Issue indicating that the Issue Fee may be reapplied in this matter.

Respectfully submitted,

Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, Virginia 22033
(571) 434-6789

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

31780 7590 11/13/2015
Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

TITLE OF INVENTION: SEMICONDUCTOR DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$960	$960	02/16/2016

***Previously paid, please see attached letter**

EXAMINER	ART UNIT	CLASS-SUBCLASS
JOY, JEREMY J	2816	257-043000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

Eric J. Robinson,
Robinson Intellectual Property Law Office, P.C.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Semiconductor Energy Laboratory Co., Ltd.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Atsugi-shi, Kanagawa-ken, Japan

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
*☒ Issue Fee ***Previously paid, please see attached letter**
☐ Publication Fee (No small entity discount permitted)
*☒ Advance Order - # of Copies 2 ***Previously paid, please see attached letter**

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-2280 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date February 16, 2016

Typed or printed name Eric J. Robinson Registration No. 38,285

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : October 26, 2015

In re Application of :

Shunpei YAMAZAKI

DECISION ON PETITION
UNDER CFR 1.313(c)(2)

Application No : 14451680

Filed : 05-Aug-2014

Attorney Docket No : 0756-10566

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed October 26, 2015 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 2816 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt

EFS ID:	24919356
Application Number:	14451680
International Application Number:	
Confirmation Number:	5776
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Customer Number:	31780
Filer:	Eric J. Robinson/Sue Ann Carr
Filer Authorized By:	Eric J. Robinson
Attorney Docket Number:	0756-10566
Receipt Date:	16-FEB-2016
Filing Date:	05-AUG-2014
Time Stamp:	14:21:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	IF_16FEB2016.pdf	422941 2cf432791015e09ac9208c27135ee1382a49e6ca	no	3

Warnings:	
Information:	

Total Files Size (in bytes):	422941

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IFW

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

31780 7590 11/13/2015
Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

02/17/2016 CCHAU2 00000044 14451680
01 FC:1581 960.00 OP

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

TITLE OF INVENTION: SEMICONDUCTOR DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$960	$960	02/16/2016

***Previously paid, please see attached letter**

EXAMINER	ART UNIT	CLASS-SUBCLASS
JOY, JEREMY J	2816	257-043000

Adjustment date: 02/17/2016 CCHAU2
10/06/2015 INTEFSW 00000493 14451680
01 FC:1581 -960.00 OP

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

Eric J. Robinson,
Robinson Intellectual Property Law Office, P.C.

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(A) NAME OF ASSIGNEE: Semiconductor Energy Laboratory Co., Ltd.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Atsugi-shi, Kanagawa-ken, Japan

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- *☒ Issue Fee ***Previously paid, please see attached letter**
- ☐ Publication Fee (No small entity discount permitted)
- *☒ Advance Order - # of Copies 2 ***Previously paid, please see attached letter**

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-2280 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
  NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
  NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status.
  NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date February 16, 2016

Typed or printed name Eric J. Robinson Registration No. 38,285

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

31780 7590 11/13/2015

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

EXAMINER
JOY, JEREMY J

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 11/13/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

TITLE OF INVENTION: SEMICONDUCTOR DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$960	$960	02/16/2016

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

31780 7590 11/13/2015
Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

TITLE OF INVENTION: SEMICONDUCTOR DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$960	$960	02/16/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
JOY, JEREMY J	2816	257-043000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

31780 7590 11/13/2015

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

EXAMINER	
JOY, JEREMY J	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 11/13/2015

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/451,680	Applicant(s) YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2816	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Request for Continued Examination filed on 10/26/2015*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *2-21*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☒ All b) ☐ Some *c) ☐ None of the:
   1. ☒ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 10/26/2015
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/JEREMY JOY/
Examiner, Art Unit 2816

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/2015 has been entered.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 10/26/2015 was filed after the mailing date of the Notice of Allowance on 07/06/2015. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Allowable Subject Matter

3. Claims **2-21** are allowed over the prior art.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

4. Claims 2-21 are allowed because the prior art of record neither anticipate nor rendered obvious the limitations of base claims 2 and 11 including "a first metal film and a second metal film over the gate insulating film; … wherein a side surface of the first metal film faces a side surface of the second metal film, and wherein each of the side surface of the first metal film and the side surface of the second metal film has a step in a lower end portion thereof" and the limitations of base claim In particular, the prior art of record falls short with regards to teaching a step portion formed in a lower portion of a side surface of a first metal film and a second metal film that face each other.

In example:

(i) *Furukawa et al.* (**U.S. Patent Pub. No. 2008/0099757**) teaches a glass substrate; a gate electrode over the glass substrate; a gate insulating film over the gate electrode; a first conductive film and a second conductive film over the gate insulating film; an organic semiconductor film in contact with the first and second conductive films; wherein a side surface of the first conductive film faces a side surface of the second conductive film; and wherein each of the side surface of the first conductive film and the side surface of the second conductive film has a step in a lower end portion thereof, but fails to specifically teach the first and second conductive films are first and second metal films and an oxide semiconductor film formed on the first and second metal films rather than the organic semiconductor film as disclosed

(ii) *Akimoto* (**U.S. Patent Pub. No. 2007/0108446**) teaches using a metal film to form a portion of the first and second conductive films (source/drain electrodes) and an oxide semiconductor film formed the first and second conductive films in a display device similar to that of the applicant, but fails to specifically teach that the metal film that forms a portion of the first and second conductive films would not be obvious to modify *Furukawa* with such that the first and second metal film portions would have a step in a lower portion thereof.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMY JOY whose telephone number is (571)270-7445. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571)272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEREMY JOY/
Examiner, Art Unit 2816
November 2, 2015

/MARVIN PAYEN/
Primary Examiner, Art Unit 2816

Notice of References Cited	Application/Control No. 14/451,680	Applicant(s)/Patent Under Reexamination YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2816	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2007/0108446 A1	05-2007	Akimoto; Kengo	H01L29/41733	257/61
*	B	US-2007/0172591 A1	07-2007	SEO; O-gweon	C23C16/0272	427/248.1
*	C	US-2008/0038882 A1	02-2008	Takechi; Kazushige	H01L29/4908	438/151
*	D	US-2009/0114917 A1	05-2009	YAMAZAKI; Shunpei	H01L29/78696	257/59
*	E	US-2010/0044711 A1	02-2010	IMAI; Shinji	H01L27/14676	257/59
*	F	US-2005/0056897 A1	03-2005	Kawasaki, Masahiro	H01L51/0021	257/359
*	G	US-2006/0033098 A1	02-2006	Shih; Ishiang	H01L51/0021	257/40
*	H	US-2006/0027804 A1	02-2006	Yamazaki; Shunpei	G02F1/1368	257/59
*	I	US-2006/0292726 A1	12-2006	Akimoto; Kengo	H01L21/3221	438/30
*	J	US-2008/0073653 A1	03-2008	Iwasaki; Tatsuya	H01L29/7869	257/79
*	K	US-2005/0205870 A1	09-2005	Yamazaki, Shunpei	G02F1/133553	257/72
*	L	US-2004/0108562 A1	06-2004	Nagayama, Kenichi	H01L51/0021	257/434
*	M	US-2008/0099757 A1	05-2008	Furukawa; Shinobu	C07D209/88	257/40

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 14/451,680	Applicant(s)/Patent Under Reexamination YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2816	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2007/0072439 A1	03-2007	Akimoto; Kengo	H01L27/1225	438/795
*	B	US-2011/0062419 A1	03-2011	Kikuchi; Hiroaki	B82Y10/00	257/24
*	C	US-2008/0036698 A1	02-2008	Kawasaki; Masahiro	G02F1/1368	345/55
*	D	US-7,696,513 B2	04-2010	Hayashi; Ryo	H01L27/3211	257/40
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	**Art Unit**
	JEREMY JOY	2816

CPC							
Symbol						**Type**	**Version**
H01L		29	/	41733		F	2013-01-01
H01L		51	/	0512		I	2013-01-01
H01L		51	/	0508		I	2013-01-01
H01L		51	/	0545		I	2013-01-01
H01L		29	/	4908		I	2013-01-01
H01L		51	/	105		I	2013-01-01
H01L		21	/	02554		A	2013-01-01
H01L		21	/	02565		A	2013-01-01
H01L		21	/	02631		A	2013-01-01
H01L		27	/	1225		I	2013-01-01
H01L		29	/	7869		I	2013-01-01
H01L		29	/	78696		I	2013-01-01
H01L		29	/	786		I	2013-01-01
H01L		27	/	1288		I	2013-01-01
			/				

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

/JEREMY JOY/ Examiner.Art Unit 2816	11/02/2015	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/MARVIN PAYEN/ Primary Examiner.Art Unit 2816	11/03/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	**Art Unit**
	JEREMY JOY	2816

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
257	57	H	0	1	L	29 / 786 (2006.01.01)	H	0	1	L	21 / 28 (2006.01.01)

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
438	158				

/JEREMY JOY/ Examiner.Art Unit 2816	11/02/2015	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/MARVIN PAYEN/ Primary Examiner.Art Unit 2816	11/03/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	**Art Unit**
	JEREMY JOY	2816

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	18	17												
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/JEREMY JOY/ Examiner.Art Unit 2816	11/02/2015	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/MARVIN PAYEN/ Primary Examiner.Art Unit 2816	11/03/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

PTO/SB/08A (07-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 5

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2816
Examiner Name	J. JOY
Attorney Docket Number	0756-10566

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Signature	/Jeremy Joy/	Date Considered	11/02/2015

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.J./

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/451,680
				Filing Date	August 5, 2014
				First Named Inventor	Shunpei YAMAZAKI
(Use as many sheets as necessary)				Art Unit	2816
				Examiner Name	J. JOY
Sheet	2	of	5	Attorney Docket Number	0756-10566

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Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Signature	/Jeremy Joy/	Date Considered	11/02/2015

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 3 of 5

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2816
Examiner Name	J. JOY
Attorney Docket Number	0756-10566

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Examiner Signature	/Jeremy Joy/	Date Considered	11/02/2015

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Examiner Signature	/Jeremy Joy/	Date Considered	11/02/2015

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(Use as many sheets as necessary)

Sheet 5 of 5

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Attorney Docket Number	0756-10566

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		EP-1830344A	09-05-2007			Eng.

Examiner Signature	/Jeremy Joy/	Date Considered	11/02/2015

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CONFIRMATION NO. 5776

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/451,680	08/05/2014	257	2816	0756-10566

APPLICANTS

Semiconductor Energy Laboratory Co., Ltd., Atsugi-shi, JAPAN;

INVENTORS

Shunpei YAMAZAKI, Setagaya, JAPAN;
Kengo AKIMOTO, Atsugi, JAPAN;
Daisuke KAWAE, Yamato, JAPAN;

**** CONTINUING DATA ***************************

This application is a CON of 13/763,874 02/11/2013 PAT 8803146
which is a CON of 12/613,769 11/06/2009 PAT 8373164
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**** FOREIGN APPLICATIONS ***************************

JAPAN 2008-287187 11/07/2008

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

08/13/2014

Foreign Priority claimed	35 USC 119(a-d) conditions met	Verified and Acknowledged	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☑ Yes ☐ No	☑ Yes ☐ No	/JEREMY J JOY/ Examiner's Signature	☐ Initials	JAPAN	37	1	1

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Suite 20 North
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UNITED STATES

TITLE

SEMICONDUCTOR DEVICE

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BIB (Rev. 05/07).

EAST Search History

EAST Search History (Prior Art)

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L24	50	US-8937580-$.DID. OR US-20150123109-$.DID. OR US-20150248859-$.DID. OR US-8243055-$.DID. OR US-8477085-$.DID. OR US-7224333-$.DID. OR US-9153168-$.DID. OR US-7375705-$.DID. OR US-20110057958-$.DID. OR US-7250928-$.DID. OR US-20080036698-$.DID. OR US-7696513-$.DID. OR US-6462722-$.DID. OR US-6522315-$.DID. OR US-6839045-$.DID. OR US-7180483-$.DID. OR US-7221339-$.DID. OR US-7253793-$.DID. OR US-7710364-$.DID. OR JP-2005092188-$.DID. OR JP-04072005-$.DID. OR JP-2004046218-$.DID. OR JP-02122004-$.DID. OR US-7880696-$.DID. OR US-8154199-$.DID. OR US-8188647-$.DID. OR US-8247967-$.DID. OR US-8354978-$.DID. OR US-8362489-$.DID. OR US-20030231273-$.DID. OR US-20080246700-$.DID. OR US-20120299902-$.DID. OR JP-2003195814-$.DID. OR JP-07092003-$.DID. OR JP-2007250984-$.DID. OR JP-09272007-$.DID. OR WO-2007119321-$.DID. OR EP-0917127-$.DID. OR EP-05191999-$.DID. OR US-1255240-$.DID. OR US-1336953-$.DID. OR US-1337131-$.DID. OR US-1359789-$.DID. OR US-1363265-$.DID. OR EP-1619654-$.DID. OR EP-01252006-$.DID. OR EP-1830342-$.DID. OR EP-09052007-$.DID. OR US-1830343-$.DID. OR US-1830344-$.DID.	US-PGPUB; USPAT; USOCR; JPO	OR	ON	2015/11/02 19:42
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S17	9604	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S18	4685	S17 and ((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S19	322	(((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide)) near3 channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S20	118	S17 and S19	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S21	1	("7638360").PN.	US-PGPUB; USPAT	OR	OFF	2012/04/04 16:33
S22	7	("20050017302" | "20060244107" | "20070048970" | "20070072439" | "20070184571" | "20080254569").PN. OR ("7638360").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:33
S23	2	"US 8134156"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 16:36
S24	3	"US 20070108446"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 16:36
S25	177	("20010046027" | "20020011978" | "20020044111" | "20020056838" | "20020106839" | "20020109796" | "20020110703" | "20020132454" | "20030047785" | "20030207506" | "20030218222" | "20040038446" | "20040127038" | "20040132293" | "20040252270" | "20050017302" | "20050082541" | "20050084999" | "20050104071" | "20050164423" | "20050199959" | "20050231107" | "20050233509" | "20050250308" | "20050259206" | "20050275038" | "20060035452" | "20060043377" | "20060054888" | "20060086933" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:36

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"20060108636" | "20060110867" |
"20060113536" | "20060113539" |
"20060113549" | "20060113565" |
"20060163743" | "20060169973" |
"20060170067" | "20060170111" |
"20060183274" | "20060197092" |
"20060208977" | "20060228974" |
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"20060284171" | "20060284172" |
"20060286737" | "20060292777" |
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"20070108446" | "20070141784" |
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"20080128689" | "20080129195" |
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"20080182358" | "20080198108" |
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"20080258139" | "20080258140" |
"20080258141" | "20080258143" |
"20080308796").PN. OR
("20080308797" | "20080308804" |
"20080308805" | "20080308806" |
"20090008639" | "20090068773" |
"20090073325" | "20090114910" |
"20090114911" | "20090134399" |
"20090152541" | "20090153762" |
"20090186437" | "20090186445" |
"20090189155" | "20090189156" |
"20090239335" | "20090278122" |
"20090280600" | "20090305461" |
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"20110012119" | "20110024787" |
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"5701167" | "5731856" | "5803975" |
"5817548" | "5888410" | "5930607" |
"5952708" | "5994157" | "6294274" |
"6459418" | "6529251" | "6532045" |
"6563174" | "6674136" | "6727522" |
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"6921627" | "7009204" | "7012658" |
"7049190" | "7061014" | "7064346" |
"7067843" | "7075614" | "7105868" |
"7189992" | "7211825" | "7264979" |
"7268842" | "7282782" | "7297977" |
"7323356" | "7330234" | "7339187" |
"7365805" | "7385224" | "7391055" |
"7402506" | "7411209" | "7453065" |
"7453087" | "7456430" | "7462862" |
"7468304" | "7470607" | "7485478" |
"7501293" | "7560396" | "7633471" |
"7732818" | "7825419" | "7855380" |

		"RE38292").PN. OR ("8134156").URPN.				
S26	95	S25 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:44
S27	0	(buffer near5 (source drain) with (ozide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:48
S28	0	(buffer with (source drain) with (ozide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:48
S29	0	(source drain) with (ozide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:49
S30	5583	(source drain) with (oxide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S31	371	(buffer with (source drain) with (oxide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S32	118	(buffer with (source drain) with (oxide near2 semiconductor) with channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S33	24	S32 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:04
S34	108	("20010046027" | "20020056838" | "20020132454" | "20030189401" | "20030218222" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060035452" | "20060043377" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060169973" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070152217" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080203387" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080296568" | "20080308796" | "20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:08

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S35	43	S34 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S36	0	S34 and ((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S37	54124	((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S38	217	S37 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S39	164	S38 not (angle adj implant$3)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:15
S40	3037	((taper incline decline angle) near3 (side sidewall surface) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:23
S41	178	(tft (thin adj film adj transistor)) and S40	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:24
S42	10	"US 7081641"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 17:29
S43	11	("20050056897" | "6569707" | "6858527").PN. OR ("7081641").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:30
S44	48	((taper near2 angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:40
S45	32689	((taper angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:41
S46	161	S45 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S47	243	((taper angle) near3 ((source drain) adj electrode))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S48	243	(taper angle) near3 ((source drain) adj electrode)	US-PGPUB; USPAT;	OR	ON	2012/04/04 17:42

			USOCR			
S49	206	(tft (thin adj film adj transistor)) and S48	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:43
S50	69	S25 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:53
S51	519	(source drain) near3 (tilt adj angle)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56
S52	54	S51 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56
S53	5614	S8 S9 S10	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S54	3354	S53 and (tft (thin adj film)) and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S55	145	S53 and (tft (thin adj film)) and ((angle taper) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:00
S56	5	"US 7564058"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 18:04
S57	20	("20020043662" | "20030148561" | "20030213959" | "20030234424" | "20040189188" | "4797108" | "5028551" | "5151806" | "5640067" | "6037197" | "6121660" | "6388270" | "6433363" | "6448116" | "6476416" | "6639244" | "6709901").PN. OR ("7564058").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:04
S58	8	S57 and angle	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:05
S59	218	("20030189401" | "20080128689" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20110012118" | "7915075" | "7462862" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7732819" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/18 18:08

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S60	18460	(tft (thin adj film)) and ((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:28
S61	133336	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S62	10304	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S63	1628	S61 and S62	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S64	34920	((angle taper gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:30
S65	193	S64 and S62	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:30
S66	1	("20120132910").PN.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:00
S67	10	("20110318916" | "20120058599" | "8021917" | "8030663" | "8115201").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:01
S68	11	S66 S67	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2012/09/26 22:01

			EPO; JPO; DERWENT; IBM_TDB			
S69	5731	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S70	294	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S71	62	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S72	5942	S69 S70 S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S73	5403	S72 and (tft (thin$1film) (thin adj film))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S74	3556	S73 and (angle taper)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S75	878	S73 and ((angle taper) with electrode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:05
S76	133560	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S77	10334	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S78	1631	S76 and S77	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S79	532	S72 and S78	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:06
S80	89	((angle taper gradation stair) near3 (source drain)) and S77 and S72	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:08
S81	5466	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:19
S82	5099	(257/72).CCLS.	US-PGPUB;	OR	OFF	2012/09/26

			USPAT			22:19
S83	45	((angle taper gradation stair) near3 (source drain)) and S77 and S81	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S84	40	((angle taper gradation stair) near3 (source drain)) and S77 and S82	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S85	60	S83 S84	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S86	674	(257/e29.277).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:21
S87	311	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:24
S88	1543	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:27
S89	15	((angle taper gradation stair) near3 (source drain)) and S77 and S88	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:27
S90	3682	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:28
S91	17	((angle taper gradation stair) near3 (source drain)) and S77 and S90	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:28
S95	6242	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S96	356	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S97	75	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S98	6489	S95 S96 S97	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S99	142606	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S100	11746	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S101	1860	S99 and S100	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S102	600	S98 and S101	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S103	5191	(semiconductor near5 ((indium in) and (gallium ga) and (zinc zn)))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2013/08/12 02:30

			EPO; JPO; DERWENT; IBM_TDB			
S104	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30
S105	1268	S103 and S104	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30
S106	1058	(IN$2ga$2zn)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 02:33
S107	268	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" | "7402506" | "7411209" | "8030663" | "8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" | "8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" | "20090152506" | "5744864" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01

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S108	6320	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S109	368	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S110	77	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S111	6569	S108 S109 S110	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01
S112	143950	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S113	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S114	1895	S112 and S113	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S115	617	S111 and S114	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01
S116	133	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" | "7402506" | "7411209" | "8030663" |	US-PGPUB; USPAT; FPRS; EPO; JPO; IBM_TDB	OR	ON	2013/08/12 09:02

		"8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" | "8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" | "20090152506" | "5744864" | "6586346" | "6727522" | "6960812" | "7064346" | "7282782" | "7298084" | "7301211" | "7468304" | "20090186445" | "8368079" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20060292726" | "20070046191" | "20070108446" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20080308804" | "20080308805" | "20090065771" | "20090114910" | "20100092800" | "20120058599" | "7105868" | "7297977" | "7323356" | "20100003783").PN.				
S117	2	"US 20130214270"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2013/12/11 01:46
S118	1	("20060033098").PN.	US-PGPUB; USPAT	OR	OFF	2013/12/11 01:57
S119	6558	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S120	385	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S121	82	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S122	6814	S119 S120 S121	US-PGPUB;	OR	ON	2013/12/11

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			02:41
S123	148280	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S124	12541	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S125	1990	S123 and S124	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S126	649	S122 and S125	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/12/11 02:41
S127	6765	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S128	395	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S129	87	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S130	7028	S127 S128 S129	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S131	151627	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S132	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S133	2067	S131 and S132	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S134	680	S130 and S133	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S135	9	"2008205451"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S136	10	"2005223049"	US-PGPUB;	OR	ON	2014/03/23

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			19:34
S137	3	"07064112"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S138	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S139	6584	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S140	48	((angle taper gradation stair) near3 (source drain)) and S138 and S139	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S141	4077	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S142	18	((angle taper gradation stair) near3 (source drain)) and S138 and S141	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S143	1947	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S144	17	((angle taper gradation stair) near3 (source drain)) and S138 and S143	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S145	17	S144	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S146	320	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S147	72	S140 S142 S144	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:58
S151	7097	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S152	423	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S153	98	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S154	7378	S151 S152 S153	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 07:57
S155	157340	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT;	OR	ON	2014/08/25 07:57

			USOCR			
S156	13935	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 07:57
S157	2186	S155 and S156	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 07:57
S158	721	S154 and S157	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 07:57
S159	318	("20080128689" | "20030189401" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "20050050897" | "7323368" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20110318916" | "8030663" | "8115201" | "20120132910" | "20090114917" | "20100044711" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7462862" | "7732819" | "20100117086" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080254569" | "20080258140" | "20090278122" | "20090280600" | "7049190" | "20060027804" | "20070172591" | "20080296568" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "7211825" | "7453065" | "6532045" | "7674650" | "20080182358" | "20090073325" | "7453087" | "7501293" | "8021917" | "20070072439" | "20070158652" | "7298084" | "20070187760" | "20080308797" | "5744864" | "6586346" | "6727522" | "6960812" | "7301211" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070090365" | "20080166834" | "20090134399" | "7064346" | "7282782" | "7468304" | "20050056897" | "20070108446" | "20070272922" | "20080308804" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 08:16

		"20080308805" | "20090065771" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20070046191" | "20070252928" | "20080073653" | "20080129195" | "20080258143" | "20090114910" | "7105868" | "7297977" | "7323356" | "20120058599" | "20060292726").PN.				
S160	1802	S157 and ("257".clas. "438".clas.)	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 08:50
S161	11	("3890632" | "4015279" | "4054894" | "4252574" | "4272880" | "5041913" | "5075244" | "5498894" | "5652453" | "5698885" | "6060751").PN. OR ("6600196").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 08:56
S162	23	("2005/0205870").URPN.	USPAT	OR	ON	2014/08/25 09:00
S163	34	S161 S162	USPAT	OR	ON	2014/08/25 09:13
S164	5	("2006/0033098").URPN.	USPAT	OR	ON	2014/08/25 09:46
S165	59	("20010046611" | "20020045289" | "20020093283" | "20020101154" | "20020121860" | "20020139303" | "20030015698" | "20030085398" | "20030092214" | "20030092232" | "20030213952" | "20030218166" | "20040012017" | "20040075093" | "20040108562" | "20040161192" | "20040206959" | "20050042548" | "20050057136" | "20050084712" | "20050098207" | "20050170208" | "20050248267" | "20060008740" | "20060020136" | "20060033098" | "20060043346" | "20060046096" | "20060118166" | "20060180812" | "20060228822" | "20060232203" | "20060237731" | "20060238112" | "20060270066" | "20060273303" | "20070007516" | "20070031701" | "20080048183" | "20080099757" | "20090267077" | "4981768" | "5487953" | "6486601" | "6589673" | "6951694" | "7158161" | "7387904" | "7462883" | "7521855" | "7545840" | "7560735" | "7605534" | "7626198" | "7649197" | "7667389" | "7683532" | "7714501").PN. OR ("8049208").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 09:48
S166	17	("2004/0012017").URPN.	USPAT	OR	ON	2014/08/25 09:51
S167	11	("2004/0108562").URPN.	USPAT	OR	ON	2014/08/25 09:53
S168	1	("20090134383").PN.	US-PGPUB; USPAT	OR	OFF	2014/08/25 10:08
S169	9	"2006126363"	US-PGPUB; USPAT;	OR	ON	2014/08/25 10:11

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S170	40	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$ or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2014/08/25 10:56
S171	16	S170 and buffer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 10:56
S173	7408	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S174	447	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S175	102	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S176	7696	S173 S174 S175	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:41
S177	161896	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41
S178	14662	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41
S179	2301	S177 and S178	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41

S180	767	S176 and S179	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:41
S181	40	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$ or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2014/12/23 22:41
S182	3792	(257/43).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:46
S183	2191	(257/e29.151).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:46
S184	2413	(257/e21.414).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S185	2127	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S186	2423	(438/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S187	127	S185 and S186	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S188	1321	S178 and S182	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S189	453	S178 and S183	US-PGPUB; USPAT; USOCR;	OR	ON	2014/12/23 22:48

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S190	919	S178 and S184	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S191	2471	S188 S189 S190	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S192	416	S179 and (S185 S186)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:49
S193	4	"42621714".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2014/12/23 22:51
S194	137	("20010046027" | "20020056838" | "20020132454" | "20030189401" | "20030218222" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060035452" | "20060043377" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060154397" | "20060169973" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070057261" | "20070072439" | "20070090365" | "20070108446" | "20070152217" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080203387" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080296568" | "20080308796" | "20080308797"	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:51

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S201	1	("20070072439").PN.	US-PGPUB; USPAT	OR	OFF	2015/02/26 01:39
S202	7544	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
S203	462	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
S204	107	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
S205	7840	S202 S203 S204	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/26 02:17
S206	164051	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/26 02:17
S207	15029	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/26 02:17
S208	2358	S206 and S207	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/26 02:17
S209	787	S205 and S208	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/26 02:17

S210	167	US-7323368-$.DID. OR US-20070272922-$.DID. OR US-20070158652-$.DID. OR US-20080128689-$.DID. OR US-7298084-$.DID. OR US-6532045-$.DID. OR US-20070108446-$.DID. OR US-20070072439-$.DID. OR US-5847410-$.DID. OR US-6586346-$.DID. OR US-20030189401-$.DID. OR US-6960812-$.DID. OR US-6727522-$.DID. OR US-7061014-$.DID. OR US-20080296568-$.DID. OR US-20080308806-$.DID. OR US-20080308805-$.DID. OR US-20080308804-$.DID. OR US-20080308797-$.DID. OR JP-2007123861-$.DID. OR JP-05172007-$.DID. OR JP-03231472-$.DID. OR JP-10151991-$.DID. OR US-1505377-$.DID. OR US-20080308796-$.DID. OR US-20090008639-$.DID. OR US-20070172591-$.DID. OR US-20070187760-$.DID. OR US-20080203387-$.DID. OR US-20090065771-$.DID. OR US-7301211-$.DID. OR US-20060244107-$.DID. OR US-5744864-$.DID. OR US-20100025678-$.DID. OR US-7674650-$.DID. OR US-6563174-$.DID. OR US-20070152217-$.DID. OR US-20060035452-$.DID. OR US-20040127038-$.DID. OR US-20080182358-$.DID. OR US-20060292777-$.DID. OR US-20070187678-$.DID. OR US-20060284172-$.DID. OR JP-08264794-$.DID. OR JP-10111996-$.DID. OR JP-2007250983-$.DID. OR JP-09272007-$.DID. OR WO-2004114391-$.DID. OR US-4451680-$.DID. OR US-7385224-$.DID. OR US-20080129195-$.DID. OR US-20080258139-$.DID. OR US-20070252928-$.DID. OR US-7501293-$.DID. OR US-7064346-$.DID. OR US-20080106191-$.DID. OR US-5731856-$.DID. OR US-20060231882-$.DID. OR US-20080258143-$.DID. OR US-20080166834-$.DID. OR US-20060238135-$.DID. OR US-20060208977-$.DID. OR US-20090073325-$.DID. OR US-20090068773-$.DID. OR US-20080258140-$.DID. OR US-7402506-$.DID. OR US-20060284171-$.DID. OR US-20090152541-$.DID. OR JP-2003086808-$.DID. OR JP-03202003-$.DID. OR JP-60198861-$.DID. OR JP-10081985-$.DID. OR JP-63210022-$.DID. OR JP-63210023-$.DID. OR JP-08311988-$.DID. OR JP-63210024-$.DID. OR US-20080050595-$.DID. OR US-7105868-$.DID. OR US-20020056838-$.DID. OR US-20020132454-$.DID. OR US-20080083950-$.DID. OR US-	US-PGPUB; USPAT; USOCR; JPO	OR	ON	2015/02/26 02:17

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S212	2	"US 20140339556"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2015/06/18 00:26
S213	43	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$ or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$ or US-20100213461-$ or US-20070072439-$ or US-20140339556-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:28
S214	11296	H01L29/7869.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
S215	6973	H01L27/1225.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
S216	4396	H01L29/41733.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
S217	8780	H01L29/4908.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34

S218	1346	H01L51/105.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
S219	1927	H01L51/0508.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
S220	2050	H01L51/0512.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
S221	8728	H01L51/0545.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:35
S223	11749	S219 S220 S221	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:35
S225	6927	S215 not S223	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:35
S227	13924	S216 S217 S218	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:36
S228	12057	S227 not (S223 S225)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:36
S229	167947	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2015/06/18 00:37
S230	412	S229 and S223	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
S231	660	S229 and S225	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
S232	1225	S229 and S228	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
S233	2297	S230 S231 S232	US-PGPUB;	OR	ON	2015/06/18

			USPAT; FPRS; JPO; DERWENT			00:37
S234	2073	S233 and ((thin adj film) tft)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
S235	1364	S234 and ((source drain) with metal)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
S236	6390	(angle taper$3 step$3 gradation stair indent$5) near3 ((source drain) adj (layer electrode film))	US-PGPUB; USPAT; USOCR	OR	ON	2015/06/18 00:39
S237	3100	S236 and ((thin adj film) tft) and ((source drain) with metal)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
S238	216	S237 and S223	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
S239	578	S237 and S225	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
S240	380	S237 and S228	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
S241	1174	S238 S239 S240	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
S242	454	S241 and (@ay<"2010")	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:42
S243	4169	(shape) near3 ((source drain) adj (layer electrode film))	US-PGPUB; USPAT; USOCR	OR	ON	2015/06/18 01:06
S244	1986	S243 and ((thin adj film) tft) and ((source drain) with metal)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 01:07
S245	1111	S244 and (@ay<"2010")	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 01:07

S251	50	US-8937580-$.DID. OR US-20150123109-$.DID. OR US-20150248859-$.DID. OR US-8243055-$.DID. OR US-8477085-$.DID. OR US-7224333-$.DID. OR US-9153168-$.DID. OR US-7375705-$.DID. OR US-20110057958-$.DID. OR US-7250928-$.DID. OR US-20080036698-$.DID. OR US-7696513-$.DID. OR US-6462722-$.DID. OR US-6522315-$.DID. OR US-6839045-$.DID. OR US-7180483-$.DID. OR US-7221339-$.DID. OR US-7253793-$.DID. OR US-7710364-$.DID. OR JP-2005092188-$.DID. OR JP-04072005-$.DID. OR JP-2004046218-$.DID. OR JP-02122004-$.DID. OR US-7880696-$.DID. OR US-8154199-$.DID. OR US-8188647-$.DID. OR US-8247967-$.DID. OR US-8354978-$.DID. OR US-8362489-$.DID. OR US-20030231273-$.DID. OR US-20080246700-$.DID. OR US-20120299902-$.DID. OR JP-2003195814-$.DID. OR JP-07092003-$.DID. OR JP-2007250984-$.DID. OR JP-09272007-$.DID. OR WO-2007119321-$.DID. OR EP-0917127-$.DID. OR EP-05191999-$.DID. OR US-1255240-$.DID. OR US-1336953-$.DID. OR US-1337131-$.DID. OR US-1359789-$.DID. OR US-1363265-$.DID. OR EP-1619654-$.DID. OR EP-01252006-$.DID. OR EP-1830342-$.DID. OR EP-09052007-$.DID. OR US-1830343-$.DID. OR US-1830344-$.DID.	US-PGPUB; USPAT; USOCR; JPO	OR	ON	2015/10/27 18:17

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S92	1300	(257/57).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:18
S93	16	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and oxide and (angle with (bottom top))).clm.	US-PGPUB; USPAT	OR	ON	2012/09/26 23:11
S94	9	(((source adj electrode) with (angle with (bottom top))) and ((drain adj electrode) with (angle with (bottom top)))).clm.	US-PGPUB; USPAT	OR	ON	2012/09/26 23:13
S148	1694	(257/57).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:32
S149	12	(((source adj electrode) with (angle with (bottom top))) and ((drain adj electrode) with (angle with (bottom top)))).clm.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:32
S150	21	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and oxide and (angle with (bottom top))).clm.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:32
S172	1	"Term Removed"	USPAT	OR	ON	2014/08/25 10:56

S195	1	"Term Removed"	USPAT	OR	ON	2014/12/23 22:41
S196	1827	(257/57).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:41
S197	179	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and (oxide adj semiconductor) and (step near5 (source drain))).clm.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:42
S198	311	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and (oxide adj semiconductor) and (step with step with (source drain))).clm.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:43
S199	9	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and (oxide adj semiconductor) and (step with side with (source drain))).clm.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:43
S200	180	("20010030323" | "20010046027" | "20020044111" | "20020056838" | "20020132454" | "20020185466" | "20030189401" | "20030218222" | "20040038446" | "20040127038" | "20040263757" | "20050017302" | "20050199959" | "20060035452" | "20060043377" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060169973" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060267141" | "20060284171" | "20060284172" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070096816" | "20070108446" | "20070152217" | "20070170434" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070249104" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080143653" | "20080166834" | "20080176364" | "20080182358" | "20080203387" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080296568" | "20080308796" | "20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008638" | "20090008639" | "20090009677" | "20090033818" | "20090057683" | "20090061574" | "20090065771" | "20090068773" | "20090072232" | "20090073325" | "20090114910"	US-PGPUB; USPAT	OR	ON	2014/12/23 22:43

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S246	1	"Term Removed"	USPAT	OR	ON	2015/06/18 00:28
S247	1028	H01L29/41733.cpc.	US-PGPUB	OR	ON	2015/06/18 01:05
S248	911	H01L29/41733.cpc.	USPAT	OR	ON	2015/06/18 01:05
S249	1309	(substrate and gate and source and drain and ((sidewall (side adj surface)) near5 step)).clm.	US-PGPUB; USPAT	OR	ON	2015/06/18 01:11
S250	88	(substrate and gate and source and drain and ((sidewall (side adj surface)) near5 step) and (oxide adj semiconductor) and metal).clm.	US-PGPUB; USPAT	OR	ON	2015/06/18 01:11

11/2/2015 8:55:03 PM
C:\Users\jjoy\Documents\EAST\Workspaces\14451680.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	Art Unit
	JEREMY JOY	2896

CPC- SEARCHED		
Symbol	Date	Examiner
H01L29/7869, 49080	6/17/2015	Jeremy J. Joy
H01L27/1225	6/17/2015	Jeremy J. Joy
H01L51/105, 0508, 0512, 0545	6/17/2015	Jeremy J. Joy

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
See search notes from parent applications 12/613,769 and 13/763874	8/25/2014	Jeremy J. Joy
General keyword and EAST search is attached.	8/25/2014	Jeremy J. Joy
General keyword and EAST search is attached.	2/26/2015	Jeremy J. Joy
General keyword, interference and EAST search is attached.	6/18/2015	Jeremy J. Joy
General keyword, interference and EAST search is attached.	11/2/2015	Jeremy J. Joy

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
H01L29	41733	6/18/2015	Jeremy J. Joy

/JEREMY JOY/ Examiner.Art Unit 2816	November 2, 2015

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

PATENT WITHDRAWAL NOTICE

DATE WITHDRAWN	WITHDRAWAL NUMBER
10/27/2015	30928

The following application has been **WITHDRAWN** from the

11/10/2015 issue.

SERIAL NO.	PATENT NUMBER
14451680	9184249

TITLE

SEMICONDUCTOR DEVICE

NAME AND ADDRESS

SHUNPEI YAMAZAKI
Setagaya, JP

REASON FOR WITHDRAWAL

Auto-petition to withdraw - Granted
-

APPROVED

/Kimberly Terrell/, Manager

Patent Publication Branch
Office of Data Management

FORM PTO-302 -- (REV. 05-2009)

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14/451,680	Filing Date	2014-08-05	Docket Number (if applicable)	0756-10566	Art Unit	2816
First Named Inventor	Shunpei YAMAZAKI et al.			Examiner Name	Jeremy J. Joy		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☐ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☒ Other
Petition to Withdraw from Issue

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 502280

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature
☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Signature of Registered U.S. Patent Practitioner			
Signature	/Eric J. Robinson/	Date (YYYY-MM-DD)	2015-10-26
Name	Eric J. Robinson	Registration Number	38285

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Attorney Docket No. 0756-10566

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Confirmation No. 5776
Shunpei YAMAZAKI et al.	)	Group Art Unit: 2816
Serial No. 14/451,680	)	Examiner: Jeremy J. Joy
Filed: August 5, 2014	)	
For: SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF	)	

INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with the provisions of 37 C.F.R. § 1.56 and 37 C.F.R. §§ 1.97-1.99, Applicant submits herewith a Form PTO-1449 listing information known to Applicant and requests that this information be made of record in the above identified application. Copies are submitted herewith in accordance with 37 C.F.R. § 1.98(a).

Except as provided below, in accordance with 37 C.F.R. § 1.97(e), it is certified that each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement.

Unless otherwise noted, the references submitted were cited by the Japanese Patent Office in counterpart Japanese Patent Application No. 2014-206901 in an Office Action mailed October 13, 2015.

U.S. Patent No. 8,937,580 and U.S. Publication Nos. 2015/0123109 and 2015/0248859 are in the family of JP 2005-092188. These references were not directly

cited by the foreign patent office, but are submitted herewith for consideration by the Examiner.

U.S. Patent No. 8,243,055 and WO 2008/075697 are in the family of JP 2008-176287. These references were not directly cited by the foreign patent office, but are submitted herewith for consideration by the Examiner.

U.S. Patent No. 8,477,085 is in the family of JP 2008-151963. This reference was not directly cited by the foreign patent office, but is submitted herewith for consideration by the Examiner.

U.S. Patent No. 7,224,333 is in the family of JP 2003-280587. This reference was not directly cited by the foreign patent office, but is submitted herewith for consideration by the Examiner.

U.S. Patent No. 9,153,168 is in the family of JP 2004-046218. This reference was not directly cited by the foreign patent office, but is submitted herewith for consideration by the Examiner.

U.S. Patent No. 7,375,705 and U.S. Publication No. 2011/0057958 are in the family of JP 2005-266346. These references were not directly cited by the foreign patent office, but are submitted herewith for consideration by the Examiner.

U.S. Patent No. 7,250,928 is in the family of JP 2003-195814. This reference was not directly cited by the foreign patent office, but is submitted herewith for consideration by the Examiner.

U.S. Publication No. 2008/0036698 is in the family of JP 2008-042043. This reference was not directly cited by the foreign patent office, but is submitted herewith for consideration by the Examiner.

U.S. Patent No. 7,696,513 and WO 2007/119321 are in the family of JP 2007-250984. These references were not directly cited by the foreign patent office, but are submitted herewith for consideration by the Examiner.

U.S. Patent Nos. 6,462,722; 6,522,315; 6,839,045; 7,180,483; 7,221,339; 7,253,793; 7,710,364; 7,880,696; 8,154,199; 8,188,647; 8,247,967; 8,354,978;

8,362,489; U.S. Publication Nos. 2003/0231273; 2008/0246700; 2012/0299902; EP 0 895 219; EP 0 917 127; EP 1 255 240; EP 1 336 953; EP 1 337 131; EP 1 359 789; EP 1 363 265; EP 1 619 654; EP 1 830 342; EP 1 830 343 and EP 1 830 344 are in the family of WO 1998/036407. These references were not directly cited by the foreign patent office, but are submitted herewith for consideration by the Examiner.

This Information Disclosure Statement is being submitted with a RCE. Therefore, no fee is required.

The Commissioner is hereby authorized to charge fees under 37 C.F.R. §§ 1.16, 1.17, 1.20(a), 1.20(b), 1.20(c), and 1.20(d) (except the Issue Fee) which may be required now or hereafter, or credit any overpayment to Deposit Account No. 50-2280.

Respectfully submitted,

Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, Virginia 22033
(571) 434-6789

PTO/SB/08A (07-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 5

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2816
Examiner Name	J. JOY
Attorney Docket Number	0756-10566

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-8,937,580	01-20-2015	Miyagawa.K	
		US-2015/0123109	05-07-2015	Miyagawa.K	
		US-2015/0248859	09-03-2015	Miyagawa.K	
		US-8,243,055	08-14-2012	Abe.K	
		US-8,477,085	07-02-2013	Shishido.H	
		US-7,224,333	05-29-2007	Yamazaki.S et al.	
		US-9,153,168	10-06-2015	Osame.M et al.	
		US-7,375,705	05-20-2008	Morita.A	
		US-2011/0057958	03-10-2011	Morita.A	
		US-7,250,928	07-31-2007	Yamazaki.S et al.	
		US-2008/0036698	02-14-2008	Kawasaki.M et al.	
		US-7,696,513	04-13-2010	Hayashi.R et al.	
		US-6,462,722	10-08-2002	Kimura.M et al.	
		US-6,522,315	02-18-2003	Ozawa.T et al.	
		US-6,839,045	01-04-2005	Ozawa.T et al.	
		US-7,180,483	02-20-2007	Kimura.M et al.	
		US-7,221,339	05-22-2007	Ozawa.T et al.	
		US-7,253,793	08-07-2007	Ozawa.T et al.	
		US-7,710,364	05-04-2010	Ozawa.T et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] -Number[4] -Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		JP-2005-092188A	04-07-2005			Abst.
		JP-2008-176287A	07-31-2008			Abst.
		JP-2008-151963A	07-03-2008			Abst.
		JP-2003-280587A	10-02-2003			Abst.
		JP-2006-227238A	08-31-2006			Abst.
		JP-2004-046218A	02-12-2004			Abst.

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/451,680
				Filing Date	August 5, 2014
				First Named Inventor	Shunpei YAMAZAKI
(Use as many sheets as necessary)				Art Unit	2816
				Examiner Name	J. JOY
Sheet	2	of	5	Attorney Docket Number	0756-10566

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-7,880,696	02-01-2011	Ozawa.T et al.	
		US-8,154,199	04-10-2012	Ozawa.T et al.	
		US-8,188,647	05-29-2012	Kimura.M et al.	
		US-8,247,967	08-21-2012	Ozawa.T et al.	
		US-8,354,978	01-15-2013	Ozawa.T et al.	
		US-8,362,489	01-29-2013	Kimura.M et al.	
		US-2003/0231273	12-18-2003	Kimura.M et al.	
		US-2008/0246700	10-09-2008	Ozawa.T et al.	
		US-2012/0299902	11-29-2012	Ozawa.T et al.	

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Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] -Number[4] -Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		JP-2008-241783A	10-09-2008			Abst.
		JP-2005-266346A	09-29-2005			Abst.
		JP-2006-165527A	06-22-2006			Abst.
		JP-2006-286719A	10-19-2006			Abst.
		JP-2003-195814A	07-09-2003			Abst.
		JP-2008-042043A	02-21-2008			Abst.

Examiner Signature		Date Considered	

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PTO/SB/08A (07-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 5

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2816
Examiner Name	J. JOY
Attorney Docket Number	0756-10566

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		JP-2007-250984A	09-27-2007			Abst.
		JP-2005-354036A	12-22-2005			Abst.
		WO-1998/036407	08-20-1998			Abst.
		WO-2008/075697	06-26-2008			Eng.
		WO-2007/119321	10-25-2007			Eng.
		EP-0895219A	02-03-1999			Eng.

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08A (07-06)
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 4 of 5

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2816
Examiner Name	J. JOY
Attorney Docket Number	0756-10566

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] -Number[4] -Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		EP-0917127A	05-19-1999			Eng.
		EP-1255240A	11-06-2002			Eng.
		EP-1336953A	08-20-2003			Eng.
		EP-1337131A	08-20-2003			Eng.
		EP-1359789A	11-05-2003			Eng.
		EP-1363265A	11-19-2003			Eng.

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08A (07-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 5 of 5

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2816
Examiner Name	J. JOY
Attorney Docket Number	0756-10566

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] -Number[4] -Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		EP-1619654A	01-25-2006			Eng.
		EP-1830342A	09-05-2007			Eng.
		EP-1830343A	09-05-2007			Eng.
		EP-1830344A	09-05-2007			Eng.

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web	PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)**
Application Number	14451680
Filing Date	05-Aug-2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2816
Examiner Name	JEREMY JOY
Attorney Docket Number	0756-10566
Title	SEMICONDUCTOR DEVICE

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:
(1) Petition fee; and
(2) One of the following reasons:
(a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
(b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
(c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee

◯	Small Entity
◯	Micro Entity
◉	Regular Undiscounted

Reason for withdrawal from issue

◯ One or more claims are unpatentable ◉ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees) ◯ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).
RCE request,submission, and fee. ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that : The RCE request ,submission, and fee have already been filed in the above-identified application on ☒ Are attached.
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application. ◯ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity. ◯ A sole inventor ◯ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ◯ A joint inventor; all of whom are signing this e-petition

Signature	/Eric J. Robinson/
Name	Eric J. Robinson
Registration Number	38285

Electronic Patent Application Fee Transmittal

Application Number:	14451680
Filing Date:	05-Aug-2014
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Filer:	Eric J. Robinson/Adele Stamper
Attorney Docket Number:	0756-10566

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Petition fee- 37 CFR 1.17(h) (Group III)	1464	1	140	140
Request for Continued Examination	1801	1	1200	1200
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1340**

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : October 26, 2015

In re Application of :

Shunpei YAMAZAKI

DECISION ON PETITION

UNDER CFR 1.313(c)(2)

Application No : 14451680

Filed : 05-Aug-2014

Attorney Docket No : 0756-10566

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed October 26, 2015 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 2816 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt

EFS ID:	23867499
Application Number:	14451680
International Application Number:	
Confirmation Number:	5776
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Customer Number:	31780
Filer:	Eric J. Robinson/Adele Stamper
Filer Authorized By:	Eric J. Robinson
Attorney Docket Number:	0756-10566
Receipt Date:	26-OCT-2015
Filing Date:	05-AUG-2014
Time Stamp:	13:11:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Electronic Funds Transfer
Payment was successfully received in RAM	$1340
RAM confirmation Number	10131
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Other Reference-Patent/App/Search documents	JP_2005092188.pdf	6102017 80cbcc6c49fffb7f518dc4581c729e0a680c4d8d	no	35
Warnings:					
Information:					
2	Other Reference-Patent/App/Search documents	JP_2008176287.pdf	5314665 8ba90d8d6be8b30cbe0b15fad92c93a55e643f38	no	33
Warnings:					
Information:					
3	Other Reference-Patent/App/Search documents	JP_2008151963.pdf	14170885 35419b16d4252fe8f3c368bc39aca810013a53de	no	82
Warnings:					
Information:					
4	Other Reference-Patent/App/Search documents	JP_2003280587.pdf	3495812 1aa6e81c1e6097a7dde2cb508f318b30146d9e9a	no	20
Warnings:					
Information:					
5	Other Reference-Patent/App/Search documents	JP_2006227238.pdf	3322077 bda5e1f3273ee13ecd6ce74ec3f19905369c484e	no	21
Warnings:					
Information:					
6	Other Reference-Patent/App/Search documents	JP_2004046218.pdf	2431615 d9aad8c971256bda6aad9f7e91faefad29f47245	no	14
Warnings:					
Information:					
7	Request for Continued Examination (RCE)	RCE_26OCT2015.pdf	697933 27272e48a688490a47e78af90d55154228f0142b	no	3
Warnings:					
Information:					

8	Other Reference-Patent/App/Search documents	JP_2008241783.pdf	3319194 3c73e2343ba2f38bcdbb6a8af221f517a3938d30	no	21
Warnings:					
Information:					
9	Other Reference-Patent/App/Search documents	JP_2005266346.pdf	6137994 fcd82b8156e36deb67687d0e9405f24b658f539c	no	38
Warnings:					
Information:					
10	Other Reference-Patent/App/Search documents	JP_2006165527.pdf	5059391 dfcc2cf7af49c89bd9cb2741c6ca80145f5694ef	no	38
Warnings:					
Information:					
11	Other Reference-Patent/App/Search documents	JP_2006286719.pdf	2436966 661054eb565973c48bb5281e0e61280c50fd6b82	no	16
Warnings:					
Information:					
12	Other Reference-Patent/App/Search documents	JP_2003195814.pdf	7355604 19524f2b45764066248837250889eec1823cdc5a	no	37
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13	Other Reference-Patent/App/Search documents	JP_2008042043.pdf	3605649 10446fe2820c6722ec1420de71bfd81798a3ade8	no	21
Warnings:					
Information:					
14	Other Reference-Patent/App/Search documents	JP_2007250984.pdf	3280528 9441995883ce7b01900177a691bc452dba1a0b9c	no	21
Warnings:					
Information:					
15	Other Reference-Patent/App/Search documents	JP_2005354036.pdf	1625586 2b2a0f1c8964c2a31e5872b2469801c9db8267a1	no	11
Warnings:					
Information:					
16	Other Reference-Patent/App/Search documents	WO_98036407.pdf	9866975 a62fe019614c3f8228e8c5284659736f50e5976d	no	89
Warnings:					
Information:					

17	Other Reference-Patent/App/Search documents	WO_2008075697.pdf	9769101 af25e18b5f4b8edad9dd24687c3cebddb36bbe4a	no	90
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Information:					
18	Other Reference-Patent/App/Search documents	WO_2007119321.pdf	4786612 d8072cc3ee80ab2048c5ec477ea6b5a3a8ad2c1a	no	44
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Information:					
19	Other Reference-Patent/App/Search documents	EP_0895219.pdf	8859922 303d1b051bcc80c757d87d849012bf1ad8da3e9b	no	52
Warnings:					
Information:					
20	Other Reference-Patent/App/Search documents	EP_0917127.pdf	1308930 cd4a3fd4b5f8bf633d07bcb3fb938bec988e32b2	no	20
Warnings:					
Information:					
21	Other Reference-Patent/App/Search documents	EP_1255240.pdf	7123418 75d314da31c6a46b25e6c6baeaff95e118e91192	no	52
Warnings:					
Information:					
22	Other Reference-Patent/App/Search documents	EP_1336953.pdf	7049836 e93159c490b640f11fdd0609a23550afa0ea1831	no	50
Warnings:					
Information:					
23	Other Reference-Patent/App/Search documents	EP_1337131.pdf	1080013 7a07c1b3af1989335e27bf90b4a11b9fcf96d45b	no	19
Warnings:					
Information:					
24	Other Reference-Patent/App/Search documents	EP_1359789.pdf	7095070 5da6c85c3ada123a9c6f9a772412f23511e468d5	no	52
Warnings:					
Information:					
25	Other Reference-Patent/App/Search documents	EP_1363265.pdf	2892285 7551aab94f79081c4a24c4e297b0de03b0799f9b	no	19
Warnings:					
Information:					

26	Other Reference-Patent/App/Search documents	EP_1619654.pdf	2951136 6e180bc76783132ec42407d6944f2378191b21a3	no	21
Warnings:					
Information:					
27	Other Reference-Patent/App/Search documents	EP_1830342.pdf	7187749 b841a20fd0cf0161e0875a537ce55159c093dbbb	no	50
Warnings:					
Information:					
28	Other Reference-Patent/App/Search documents	EP_1830343.pdf	7124001 850fd2493f40feee10d896da8e367eb491bcae92	no	50
Warnings:					
Information:					
29	Other Reference-Patent/App/Search documents	EP_1830344.pdf	7120962 5d8ea9eaa30136fb8bfe986f6732551b1fdceff1	no	49
Warnings:					
Information:					
30		IDS_26OCT2015_075610556.pdf	1300262 d08ab91b67c21179db5796ac085b248ebf3f2044	yes	8

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Other Reference-Patent/App/Search documents	1	3
Other Reference-Patent/App/Search documents	4	8

Warnings:					
Information:					
31	Petition automatically granted by EFS	petition-request.pdf	31509 4d34688bf8dcec36247b515cb911fabb27f804b0	no	2
Warnings:					
Information:					
32	Fee Worksheet (SB06)	fee-info.pdf	32396 d33746f3ca6f873cc9305c441c3f7fd6eee55877	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	153936093		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	11/10/2015	9184249	0756-10566	5776

31780 7590 10/21/2015

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Shunpei YAMAZAKI, Setagaya, JAPAN;
Semiconductor Energy Laboratory Co., Ltd., Atsugi-shi, JAPAN;
Kengo AKIMOTO, Atsugi, JAPAN;
Daisuke KAWAE, Yamato, JAPAN;

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

31780 7590 07/06/2015
Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

TITLE OF INVENTION: SEMICONDUCTOR DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	10/06/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
JOY, JEREMY J	2816	257-043000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

Eric J. Robinson,
Robinson Intellectual
Property Law Office, P.C.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Semiconductor Energy Laboratory Co., Ltd.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Atsugi-shi, Kanagawa-ken, Japan

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☒ Advance Order - # of Copies 2

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-2280 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date October 6, 2015

Typed or printed name Eric J. Robinson Registration No. 38,285

Electronic Patent Application Fee Transmittal

Application Number:	14451680
Filing Date:	05-Aug-2014
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Filer:	Eric J. Robinson/Sue Ann Carr
Attorney Docket Number:	0756-10566

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
Printed Copy of Patent - No Color	8001	2	3	6
		Total in USD ($)		**966**

Electronic Acknowledgement Receipt

EFS ID:	23695675
Application Number:	14451680
International Application Number:	
Confirmation Number:	5776
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Customer Number:	31780
Filer:	Eric J. Robinson/Sue Ann Carr
Filer Authorized By:	Eric J. Robinson
Attorney Docket Number:	0756-10566
Receipt Date:	06-OCT-2015
Filing Date:	05-AUG-2014
Time Stamp:	08:10:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Electronic Funds Transfer
Payment was successfully received in RAM	$966
RAM confirmation Number	8490
Deposit Account	
Authorized User	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	IF.pdf	220916 8e23fb0456be979119f94097b754a5653b3e0564	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32238 3a92928a1360f3ecc9628ed2a37dd685b54e0fb3	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	253154		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
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NOTICE OF ALLOWANCE AND FEE(S) DUE

31780 7590 07/06/2015

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3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

EXAMINER
JOY, JEREMY J

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 07/06/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

TITLE OF INVENTION: SEMICONDUCTOR DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	10/06/2015

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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Alexandria, Virginia 22313-1450
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31780 7590 07/06/2015
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Suite 20 North
Fairfax, VA 22033

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Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

TITLE OF INVENTION: SEMICONDUCTOR DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	10/06/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
JOY, JEREMY J	2816	257-043000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

31780 7590 07/06/2015

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

EXAMINER	
JOY, JEREMY J	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 07/06/2015

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/451,680	Applicant(s) YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2816	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *response after final action filed on 05/15/2015*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *2-21*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☒ All b) ☐ Some *c) ☐ None of the:
   1. ☒ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/JEREMY JOY/
Examiner, Art Unit 2816

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 05/15/2015, with respect to the previous rejection have been fully considered and are persuasive. Therefore it has been withdrawn.

Allowable Subject Matter

2. Claims **2-21** are allowed over the prior art.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

3. Claims 2-21 are allowed because the prior art of record neither anticipate nor rendered obvious the limitations of base claims 2 and 11 including "a first metal film and a second metal film over the gate insulating film; … wherein a side surface of the first metal film faces a side surface of the second metal film, and wherein each of the side surface of the first metal film and the side surface of the second metal film has a step in a lower end portion thereof" and the limitations of base claim In particular, the prior art of record falls short with regards to teaching a step portion formed in a lower portion of a side surface of a first metal film and a second metal film that face each other.

In example:

(i) *Furukawa et al.* (**U.S. Patent Pub. No. 2008/0099757**) teaches a glass substrate; a gate electrode over the glass substrate; a gate insulating film over the gate electrode; a first conductive film and a second conductive film over the gate insulating film; an organic semiconductor film in contact with the first and second conductive films; wherein a side surface of the first conductive film faces a side surface of the second conductive film; and wherein each of the side surface of the first conductive film and the side surface of the second conductive film has a step in a lower end portion thereof, but fails to specifically teach the first and second conductive films are first and second metal films and an oxide semiconductor film formed on the first and second metal films rather than the organic semiconductor film as disclosed

(ii) *Akimoto* (**U.S. Patent Pub. No. 2007/0108446**) teaches using a metal film to form a portion of the first and second conductive films (source/drain electrodes) and an oxide semiconductor film formed the first and second conductive films in a display device similar to that of the applicant, but fails to specifically teach that the metal film that forms a portion of the first and second conductive films would not be obvious to modify *Furukawa* with such that the first and second metal film portions would have a step in a lower portion thereof.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMY JOY whose telephone number is (571)270-7445. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571)272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEREMY JOY/
Examiner, Art Unit 2816
June 18, 2015

/MARVIN PAYEN/
Primary Examiner, Art Unit 2816

Notice of References Cited	Application/Control No. 14/451,680	Applicant(s)/Patent Under Reexamination YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2816	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2007/0108446	05-2007	Akimoto, Kengo	257/061
*	B	US-2007/0172591	07-2007	SEO et al.	427/248.1
*	C	US-2008/0038882	02-2008	Takechi et al.	438/151
*	D	US-2009/0114917	05-2009	YAMAZAKI et al.	257/59
*	E	US-2010/0044711	02-2010	IMAI, Shinji	257/59
*	F	US-2007/0072439	03-2007	Akimoto et al.	438/795
*	G	US-2006/0033098	02-2006	Shih et al.	257/040
*	H	US-2006/0027804	02-2006	Yamazaki et al.	257/059
*	I	US-2006/0292726	12-2006	Akimoto et al.	438/030
*	J	US-2008/0073653	03-2008	Iwasaki, Tatsuya	257/79
*	K	US-2005/0205870	09-2005	Yamazaki, Shunpei	257/072
*	L	US-2004/0108562	06-2004	Nagayama et al.	257/434
*	M	US-2008/0099757	05-2008	Furukawa et al.	257/40

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	Art Unit
	JEREMY JOY	2896

CPC- SEARCHED		
Symbol	Date	Examiner
H01L29/7869, 49080	6/17/2015	Jeremy J. Joy
H01L27/1225	6/17/2015	Jeremy J. Joy
H01L51/105, 0508, 0512, 0545	6/17/2015	Jeremy J. Joy

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
See search notes from parent applications 12/613,769 and 13/763874	8/25/2014	Jeremy J. Joy
General keyword and EAST search is attached.	8/25/2014	Jeremy J. Joy
General keyword and EAST search is attached.	2/26/2015	Jeremy J. Joy
General keyword, interference and EAST search is attached.	6/18/2015	Jeremy J. Joy

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
H01L29	41733	6/18/2015	Jeremy J. Joy

/JEREMY JOY/ Examiner.Art Unit 2816	June 18, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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BIB DATA SHEET

CONFIRMATION NO. 5776

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/451,680	08/05/2014	257	2816	0756-10566

APPLICANTS

Semiconductor Energy Laboratory Co., Ltd., Atsugi-shi, JAPAN;

INVENTORS

Shunpei YAMAZAKI, Setagaya, JAPAN;
Kengo AKIMOTO, Atsugi, JAPAN;
Daisuke KAWAE, Yamato, JAPAN;

**** CONTINUING DATA ***************************

This application is a CON of 13/763,874 02/11/2013 PAT 8803146
which is a CON of 12/613,769 11/06/2009 PAT 8373164
which is a CON of 12/606,262 10/27/2009 ABN

**** FOREIGN APPLICATIONS ***************************

JAPAN 2008-287187 11/07/2008

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

08/13/2014

Foreign Priority claimed ☑ Yes ☐ No 35 USC 119(a-d) conditions met ☑ Yes ☐ No Verified and Acknowledged /JEREMY J JOY/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		JAPAN	37	1	1

ADDRESS

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033
UNITED STATES

TITLE

SEMICONDUCTOR DEVICE

FILING FEE RECEIVED		
1600	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	Art Unit
	JEREMY JOY	2896

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/25/2014	02/26/2015	06/18/2015						
	1	-	-	-						
1	2	✓	✓	=						
2	3	✓	✓	=						
3	4	✓	✓	=						
4	5	✓	✓	=						
5	6	✓	✓	=						
6	7	✓	✓	=						
8	8	✓	✓	=						
9	9	✓	✓	=						
10	10	✓	✓	=						
11	11	✓	✓	=						
12	12	✓	✓	=						
13	13	✓	✓	=						
14	14	✓	✓	=						
15	15	✓	✓	=						
16	16	✓	✓	=						
18	17	✓	✓	=						
19	18	✓	✓	=						
20	19	✓	✓	=						
7	20		✓	=						
17	21		✓	=						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L188	2	"US 20140339556"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2015/06/18 00:26
L189	43	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$ or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$ or US-20100213461-$ or US-20070072439-$ or US-20140339556-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:28
L191	11296	H01L29/7869.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
L192	6973	H01L27/1225.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
L193	4396	H01L29/41733.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
L194	8780	H01L29/4908.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
L195	1346	H01L51/105.cpc.	US-PGPUB; USPAT;	OR	ON	2015/06/18 00:34

			FPRS; JPO; DERWENT			
L196	1927	H01L51/0508.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
L197	2050	H01L51/0512.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:34
L198	8728	H01L51/0545.cpc.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:35
L200	11749	196 197 198	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:35
L202	6927	192 not 200	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:35
L204	13924	193 194 195	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:36
L205	12057	204 not (200 202)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:36
L206	167947	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2015/06/18 00:37
L207	412	L206 and 200	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
L208	660	L206 and 202	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
L209	1225	L206 and 205	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
L210	2297	207 208 209	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
L211	2073	210 and ((thin adj film) tft)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
L212	1364	211 and ((source drain) with metal)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:37
L213	6390	(angle taper$3 step$3 gradation stair	US-PGPUB;	OR	ON	2015/06/18

		indent$5) near3 ((source drain) adj (layer electrode film))	USPAT; USOCR			00:39
L214	3100	213 and ((thin adj film) tft) and ((source drain) with metal)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
L215	216	214 and 200	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
L216	578	214 and 202	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
L217	380	214 and 205	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
L218	1174	215 216 217	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:40
L219	454	218 and (@ay<"2010")	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 00:42
L222	4169	(shape) near3 ((source drain) adj (layer electrode film))	US-PGPUB; USPAT; USOCR	OR	ON	2015/06/18 01:06
L223	1986	222 and ((thin adj film) tft) and ((source drain) with metal)	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 01:07
L224	1111	223 and (@ay<"2010")	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2015/06/18 01:07
S1	2	"US 20100117077"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 14:18
S2	1806	"257/43".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
S3	128	"257/E21.459".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
S4	1431	"438/158".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
S5	537	"257/E29.296".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
S6	1194	"257/57".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
S7	1225	"438/104".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
S8	5416	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:35
S9	274	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:35

S10	54	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:36
S11	109	("20080128689" | "20030189401" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "7323368" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7462862" | "7732819" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080254569" | "20080258140" | "20090278122" | "20090280600" | "7049190" | "20070172591" | "20080296568" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "7211825" | "7453065" | "6532045" | "7674650" | "20080182358" | "20090073325" | "7453087" | "7501293" | "20070072439" | "20070158652" | "7298084" | "20070187760" | "20080308797" | "5744864" | "6586346" | "6727522" | "6960812" | "7301211" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070090365" | "20080166834" | "20090134399" | "7064346" | "7282782" | "7468304" | "20070108446" | "20070272922" | "20080308804" | "20080308805" | "20090065771" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20070046191" | "20070252928" | "20080073653" | "20080129195" | "20080258143" | "20090114910" | "7105868" | "7297977" | "7323356").PN.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:36
S12	6	"2007123861"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/04/04 14:47
S13	7	"2007096055"	US-PGPUB;	OR	ON	2012/04/04

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			14:47
S14	41	("20020153587" | "20030013261" | "20030047785" | "20030111663" | "20030207502" | "20030218221" | "20030218222" | "20030219530" | "20040023432" | "4887255" | "5744864" | "6225655" | "6255130" | "6362499" | "6563174" | "7067843").PN. OR ("7282782").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:20
S15	51	("20020171085" | "20030047785" | "20030111663" | "20030218221" | "20030218222" | "20040023432" | "20040127038" | "20050017244" | "3294660" | "5289016" | "5744864" | "6362499" | "6391462" | "6727522").PN. OR ("7297977").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:21
S16	132	("20010046027" | "20020056838" | "20020109796" | "20020132454" | "20040038446" | "20040127038" | "20040132293" | "20050017302" | "20050199959" | "20050259206" | "20050275038" | "20060035452" | "20060086933" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060163743" | "20060169973" | "20060170067" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060286737" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070158652" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080198108" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080308796" | "20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090073325" | "20090114910" | "20090114911" | "20090134399" | "20090152541" | "20090153762" | "20090186437" | "20090186445" | "20090189155" | "20090189156" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:23

		"5530265" | "5696011" | "5701167" | "5731856" | "5817548" | "6294274" | "6532045" | "6674136" | "6727522" | "6852998" | "6900461" | "7009204" | "7049190").PN. OR ("7061014" | "7064346" | "7075614" | "7105868" | "7211825" | "7282782" | "7297977" | "7323356" | "7402506" | "7411209" | "7453065" | "7453087" | "7462862" | "7468304" | "7501293").PN. OR ("7674650").URPN.				
S17	9604	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S18	4685	S17 and ((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S19	322	(((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide)) near3 channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S20	118	S17 and S19	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S21	1	("7638360").PN.	US-PGPUB; USPAT	OR	OFF	2012/04/04 16:33
S22	7	("20050017302" | "20060244107" | "20070048970" | "20070072439" | "20070184571" | "20080254569").PN. OR ("7638360").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:33
S23	2	"US 8134156"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 16:36
S24	3	"US 20070108446"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 16:36
S25	177	("20010046027" | "20020011978" | "20020044111" | "20020056838" | "20020106839" | "20020109796" | "20020110703" | "20020132454" | "20030047785" | "20030207506" | "20030218222" | "20040038446" | "20040127038" | "20040132293" | "20040252270" | "20050017302" | "20050082541" | "20050084999" | "20050104071" | "20050164423" | "20050199959" | "20050231107" | "20050233509" | "20050250308" | "20050259206" | "20050275038" | "20060035452" | "20060043377" | "20060054888" | "20060086933" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060163743" | "20060169973" | "20060170067" | "20060170111" | "20060183274" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:36

		"20060244107" | "20060249733" | "20060284171" | "20060284172" | "20060286737" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070141784" | "20070152217" | "20070158652" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070238228" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080108198" | "20080128689" | "20080129195" | "20080166834" | "20080174710" | "20080182358" | "20080198108" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080308796").PN. OR ("20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090068773" | "20090073325" | "20090114910" | "20090114911" | "20090134399" | "20090152541" | "20090153762" | "20090186437" | "20090186445" | "20090189155" | "20090189156" | "20090239335" | "20090278122" | "20090280600" | "20090305461" | "20100003783" | "20100038639" | "20100085283" | "20100240157" | "20110012119" | "20110024787" | "5382457" | "5530265" | "5696011" | "5701167" | "5731856" | "5803975" | "5817548" | "5888410" | "5930607" | "5952708" | "5994157" | "6294274" | "6459418" | "6529251" | "6532045" | "6563174" | "6674136" | "6727522" | "6819368" | "6852998" | "6900461" | "6921627" | "7009204" | "7012658" | "7049190" | "7061014" | "7064346" | "7067843" | "7075614" | "7105868" | "7189992" | "7211825" | "7264979" | "7268842" | "7282782" | "7297977" | "7323356" | "7330234" | "7339187" | "7365805" | "7385224" | "7391055" | "7402506" | "7411209" | "7453065" | "7453087" | "7456430" | "7462862" | "7468304" | "7470607" | "7485478" | "7501293" | "7560396" | "7633471" | "7732818" | "7825419" | "7855380" | "RE38292").PN. OR ("8134156").URPN.				
S26	95	S25 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:44
S27	0	(buffer near5 (source drain) with (ozide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:48
S28	0	(buffer with (source drain) with (ozide	US-PGPUB;	OR	ON	2012/04/04

		near2 semiconductor))	USPAT; USOCR			16:48
S29	0	(source drain) with (ozide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:49
S30	5583	(source drain) with (oxide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S31	371	(buffer with (source drain) with (oxide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S32	118	(buffer with (source drain) with (oxide near2 semiconductor) with channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S33	24	S32 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:04
S34	108	("20010046027" | "20020056838" | "20020132454" | "20030189401" | "20030218222" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060035452" | "20060043377" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060169973" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070152217" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080203387" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080296568" | "20080308796" | "20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090065771" | "20090068773" | "20090073325" | "20090114910" | "20090134399" | "20090152541" | "20090278122" | "20090280600" | "20100025678" | "20110012118" | "5731856" | "5744864" | "5847410" | "6294274" | "6563174" | "6586346" | "6727522" | "6960812" | "7049190" | "7061014" | "7064346" | "7105868" | "7211825" | "7282782" | "7297977"	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:08

		"7301211" | "7323356" | "7385224").PN. OR ("7402506" | "7411209" | "7453065" | "7453087" | "7462862" | "7468304" | "7501293" | "7674650" | "7732819" | "7915075").PN. OR ("8021917").URPN.				
S35	43	S34 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S36	0	S34 and ((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S37	54124	((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S38	217	S37 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S39	164	S38 not (angle adj implant$3)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:15
S40	3037	((taper incline decline angle) near3 (side sidewall surface) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:23
S41	178	(tft (thin adj film adj transistor)) and S40	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:24
S42	10	"US 7081641"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 17:29
S43	11	("20050056897" | "6569707" | "6858527").PN. OR ("7081641").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:30
S44	48	((taper near2 angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:40
S45	32689	((taper angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:41
S46	161	S45 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S47	243	((taper angle) near3 ((source drain) adj electrode))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S48	243	(taper angle) near3 ((source drain) adj electrode)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S49	206	(tft (thin adj film adj transistor)) and S48	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:43
S50	69	S25 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:53
S51	519	(source drain) near3 (tilt adj angle)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56

S52	54	S51 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56
S53	5614	S8 S9 S10	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S54	3354	S53 and (tft (thin adj film)) and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S55	145	S53 and (tft (thin adj film)) and ((angle taper) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:00
S56	5	"US 7564058"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 18:04
S57	20	("20020043662" | "20030148561" | "20030213959" | "20030234424" | "20040189188" | "4797108" | "5028551" | "5151806" | "5640067" | "6037197" | "6121660" | "6388270" | "6433363" | "6448116" | "6476416" | "6639244" | "6709901").PN. OR ("7564058").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:04
S58	8	S57 and angle	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:05
S59	218	("20030189401" | "20080128689" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20110012118" | "7915075" | "7462862" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7732819" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080254569" | "20080258140" | "20090278122" | "20090280600" | "7049190" | "20070172591" | "20080296568" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "7211825" | "7453065" | "7674650" | "20080182358" | "20090073325" | "7453087" | "7501293" | "20070072439" | "7282782" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/18 18:08

		"20070187760" | "20080308797" | "5744864" | "6586346" | "6727522" | "6960812" | "7301211" | "20060035452" | "20060091793" | "20060108636" | "20060113549" | "20060197092" | "20070090365" | "20080166834" | "20090134399" | "7064346" | "7468304" | "20050199959" | "20070108446" | "7297977" | "20080308804" | "20080308805" | "20090065771" | "20040038446" | "20040127038" | "20050017302" | "20060043377" | "20060113536" | "20060170111" | "20070046191" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20090114910" | "7105868" | "7323356").PN.				
S60	18460	(tft (thin adj film)) and ((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:28
S61	133336	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S62	10304	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S63	1628	S61 and S62	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S64	34920	((angle taper gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:30
S65	193	S64 and S62	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:30
S66	1	("20120132910").PN.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:00
S67	10	("20110318916" | "20120058599" | "8021917" | "8030663" | "8115201").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:01
S68	11	S66 S67	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:01
S69	5731	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S70	294	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S71	62	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04

S72	5942	S69 S70 S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S73	5403	S72 and (tft (thin$1film) (thin adj film))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S74	3556	S73 and (angle taper)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S75	878	S73 and ((angle taper) with electrode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:05
S76	133560	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S77	10334	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S78	1631	S76 and S77	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S79	532	S72 and S78	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:06
S80	89	((angle taper gradation stair) near3 (source drain)) and S77 and S72	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:08
S81	5466	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:19
S82	5099	(257/72).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:19
S83	45	((angle taper gradation stair) near3 (source drain)) and S77 and S81	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S84	40	((angle taper gradation stair) near3 (source drain)) and S77 and S82	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S85	60	S83 S84	US-PGPUB; USPAT;	OR	ON	2012/09/26 22:19

			USOCR			
S86	674	(257/e29.277).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:21
S87	311	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:24
S88	1543	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:27
S89	15	((angle taper gradation stair) near3 (source drain)) and S77 and S88	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:27
S90	3682	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:28
S91	17	((angle taper gradation stair) near3 (source drain)) and S77 and S90	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:28
S95	6242	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S96	356	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S97	75	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S98	6489	S95 S96 S97	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S99	142606	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S100	11746	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S101	1860	S99 and S100	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S102	600	S98 and S101	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S103	5191	(semiconductor near5 ((indium in) and (gallium ga) and (zinc zn)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 02:30
S104	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30
S105	1268	S103 and S104	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30

S106	1058	(IN$2ga$2zn)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 02:33
S107	268	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" | "7402506" | "7411209" | "8030663" | "8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" | "8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" | "20090152506" | "5744864" | "6586346" | "6727522" | "6960812" | "7064346" | "7282782" | "7298084" | "7301211" | "7468304" | "20090186445" | "8368079" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20060292726" | "20070046191" | "20070108446" | "20070252928" | "20070272922"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01

		"20080073653" | "20080129195" | "20080258143" | "20080308804" | "20080308805" | "20090065771" | "20090114910" | "20100092800" | "20120058599" | "7105868" | "7297977" | "7323356" | "20100003783").PN.				
S108	6320	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S109	368	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S110	77	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S111	6569	S108 S109 S110	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01
S112	143950	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S113	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S114	1895	S112 and S113	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S115	617	S111 and S114	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01
S116	133	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" | "7402506" | "7411209" | "8030663" | "8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" |	US-PGPUB; USPAT; FPRS; EPO; JPO; IBM_TDB	OR	ON	2013/08/12 09:02

		"20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" | "8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" | "20090152506" | "5744864" | "6586346" | "6727522" | "6960812" | "7064346" | "7282782" | "7298084" | "7301211" | "7468304" | "20090186445" | "8368079" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20060292726" | "20070046191" | "20070108446" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20080308804" | "20080308805" | "20090065771" | "20090114910" | "20100092800" | "20120058599" | "7105868" | "7297977" | "7323356" | "20100003783").PN.				
S117	2	"US 20130214270"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2013/12/11 01:46
S118	1	("20060033098").PN.	US-PGPUB; USPAT	OR	OFF	2013/12/11 01:57
S119	6558	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S120	385	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S121	82	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S122	6814	S119 S120 S121	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/12/11 02:41
S123	148280	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41

S124	12541	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S125	1990	S123 and S124	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S126	649	S122 and S125	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/12/11 02:41
S127	6765	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S128	395	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S129	87	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S130	7028	S127 S128 S129	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S131	151627	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S132	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S133	2067	S131 and S132	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S134	680	S130 and S133	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S135	9	"2008205451"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S136	10	"2005223049"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S137	3	"07064112"	US-PGPUB; USPAT; USOCR;	OR	ON	2014/03/23 19:34

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S138	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S139	6584	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S140	48	((angle taper gradation stair) near3 (source drain)) and S138 and S139	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S141	4077	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S142	18	((angle taper gradation stair) near3 (source drain)) and S138 and S141	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S143	1947	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S144	17	((angle taper gradation stair) near3 (source drain)) and S138 and S143	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S145	17	S144	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S146	320	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S147	72	S140 S142 S144	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:58
S151	7097	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S152	423	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S153	98	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S154	7378	S151 S152 S153	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 07:57
S155	157340	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 07:57
S156	13935	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 07:57
S157	2186	S155 and S156	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 07:57
S158	721	S154 and S157	US-PGPUB;	OR	ON	2014/08/25

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			07:57
S159	318	("20080128689" | "20030189401" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "20050050897" | "7323368" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20110318916" | "8030663" | "8115201" | "20120132910" | "20090114917" | "20100044711" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7462862" | "7732819" | "20100117086" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080254569" | "20080258140" | "20090278122" | "20090280600" | "7049190" | "20060027804" | "20070172591" | "20080296568" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "7211825" | "7453065" | "6532045" | "7674650" | "20080182358" | "20090073325" | "7453087" | "7501293" | "8021917" | "20070072439" | "20070158652" | "7298084" | "20070187760" | "20080308797" | "5744864" | "6586346" | "6727522" | "6960812" | "7301211" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070090365" | "20080166834" | "20090134399" | "7064346" | "7282782" | "7468304" | "20050056897" | "20070108446" | "20070272922" | "20080308804" | "20080308805" | "20090065771" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20070046191" | "20070252928" | "20080073653" | "20080129195" | "20080258143" | "20090114910" | "7105868" | "7297977" | "7323356"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 08:16

		"20120058599" | "20060292726").PN.				
S160	1802	S157 and ("257".clas. "438".clas.)	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 08:50
S161	11	("3890632" | "4015279" | "4054894" | "4252574" | "4272880" | "5041913" | "5075244" | "5498894" | "5652453" | "5698885" | "6060751").PN. OR ("6600196").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 08:56
S162	23	("2005/0205870").URPN.	USPAT	OR	ON	2014/08/25 09:00
S163	34	S161 S162	USPAT	OR	ON	2014/08/25 09:13
S164	5	("2006/0033098").URPN.	USPAT	OR	ON	2014/08/25 09:46
S165	59	("20010046611" | "20020045289" | "20020093283" | "20020101154" | "20020121860" | "20020139303" | "20030015698" | "20030085398" | "20030092214" | "20030092232" | "20030213952" | "20030218166" | "20040012017" | "20040075093" | "20040108562" | "20040161192" | "20040206959" | "20050042548" | "20050057136" | "20050084712" | "20050098207" | "20050170208" | "20050248267" | "20060008740" | "20060020136" | "20060033098" | "20060043346" | "20060046096" | "20060118166" | "20060180812" | "20060228822" | "20060232203" | "20060237731" | "20060238112" | "20060270066" | "20060273303" | "20070007516" | "20070031701" | "20080048183" | "20080099757" | "20090267077" | "4981768" | "5487953" | "6486601" | "6589673" | "6951694" | "7158161" | "7387904" | "7462883" | "7521855" | "7545840" | "7560735" | "7605534" | "7626198" | "7649197" | "7667389" | "7683532" | "7714501").PN. OR ("8049208").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 09:48
S166	17	("2004/0012017").URPN.	USPAT	OR	ON	2014/08/25 09:51
S167	11	("2004/0108562").URPN.	USPAT	OR	ON	2014/08/25 09:53
S168	1	("20090134383").PN.	US-PGPUB; USPAT	OR	OFF	2014/08/25 10:08
S169	9	"2006126363"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 10:11
S170	40	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$ or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2014/08/25 10:56

		20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.				
S171	16	S170 and buffer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 10:56
S173	7408	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S174	447	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S175	102	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S176	7696	S173 S174 S175	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:41
S177	161896	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41
S178	14662	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41
S179	2301	S177 and S178	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41
S180	767	S176 and S179	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:41
S181	40	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$	US-PGPUB; USPAT;	OR	ON	2014/12/23 22:41

		or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.	FPRS; JPO; DERWENT			
S182	3792	(257/43).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:46
S183	2191	(257/e29.151).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:46
S184	2413	(257/e21.414).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S185	2127	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S186	2423	(438/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S187	127	S185 and S186	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S188	1321	S178 and S182	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S189	453	S178 and S183	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S190	919	S178 and S184	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2014/12/23 22:48

			DERWENT; IBM_TDB			
S191	2471	S188 S189 S190	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S192	416	S179 and (S185 S186)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:49
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S201	1	("20070072439").PN.	US-PGPUB; USPAT	OR	OFF	2015/02/26 01:39
S202	7544	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
S203	462	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
S204	107	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
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S206	164051	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/26 02:17
S207	15029	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/26 02:17
S208	2358	S206 and S207	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/26 02:17
S209	787	S205 and S208	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/26 02:17
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S211	2241	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2015/06/08 14:15

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L190	1	"Term Removed"	USPAT	OR	ON	2015/06/18 00:28
L220	1028	H01L29/41733.cpc.	US-PGPUB; UPAD	OR	ON	2015/06/18 01:05
L221	911	H01L29/41733.cpc.	USPAT	OR	ON	2015/06/18 01:05
L225	1309	(substrate and gate and source and drain and ((sidewall (side adj surface)) near5 step)).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2015/06/18 01:11
L226	88	(substrate and gate and source and drain and ((sidewall (side adj surface)) near5 step) and (oxide adj semiconductor) and metal).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2015/06/18 01:11
S92	1300	(257/57).CCLS.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/09/26 22:18
S93	16	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and oxide and (angle with (bottom top))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2012/09/26 23:11
S94	9	(((source adj electrode) with (angle with (bottom top))) and ((drain adj electrode) with (angle with (bottom top)))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2012/09/26 23:13
S148	1694	(257/57).CCLS.	US-PGPUB; USPAT; UPAD	OR	OFF	2014/03/23 19:32
S149	12	(((source adj electrode) with (angle with (bottom top))) and ((drain adj electrode) with (angle with (bottom top)))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/03/23 19:32
S150	21	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and oxide and (angle with (bottom top))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/03/23 19:32
S172	1	"Term Removed"	USPAT	OR	ON	2014/08/25 10:56
S195	1	"Term Removed"	USPAT	OR	ON	2014/12/23 22:41
S196	1827	(257/57).CCLS.	US-PGPUB; USPAT; UPAD	OR	OFF	2014/12/23 22:41
S197	179	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and (oxide adj semiconductor) and (step near5 (source drain))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/12/23 22:42
S198	311	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and (oxide adj semiconductor) and (step with	US-PGPUB; USPAT;	OR	ON	2014/12/23 22:43

		step with (source drain))).clm.	UPAD			
S199	9	((gate adj electrode) and (source adj electrode) and (drain adj electrode) and (oxide adj semiconductor) and (step with side with (source drain))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/12/23 22:43
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	**Art Unit**
	JEREMY JOY	2816

CPC								
Symbol							**Type**	**Version**
H01L		29	/	41733			F	2013-01-01
H01L		51	/	0512			I	2013-01-01
H01L		51	/	0508			I	2013-01-01
H01L		51	/	0545			I	2013-01-01
H01L		29	/	4908			I	2013-01-01
H01L		51	/	105			I	2013-01-01
H01L		21	/	02554			A	2013-01-01
H01L		21	/	02565			A	2013-01-01
H01L		21	/	02631			A	2013-01-01
H01L		27	/	1225			I	2013-01-01
H01L		29	/	7869			I	2013-01-01
H01L		29	/	78696			I	2013-01-01
H01L		29	/	786			I	2013-01-01
H01L		27	/	1288			I	2013-01-01
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CPC Combination Sets									
Symbol							**Type**	**Set**	**Ranking**	**Version**
			/							
			/							

/JEREMY JOY/ Examiner.Art Unit 2816	06/18/2015	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/MARVIN PAYEN/ Primary Examiner.Art Unit 2816	06/29/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	**Art Unit**
	JEREMY JOY	2816

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
257	57	H	0	1	L	29 / 786 (2006.01.01)	H	0	1	L	21 / 28 (2006.01.01)

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
438	158				

/JEREMY JOY/ Examiner.Art Unit 2816	06/18/2015	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/MARVIN PAYEN/ Primary Examiner.Art Unit 2816	06/29/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	**Art Unit**
	JEREMY JOY	2816

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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15	15														
16	16														

/JEREMY JOY/ Examiner.Art Unit 2816 (Assistant Examiner)	06/18/2015 (Date)	**Total Claims Allowed:** 20	
/MARVIN PAYEN/ Primary Examiner.Art Unit 2816 (Primary Examiner)	06/29/2015 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

Attorney Docket No. 0756-10566

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Confirmation No. 5776
Shunpei YAMAZAKI et al.	)	Group Art Unit: 2816
Serial No. 14/451,680	)	Examiner: Jeremy J. Joy
Filed: August 5, 2014	)	
For: SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF	)	

AFTER FINAL RESPONSE

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Official Action mailed March 16, 2015, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statement filed on August 29, 2014.

Claims 2-21 are pending in the present application, of which claims 2 and 11 are independent. No claim amendments are being made at this time. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

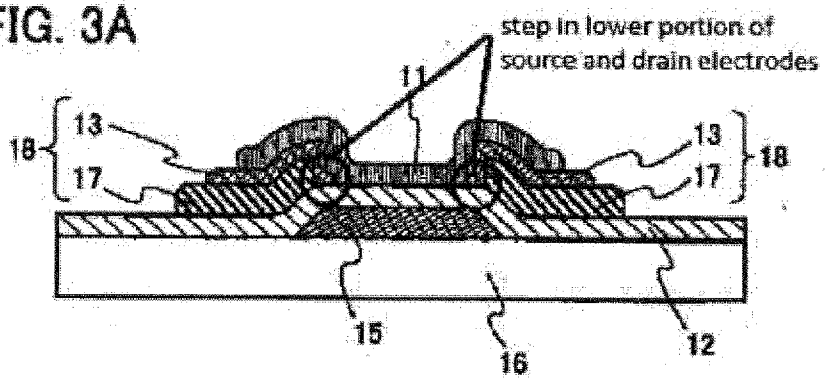
Paragraph 2 of the Official Action rejects claims 2-21 as obvious based on the combination of U.S. Publication No. 2008/0099757 to Furukawa and U.S. Publication No. 2007/0108446 to Akimoto. The Applicant respectfully traverses the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2144.04, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some reason to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. Independent claims 2 and 11 already recite *inter alia* a first metal film and a second metal film over the gate insulating film; and an oxide semiconductor film in contact with the first metal film and the second metal film. For the reasons provided below, Furukawa and Akimoto, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

The Official Action asserts that Furukawa teaches "a first conductive film and a second conductive film over the gate insulating film (Fig. 3A, first and second conductive films 18); an organic semiconductor film in contact with the first and second conductive films (Fig. 3A, oxide semiconductor film 11); wherein a side surface of the first conductive film faces a side surface of the second conductive film; and wherein each of the side surface of the first conductive film and the side surface of the second conductive film has a step in a lower end portion thereof (Fig. 3A; ¶s 0115-0155 and

FIG. 3A



0183-0185)" (pages 2 and 3, Paper No. 20150226; Office's annotation of FIG. 3A of Furukawa reproduced above). The Official Action concedes that "Furukawa fails to teach the first and second conductive films are first and second metal films and an oxide semiconductor film formed on the first and second metal films rather than the organic semiconductor film" (page 3, Id.). Instead, the Official Action asserts that "Akimoto teaches using a metal films [sic] to form first and second conductive films (source/drain electrodes) and an oxide semiconductor film formed the first and second conductive films [sic] in a display device similar to that of the applicant (Fig. 1A, first and second metal films 10a/11a, oxide semiconductor film 13; ¶ 0062-0066)" (Id.). The Applicant respectfully disagrees and traverses the assertions of the Official Action.

Furukawa discloses source and drain electrodes 18 each including a lower layer 17 and an upper layer 13 that covers an end portion of the lower layer 17. As shown in Fig. 3A of Furukawa (reproduced above with Office's annotations), an alleged step is formed by covering the end portion of the lower layer 17 with the upper layer 13 in Furukawa. On the other hand, Akimoto only potentially discloses that "[t]he source electrode 10 is formed with a layered film of the first conductive film 10a and the second conductive film 10b, and the drain electrode 11 is formed with a layered film of the first conductive film 11a and the second conductive film 11b." Akimoto at paragraph [0063]. With respect to the material, Akimoto discloses that "[a]s the second conductive film, ZnO (zinc oxide) to which a p-type or n-type impurity of B (boron), Al (aluminum), Ga

(gallium), P (phosphorous), or As (arsenic) is added can be used." See, Akimoto at paragraph [0064].

In other words, Akimoto's second conductive film is a *metal oxide* film rather than a *metal* film and, as such, the upper layers 10b and 11b of the source and drain electrodes are formed of the metal oxide film. Therefore, there is no teaching in the prior art with respect to "a first *metal* film and a second *metal* film over the gate insulating film," "an oxide semiconductor film in contact with the first *metal* film and the second *metal* film," and the like, as recited in the independent claims. Since the alleged source electrode and drain electrode based on Akimoto are formed of a metal oxide film, not a metal film, in an upper layer thereof, Furukawa and Akimoto cannot be reasonably interpreted to teach the above-mentioned features of the present invention. Instead, it appears the Official Action has included knowledge well beyond that which was within the level of ordinary skill in the art at the time the claimed invention was made. Furthermore, the Official Action appears to have made inferences that could have only been gleaned from Applicant's disclosure based on impermissible hindsight.

Moreover, in view of the above-mentioned deficiency, there is no proper or sufficient reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Furukawa and Akimoto or to combine reference teachings to achieve the claimed invention. MPEP § 2142 states that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden.

Specifically, the Official Action asserts that it would have been obvious at the time of the invention to incorporate the teachings of Akimoto into the device of Furukawa "because metal films are well known in the art to be used to form source and drain electrodes" (page 4, Paper No. 20150226). However, even if *arguendo* Furukawa was modified to incorporate source 10 and drain 11 electrodes of Akimoto, then the upper layer covering an end portion of the lower layer of Furukawa's source and drain

electrodes, including the alleged step portion shown in FIG. 3A above, would be formed of zinc oxide (i.e., a metal oxide) and the asserted rationale for combining Furukawa and Akimoto (i.e., "because metal films are well known in the art to be used to form source and drain electrodes") does not provide a proper reason for incorporating Akimoto's zinc oxide layers.

In any event, the proposed modification set forth by the Official Action, i.e., to replace Furukawa's layer 13 with a *metal oxide* of Akimoto does not arguably result in an oxide semiconductor film in contact with the first metal film and the second metal film, as claimed. Therefore, the Applicant respectfully submits that Furukawa and Akimoto, either alone or in combination, do not teach or suggest the above-mentioned limitations with respect to the first metal film and the second metal film and that the Official Action has not provided a proper or sufficient reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Furukawa and Akimoto or to combine reference teachings to achieve the claimed invention.

Since Furukawa and Akimoto do not teach or suggest all the claim limitations, and since there is no proper reason to combine Furukawa and Akimoto, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized to charge fees under 37 C.F.R. §§ 1.16, 1.17, 1.20(a), 1.20(b), 1.20(c), and 1.20(d) (except the Issue Fee) which may be required now or hereafter, or credit any overpayment to Deposit Account No. 50-2280.

Respectfully submitted,

Eric J. Robinson
Reg. No. 38,285

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Electronic Acknowledgement Receipt

EFS ID:	22360993
Application Number:	14451680
International Application Number:	
Confirmation Number:	5776
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Customer Number:	31780
Filer:	Eric J. Robinson/Adele Stamper
Filer Authorized By:	Eric J. Robinson
Attorney Docket Number:	0756-10566
Receipt Date:	15-MAY-2015
Filing Date:	05-AUG-2014
Time Stamp:	15:24:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response After Final Action	AFRESPONSE_15MAY2015_075610566.pdf	911663 4976a7379d9dde91eb2dade01520c93867ea4e52	no	6

Warnings:	
Information:	

Total Files Size (in bytes):	911663

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

31780 7590 03/16/2015

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EXAMINER
JOY, JEREMY J

ART UNIT	PAPER NUMBER
2816	

MAIL DATE	DELIVERY MODE
03/16/2015	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 14/451,680	Applicant(s) YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2816	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/11/2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *2-21* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *2-21* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☒ All b)☐ Some** c)☐ None of the:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *08/29/2014*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment to the claims filed on 12/11/2014 has been acknowledged and entered. Claims 20-21 have been added. Final office action on the merits is as follows:

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

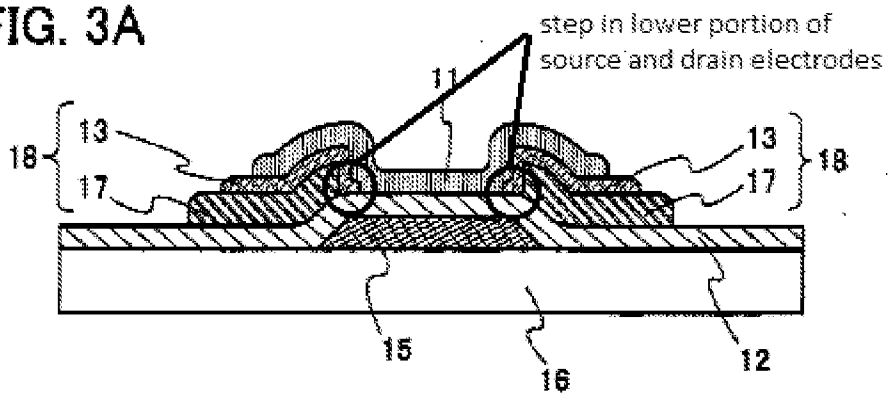
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **2-21** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *Furukawa et al.* (**U.S. Patent Pub. No. 2008/0099757**, from hereinafter "*Furukawa*) in view of *Akimoto* (**U.S. Patent Pub. No. 2007/0108446**).

Regarding Claim 2, ***Furukawa*** teaches a glass substrate (Fig. 3A, substrate 16); a gate electrode over the glass substrate (Fig. 3A, gate electrode 15); a gate insulating film over the gate electrode (Fig. 3A, gate dielectric 12); a first conductive film and a second conductive film over the gate insulating film (Fig. 3A, first and second conductive films 18); an organic semiconductor film in contact with the first and second

conductive films (Fig. 3A, oxide semiconductor film 11); wherein a side surface of the first conductive film faces a side surface of the second conductive film; and wherein each of the side surface of the first conductive film and the side surface of the second conductive film has a step in a lower end portion thereof (Fig. 3A; ¶'s 0115-0155 and 0183-0185).

FIG. 3A



Furukawa fails to teach the first and second conductive films are first and second metal films and an oxide semiconductor film formed on the first and second metal films rather than the organic semiconductor film as disclosed.

Akimoto teaches using a metal films to form first and second conductive films (source/drain electrodes) and an oxide semiconductor film formed the first and second conductive films in a display device similar to that of the applicant (Fig. 1A, first and second metal films 10a/11a, oxide semiconductor film 13; ¶ 0062-0066).

In view of the teachings of *Akimoto*, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of *Furukawa* to include that the first and second conductive films are metal films and an

oxide semiconductor layer as the active semiconductor channel layer because metal films are well known in the art to be used to form source and drain electrodes as they provide low resistance materials that enhance current flow and perform well during device operation and oxide semiconductors are well known in the art of thin film transistors as they provide adequate channel mobility during device operation. Also, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding Claim 3, as in the combination above, *Furukawa* as modified by *Akimoto* teaches wherein the oxide semiconductor film is positioned on the first and second metal films (*Furukawa* - Fig. 3A, *Akimoto* – Fig. 1A).

Regarding Claim 4, as in the combination above*, Furukawa* as modified by *Akimoto* teaches wherein the first and second metal films are in contact with the gate insulating film (*Furukawa* - Fig. 3A, *Akimoto* – Fig. 1A).

Regarding Claim 5, as in the combination of *Furukawa* and *Akimoto* above, *Akimoto* teaches the oxide semiconductor film comprises zinc (¶ 0066).

Regarding Claim 6, *Furukawa* teaches the step lays flat on the substrate creating about a 90° angle which satisfies the claims in regards to the angle of inclination of the step in relation to the surface of the substrate (Fig. 2A).

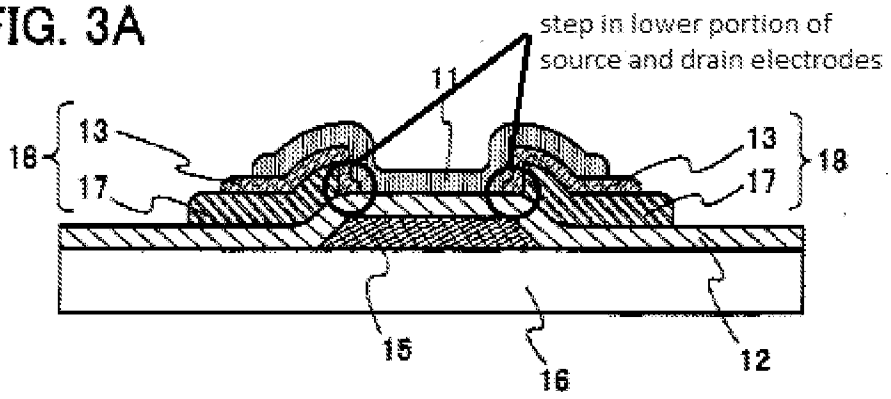
Regarding Claim 7, as in the combination above, *Akimoto* teaches a first buffer layer between the oxide semiconductor film and the first metal film and a second buffer layer between the oxide semiconductor film and the second metal film, wherein each of

the first buffer layer and the second buffer layer has a lower resistivity than the oxide semiconductor film (Fig. 1A, buffer layers 10b/11b; ¶0064).

Regarding Claims 8-10, *Furukawa* teaches the device comprising a pixel portion comprising: the semiconductor device as claimed above and a display element electrically connected to one of the source electrode and the drain electrode and more specifically wherein the display element is a liquid crystal element or a light emitting element (Fig. 8B and 9B, depicting the semiconductor device as taught above with a display element as claimed, LC element 564, light emitting element 637).

Regarding Claim 11, *Furukawa* teaches a glass substrate (Fig. 2A, substrate 16); a gate electrode over the glass substrate (Fig. 2A, gate electrode 15); a gate insulating film over the gate electrode (Fig. 2A, gate dielectric 12); a first conductive film and a second conductive film over the gate insulating film (Fig. 2A, first and second conductive films 18); an organic semiconductor film in contact with the first and second conductive films (Fig. 2A, oxide semiconductor film 11); wherein a side surface of the first conductive film faces a side surface of the second conductive film; and wherein each of the side surface of the first conductive film and the side surface of the second conductive film has a step in a lower end portion thereof, wherein each of the first and second conductive films comprises a first layer and a second layer and wherein the first layer and the second layer comprise different materials (Fig. 2A, layer 13 vs. 17; ¶'s 0084-0099 and 0112-0115).

FIG. 3A



Furukawa fails to teach the first and second conductive films are first and second metal films and an oxide semiconductor film formed on the first and second metal films rather than the organic semiconductor film as disclosed.

Akimoto teaches using a metal films to form first and second conductive films (source/drain electrodes) and an oxide semiconductor film formed the first and second conductive films in a display device similar to that of the applicant (Fig. 1A, first and second metal films 10a/11a, oxide semiconductor film 13; ¶ 0062-0066).

In view of the teachings of *Akimoto*, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of *Furukawa* to include that the first and second conductive films are metal films and an oxide semiconductor layer as the active semiconductor channel layer because metal films are well known in the art to be used to form source and drain electrodes as they provide low resistance materials that enhance current flow and perform well during device operation and oxide semiconductors are well known in the art of thin film transistors as they provide adequate channel mobility during device operation. Also, it

has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding Claim 12, as in the combination above, *Furukawa* as modified by *Akimoto* teaches wherein the oxide semiconductor film is positioned on the first and second metal films (*Furukawa* - Fig. 3A, *Akimoto* – Fig. 1A).

Regarding Claim 13, as in the combination above*, Furukawa* as modified by *Akimoto* teaches wherein the first and second metal films are in contact with the gate insulating film (*Furukawa* - Fig. 3A, *Akimoto* – Fig. 1A).

Regarding Claim 14, as in the combination of *Furukawa* and *Akimoto* above, *Akimoto* teaches the oxide semiconductor film comprises zinc (¶ 0066).

Regarding Claim 15, *Furukawa* teaches the step lays flat on the substrate creating about a 90° angle which satisfies the claims in regards to the angle of inclination of the step in relation to the surface of the substrate (Fig. 2A).

Regarding Claim 16, as in the combination above, *Akimoto* teaches a first buffer layer between the oxide semiconductor film and the first metal film and a second buffer layer between the oxide semiconductor film and the second metal film, wherein each of the first buffer layer and the second buffer layer has a lower resistivity than the oxide semiconductor film (Fig. 1A, buffer layers 10b/11b; ¶0064).

Regarding Claims 17-19, *Furukawa* teaches the device comprising a pixel portion comprising: the semiconductor device as claimed above and a display element electrically connected to one of the source electrode and the drain electrode and more

specifically wherein the display element is a liquid crystal element or a light emitting element (Fig. 8B and 9B, depicting the semiconductor device as taught above with a display element as claimed, LC element 564, light emitting element 637).

Regarding Claims 20-21, as in the combination above, *Furukawa* modified by *Akimoto* teaches wherein the first metal film is a source electrode and wherein the second metal film is a drain electrode (*Furukawa* - Fig. 3A, *Akimoto* – Fig. 1A).

Response to Arguments

3. Applicant's arguments filed 12/11/2014 have been fully considered but they are not persuasive.

(i) In regards to the applicant's arguments that the prior art, either alone or in combination, does not teach or suggest all the features of the independent claims, as amended, the examiner respectfully disagrees. In particular, in the newly formed rejection above, *Furukawa* teaches first and second conductive films acting as source and drain electrodes wherein they have a step as claimed in the lower portion thereof and *Akimoto* teaches that said first and second metal films may comprise metal films to form the source and drain electrodes and an oxide semiconductor active layer as claimed will contact the metal film used for form the first and second conductive films functioning as the source and drain electrodes in the prior art and as disclosed by the applicant. The reasons for the combination are clearly stated above providing rationale for teaching the newly amended claim features and therefore the rejection is deemed proper.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMY JOY whose telephone number is (571)270-7445. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571)272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEREMY JOY/
Examiner, Art Unit 2816
February 26, 2015

/MARVIN PAYEN/
Primary Examiner, Art Unit 2816

Notice of References Cited	Application/Control No. 14/451,680	Applicant(s)/Patent Under Reexamination YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2816	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0099757	05-2008	Furukawa et al.	257/40
*	B	US-2007/0108446	05-2007	Akimoto, Kengo	257/061
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	V	
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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BIB DATA SHEET

CONFIRMATION NO. 5776

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/451,680	08/05/2014	257	2816	0756-10566

APPLICANTS

Semiconductor Energy Laboratory Co., Ltd., Atsugi-shi, JAPAN, Assignee (with 37 CFR 1.172 Interest);

INVENTORS

Shunpei YAMAZAKI, Setagaya, JAPAN;
Kengo AKIMOTO, Atsugi, JAPAN;
Daisuke KAWAE, Yamato, JAPAN;

**** CONTINUING DATA ***************************

This application is a CON of 13/763,874 02/11/2013 PAT 8803146
which is a CON of 12/613,769 11/06/2009 PAT 8373164
which is a CON of 12/606,262 10/27/2009 ABN

**** FOREIGN APPLICATIONS ***************************

JAPAN 2008-287187 11/07/2008

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

08/13/2014

Foreign Priority claimed	35 USC 119(a-d) conditions met	Verified and Acknowledged	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☑ Yes ☐ No	☑ Yes ☐ No	/JEREMY J JOY/ Examiner's Signature	☐ Initials	JAPAN	37	1	1

ADDRESS

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Suite 20 North
Fairfax, VA 22033
UNITED STATES

TITLE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 15

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	~~2890~~ 2816
Examiner Name	Jeremy J. Joy
Attorney Docket Number	0756-10566

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Signature	/Jeremy Joy/	Date Considered	02/26/2015

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Sheet 2 of 15

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Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2896
Examiner Name	Jeremy J. Joy
Attorney Docket Number	0756-10566

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				Filing Date	August 5, 2014
				First Named Inventor	Shunpei YAMAZAKI
(Use as many sheets as necessary)				Art Unit	2896
				Examiner Name	Jeremy J. Joy
Sheet	3	of	15	Attorney Docket Number	0756-10566

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Sheet 4 of 15

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Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2896
Examiner Name	Jeremy J. Joy
Attorney Docket Number	0756-10566

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Examiner Signature	/Jeremy Joy/	Date Considered	02/26/2015

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Sheet 5 of 15

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2896
Examiner Name	Jeremy J. Joy
Attorney Docket Number	0756-10566

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Art Unit	2896
Examiner Name	Jeremy J. Joy
Attorney Docket Number	0756-10566

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Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Signature	/Jeremy Joy/	Date Considered	02/26/2015

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 8 of 15

Complete if Known	
Application Number	14/451,680
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				Filing Date	August 5, 2014
				First Named Inventor	Shunpei YAMAZAKI
(Use as many sheets as necessary)				Art Unit	2896
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Examiner Signature	/Jeremy Joy/	Date Considered	02/26/2015

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Examiner Signature	/Jeremy Joy/	Date Considered	02/26/2015

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 14 of 15

Complete if Known	
Application Number	14/451,680
Filing Date	August 5, 2014
First Named Inventor	Shunpei YAMAZAKI
Art Unit	2896
Examiner Name	Jeremy J. Joy
Attorney Docket Number	0756-10566

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		JANOTTI.A et al., "NATIVE POINT DEFECTS IN ZnO", PHYS. REV. B (PHYSICAL REVIEW. B), October 4, 2007, Vol. 76, No. 16, pp. 165202-1-165202-22.	Eng.
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Examiner Signature	/Jeremy Joy/	Date Considered	02/26/2015

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/451,680
				Filing Date	August 5, 2014
				First Named Inventor	Shunpei YAMAZAKI
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				Examiner Name	Jeremy J. Joy
Sheet	15	of	15	Attorney Docket Number	0756-10566

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		FUNG.T et al., "2-D Numerical Simulation of High Performance Amorphous In-Ga-Zn-O TFTs for Flat Panel Displays", AM-FPD '08 DIGEST OF TECHNICAL PAPERS, July 2, 2008, pp. 251-252, THE JAPAN SOCIETY OF APPLIED PHYSICS.	Eng.
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		CHINESE OFFICE ACTION (APPLICATION NO.200910206768.3) DATED March 15, 2013.	Full

Examiner Signature	/Jeremy Joy/	Date Considered	02/26/2015

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	Art Unit
	JEREMY JOY	2896

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/25/2014	02/26/2015							
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	4	✓	✓							
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EAST Search History

EAST Search History (Prior Art)

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L5	7544	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
L6	462	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
L7	107	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2015/02/26 02:17
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L9	164051	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/26 02:17
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S13	7	"2007096055"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/04/04 14:47
S14	41	("20020153587" | "20030013261" | "20030047785" | "20030111663" | "20030207502" | "20030218221" | "20030218222" | "20030219530" | "20040023432" | "4887255" | "5744864" | "6225655" | "6255130" | "6362499" | "6563174" | "7067843").PN. OR ("7282782").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:20
S15	51	("20020171085" | "20030047785" | "20030111663" | "20030218221" | "20030218222" | "20040023432" | "20040127038" | "20050017244" | "3294660" | "5289016" | "5744864" | "6362499" | "6391462" | "6727522").PN. OR ("7297977").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:21
S16	132	("20010046027" | "20020056838" | "20020109796" | "20020132454" | "20040038446" | "20040127038" | "20040132293" | "20050017302" | "20050199959" | "20050259206" | "20050275038" | "20060035452" | "20060086933" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060163743" | "20060169973" | "20060170067" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060286737" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070158652" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:23

		"20080182358" | "20080198108" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080308796" | "20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090073325" | "20090114910" | "20090114911" | "20090134399" | "20090152541" | "20090153762" | "20090186437" | "20090186445" | "20090189155" | "20090189156" | "5530265" | "5696011" | "5701167" | "5731856" | "5817548" | "6294274" | "6532045" | "6674136" | "6727522" | "6852998" | "6900461" | "7009204" | "7049190").PN. OR ("7061014" | "7064346" | "7075614" | "7105868" | "7211825" | "7282782" | "7297977" | "7323356" | "7402506" | "7411209" | "7453065" | "7453087" | "7462862" | "7468304" | "7501293").PN. OR ("7674650").URPN.				
S17	9604	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S18	4685	S17 and ((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S19	322	(((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide)) near3 channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S20	118	S17 and S19	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S21	1	("7638360").PN.	US-PGPUB; USPAT	OR	OFF	2012/04/04 16:33
S22	7	("20050017302" | "20060244107" | "20070048970" | "20070072439" | "20070184571" | "20080254569").PN. OR ("7638360").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:33
S23	2	"US 8134156"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 16:36
S24	3	"US 20070108446"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 16:36
S25	177	("20010046027" | "20020011978" | "20020044111" | "20020056838" | "20020106839" | "20020109796" | "20020110703" | "20020132454" | "20030047785" | "20030207506" | "20030218222" | "20040038446" | "20040127038" | "20040132293" | "20040252270" | "20050017302" | "20050082541" | "20050084999" | "20050104071" | "20050164423" | "20050199959" | "20050231107" | "20050233509" | "20050250308" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:36

"20050259206" | "20050275038" |
"20060035452" | "20060043377" |
"20060054888" | "20060086933" |
"20060091793" | "20060108529" |
"20060108636" | "20060110867" |
"20060113536" | "20060113539" |
"20060113549" | "20060113565" |
"20060163743" | "20060169973" |
"20060170067" | "20060170111" |
"20060183274" | "20060197092" |
"20060208977" | "20060228974" |
"20060231882" | "20060238135" |
"20060244107" | "20060249733" |
"20060284171" | "20060284172" |
"20060286737" | "20060292777" |
"20070024187" | "20070046191" |
"20070052025" | "20070054507" |
"20070072439" | "20070090365" |
"20070108446" | "20070141784" |
"20070152217" | "20070158652" |
"20070172591" | "20070187678" |
"20070187760" | "20070194379" |
"20070238228" | "20070252928" |
"20070272922" | "20070287296" |
"20080006877" | "20080038882" |
"20080038929" | "20080050595" |
"20080073653" | "20080083950" |
"20080106191" | "20080108198" |
"20080128689" | "20080129195" |
"20080166834" | "20080174710" |
"20080182358" | "20080198108" |
"20080224133" | "20080254569" |
"20080258139" | "20080258140" |
"20080258141" | "20080258143" |
"20080308796").PN. OR
("20080308797" | "20080308804" |
"20080308805" | "20080308806" |
"20090008639" | "20090068773" |
"20090073325" | "20090114910" |
"20090114911" | "20090134399" |
"20090152541" | "20090153762" |
"20090186437" | "20090186445" |
"20090189155" | "20090189156" |
"20090239335" | "20090278122" |
"20090280600" | "20090305461" |
"20100003783" | "20100038639" |
"20100085283" | "20100240157" |
"20110012119" | "20110024787" |
"5382457" | "5530265" | "5696011" |
"5701167" | "5731856" | "5803975" |
"5817548" | "5888410" | "5930607" |
"5952708" | "5994157" | "6294274" |
"6459418" | "6529251" | "6532045" |
"6563174" | "6674136" | "6727522" |
"6819368" | "6852998" | "6900461" |
"6921627" | "7009204" | "7012658" |
"7049190" | "7061014" | "7064346" |
"7067843" | "7075614" | "7105868" |
"7189992" | "7211825" | "7264979" |
"7268842" | "7282782" | "7297977" |
"7323356" | "7330234" | "7339187" |
"7365805" | "7385224" | "7391055" |
"7402506" | "7411209" | "7453065" |
"7453087" | "7456430" | "7462862" |

		"7468304" | "7470607" | "7485478" | "7501293" | "7560396" | "7633471" | "7732818" | "7825419" | "7855380" | "RE38292").PN. OR ("8134156").URPN.				
S26	95	S25 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:44
S27	0	(buffer near5 (source drain) with (ozide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:48
S28	0	(buffer with (source drain) with (ozide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:48
S29	0	(source drain) with (ozide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:49
S30	5583	(source drain) with (oxide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S31	371	(buffer with (source drain) with (oxide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S32	118	(buffer with (source drain) with (oxide near2 semiconductor) with channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S33	24	S32 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:04
S34	108	("20010046027" | "20020056838" | "20020132454" | "20030189401" | "20030218222" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060035452" | "20060043377" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060169973" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070152217" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080203387" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080296568" | "20080308796" | "20080308797" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:08

		"20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090065771" | "20090068773" | "20090073325" | "20090114910" | "20090134399" | "20090152541" | "20090278122" | "20090280600" | "20100025678" | "20110012118" | "5731856" | "5744864" | "5847410" | "6294274" | "6563174" | "6586346" | "6727522" | "6960812" | "7049190" | "7061014" | "7064346" | "7105868" | "7211825" | "7282782" | "7297977" | "7301211" | "7323356" | "7385224").PN. OR ("7402506" | "7411209" | "7453065" | "7453087" | "7462862" | "7468304" | "7501293" | "7674650" | "7732819" | "7915075").PN. OR ("8021917").URPN.				
S35	43	S34 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S36	0	S34 and ((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S37	54124	((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S38	217	S37 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S39	164	S38 not (angle adj implant$3)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:15
S40	3037	((taper incline decline angle) near3 (side sidewall surface) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:23
S41	178	(tft (thin adj film adj transistor)) and S40	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:24
S42	10	"US 7081641"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 17:29
S43	11	("20050056897" | "6569707" | "6858527").PN. OR ("7081641").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:30
S44	48	((taper near2 angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:40
S45	32689	((taper angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:41
S46	161	S45 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S47	243	((taper angle) near3 ((source drain) adj electrode))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S48	243	(taper angle) near3 ((source drain) adj	US-PGPUB;	OR	ON	2012/04/04

		electrode)	USPAT; USOCR			17:42
S49	206	(tft (thin adj film adj transistor)) and S48	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:43
S50	69	S25 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:53
S51	519	(source drain) near3 (tilt adj angle)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56
S52	54	S51 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56
S53	5614	S8 S9 S10	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S54	3354	S53 and (tft (thin adj film)) and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S55	145	S53 and (tft (thin adj film)) and ((angle taper) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:00
S56	5	"US 7564058"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 18:04
S57	20	("20020043662" | "20030148561" | "20030213959" | "20030234424" | "20040189188" | "4797108" | "5028551" | "5151806" | "5640067" | "6037197" | "6121660" | "6388270" | "6433363" | "6448116" | "6476416" | "6639244" | "6709901").PN. OR ("7564058").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:04
S58	8	S57 and angle	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:05
S59	218	("20030189401" | "20080128689" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20110012118" | "7915075" | "7462862" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7732819" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/18 18:08

		"20080038882" | "20080038929" | "20080083950" | "20080254569" | "20080258140" | "20090278122" | "20090280600" | "7049190" | "20070172591" | "20080296568" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "7211825" | "7453065" | "7674650" | "20080182358" | "20090073325" | "7453087" | "7501293" | "20070072439" | "7282782" | "20070187760" | "20080308797" | "5744864" | "6586346" | "6727522" | "6960812" | "7301211" | "20060035452" | "20060091793" | "20060108636" | "20060113549" | "20060197092" | "20070090365" | "20080166834" | "20090134399" | "7064346" | "7468304" | "20050199959" | "20070108446" | "7297977" | "20080308804" | "20080308805" | "20090065771" | "20040038446" | "20040127038" | "20050017302" | "20060043377" | "20060113536" | "20060170111" | "20070046191" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20090114910" | "7105868" | "7323356").PN.				
S60	18460	(tft (thin adj film)) and ((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:28
S61	133336	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S62	10304	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S63	1628	S61 and S62	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S64	34920	((angle taper gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:30
S65	193	S64 and S62	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:30
S66	1	("20120132910").PN.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:00
S67	10	("20110318916" | "20120058599" | "8021917" | "8030663" | "8115201").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:01
S68	11	S66 S67	US-PGPUB; USPAT; USOCR;	OR	ON	2012/09/26 22:01

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S69	5731	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S70	294	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S71	62	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S72	5942	S69 S70 S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S73	5403	S72 and (tft (thin$1film) (thin adj film))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S74	3556	S73 and (angle taper)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S75	878	S73 and ((angle taper) with electrode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:05
S76	133560	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S77	10334	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S78	1631	S76 and S77	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S79	532	S72 and S78	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:06
S80	89	((angle taper gradation stair) near3 (source drain)) and S77 and S72	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:08
S81	5466	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:19

S82	5099	(257/72).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:19
S83	45	((angle taper gradation stair) near3 (source drain)) and S77 and S81	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S84	40	((angle taper gradation stair) near3 (source drain)) and S77 and S82	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S85	60	S83 S84	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S86	674	(257/e29.277).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:21
S87	311	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:24
S88	1543	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:27
S89	15	((angle taper gradation stair) near3 (source drain)) and S77 and S88	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:27
S90	3682	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:28
S91	17	((angle taper gradation stair) near3 (source drain)) and S77 and S90	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:28
S95	6242	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S96	356	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S97	75	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S98	6489	S95 S96 S97	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S99	142606	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S100	11746	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S101	1860	S99 and S100	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S102	600	S98 and S101	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S103	5191	(semiconductor near5 ((indium in) and (gallium ga) and (zinc zn)))	US-PGPUB; USPAT; USOCR;	OR	ON	2013/08/12 02:30

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S104	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30
S105	1268	S103 and S104	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30
S106	1058	(IN$2ga$2zn)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 02:33
S107	268	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" | "7402506" | "7411209" | "8030663" | "8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" | "8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01

		"20090152506" | "5744864" | "6586346" | "6727522" | "6960812" | "7064346" | "7282782" | "7298084" | "7301211" | "7468304" | "20090186445" | "8368079" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20060292726" | "20070046191" | "20070108446" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20080308804" | "20080308805" | "20090065771" | "20090114910" | "20100092800" | "20120058599" | "7105868" | "7297977" | "7323356" | "20100003783").PN.				
S108	6320	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S109	368	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S110	77	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S111	6569	S108 S109 S110	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01
S112	143950	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S113	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S114	1895	S112 and S113	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S115	617	S111 and S114	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01
S116	133	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" |	US-PGPUB; USPAT; FPRS; EPO; JPO; IBM_TDB	OR	ON	2013/08/12 09:02

		"7402506" | "7411209" | "8030663" | "8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" | "8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" | "20090152506" | "5744864" | "6586346" | "6727522" | "6960812" | "7064346" | "7282782" | "7298084" | "7301211" | "7468304" | "20090186445" | "8368079" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20060292726" | "20070046191" | "20070108446" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20080308804" | "20080308805" | "20090065771" | "20090114910" | "20090280600" | "20120058599" | "7105868" | "7297977" | "7323356" | "20100003783").PN.				
S117	2	"US 20130214270"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2013/12/11 01:46
S118	1	("20060033098").PN.	US-PGPUB; USPAT	OR	OFF	2013/12/11 01:57
S119	6558	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S120	385	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S121	82	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41

S122	6814	S119 S120 S121	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/12/11 02:41
S123	148280	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S124	12541	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S125	1990	S123 and S124	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S126	649	S122 and S125	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/12/11 02:41
S127	6765	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S128	395	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S129	87	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S130	7028	S127 S128 S129	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S131	151627	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S132	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S133	2067	S131 and S132	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S134	680	S130 and S133	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S135	9	"2008205451"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34

S136	10	"2005223049"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S137	3	"07064112"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S138	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S139	6584	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S140	48	((angle taper gradation stair) near3 (source drain)) and S138 and S139	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S141	4077	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S142	18	((angle taper gradation stair) near3 (source drain)) and S138 and S141	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S143	1947	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S144	17	((angle taper gradation stair) near3 (source drain)) and S138 and S143	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S145	17	S144	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S146	320	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S147	72	S140 S142 S144	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:58
S151	7097	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S152	423	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S153	98	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
S154	7378	S151 S152 S153	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 07:57
S155	157340	((angle taper step gradation stair)	US-PGPUB;	OR	ON	2014/08/25

		near3 (source drain))	USPAT; USOCR			07:57
S156	13935	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 07:57
S157	2186	S155 and S156	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 07:57
S158	721	S154 and S157	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 07:57
S159	318	("20080128689" | "20030189401" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "20050050897" | "7323368" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20110318916" | "8030663" | "8115201" | "20120132910" | "20090114917" | "20100044711" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7462862" | "7732819" | "20100117086" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080254569" | "20080258140" | "20090278122" | "20090280600" | "7049190" | "20060027804" | "20070172591" | "20080296568" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "7211825" | "7453065" | "6532045" | "7674650" | "20080182358" | "20090073325" | "7453087" | "7501293" | "8021917" | "20070072439" | "20070158652" | "7298084" | "20070187760" | "20080308797" | "5744864" | "6586346" | "6727522" | "6960812" | "7301211" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070090365" | "20080166834" | "20090134399" | "7064346" | "7282782" | "7468304" | "20050056897" | "20070108446" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 08:16

		"20070272922" | "20080308804" | "20080308805" | "20090065771" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20070046191" | "20070252928" | "20080073653" | "20080129195" | "20080258143" | "20090114910" | "7105868" | "7297977" | "7323356" | "20120058599" | "20060292726").PN.				
S160	1802	S157 and ("257".clas. "438".clas.)	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 08:50
S161	11	("3890632" | "4015279" | "4054894" | "4252574" | "4272880" | "5041913" | "5075244" | "5498894" | "5652453" | "5698885" | "6060751").PN. OR ("6600196").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 08:56
S162	23	("2005/0205870").URPN.	USPAT	OR	ON	2014/08/25 09:00
S163	34	S161 S162	USPAT	OR	ON	2014/08/25 09:13
S164	5	("2006/0033098").URPN.	USPAT	OR	ON	2014/08/25 09:46
S165	59	("20010046611" | "20020045289" | "20020093283" | "20020101154" | "20020121860" | "20020139303" | "20030015698" | "20030085398" | "20030092214" | "20030092232" | "20030213952" | "20030218166" | "20040012017" | "20040075093" | "20040108562" | "20040161192" | "20040206959" | "20050042548" | "20050057136" | "20050084712" | "20050098207" | "20050170208" | "20050248267" | "20060008740" | "20060020136" | "20060033098" | "20060043346" | "20060046096" | "20060118166" | "20060180812" | "20060228822" | "20060232203" | "20060237731" | "20060238112" | "20060270066" | "20060273303" | "20070007516" | "20070031701" | "20080048183" | "20080099757" | "20090267077" | "4981768" | "5487953" | "6486601" | "6589673" | "6951694" | "7158161" | "7387904" | "7462883" | "7521855" | "7545840" | "7560735" | "7605534" | "7626198" | "7649197" | "7667389" | "7683532" | "7714501").PN. OR ("8049208").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/25 09:48
S166	17	("2004/0012017").URPN.	USPAT	OR	ON	2014/08/25 09:51
S167	11	("2004/0108562").URPN.	USPAT	OR	ON	2014/08/25 09:53
S168	1	("20090134383").PN.	US-PGPUB; USPAT	OR	OFF	2014/08/25 10:08
S169	9	"2006126363"	US-PGPUB; USPAT;	OR	ON	2014/08/25 10:11

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S170	40	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$ or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2014/08/25 10:56
S171	16	S170 and buffer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 10:56
S173	7408	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S174	447	((Kengo) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S175	102	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/12/23 22:41
S176	7696	S173 S174 S175	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:41
S177	161896	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41
S178	14662	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41
S179	2301	S177 and S178	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:41

S180	767	S176 and S179	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:41
S181	40	(US-20100117077-$ or US-20050017302-$ or US-20060043377-$ or US-20060197092-$ or US-20060228974-$ or US-20060231882-$ or US-20070090365-$ or US-20070108446-$ or US-20070172591-$ or US-20080038882-$ or US-20080283831-$ or US-20090166616-$ or US-20090186437-$ or US-20100301325-$ or US-20100117086-$ or US-20090114917-$ or US-20100044711-$ or US-20050056897-$ or US-20060027804-$ or US-20060292726-$ or US-20080073653-$ or US-20130214270-$ or US-20060033098-$ or US-20050205870-$ or US-20040108562-$ or US-20080099757-$).did. or (US-20090134383-$).did. or (US-8134156-$ or US-7208756-$ or US-7564058-$ or US-6600196-$ or US-8049208-$).did. or (WO-2006126363-$).did. or (JP-2007123861-$ or JP-2007096055-$ or JP-07064112-$ or JP-2005223049-$).did. or (US-20070072439-$ or JP-2007096055-$ or JP-2008205451-$).did.	US-PGPUB; USPAT; FPRS; JPO; DERWENT	OR	ON	2014/12/23 22:41
S182	3792	(257/43).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:46
S183	2191	(257/e29.151).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:46
S184	2413	(257/e21.414).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S185	2127	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S186	2423	(438/104).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/12/23 22:47
S187	127	S185 and S186	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S188	1321	S178 and S182	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S189	453	S178 and S183	US-PGPUB; USPAT; USOCR;	OR	ON	2014/12/23 22:48

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S190	919	S178 and S184	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S191	2471	S188 S189 S190	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:48
S192	416	S179 and (S185 S186)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/12/23 22:49
S193	4	"42621714".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2014/12/23 22:51
S194	137	("20010046027" | "20020056838" | "20020132454" | "20030189401" | "20030218222" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060035452" | "20060043377" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060154397" | "20060169973" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070057261" | "20070072439" | "20070090365" | "20070108446" | "20070152217" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080203387" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080296568" | "20080308796" | "20080308797" |	US-PGPUB; USPAT; USOCR	OR	ON	2014/12/23 22:51

		"20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090065771" | "20090068773" | "20090073325" | "20090114910" | "20090134399" | "20090152506" | "20090152541" | "20090186437" | "20090186445" | "20090189155" | "20090189156" | "20090239335" | "20090278122" | "20090280600" | "20090305461" | "20100003783" | "20100025678" | "20100065844" | "20100090217" | "20100092800" | "20100109002").PN. OR ("20100117077" | "20100163865" | "20120097964" | "5470768" | "5731856" | "5744864" | "5847410" | "5879973" | "6294274" | "6338990" | "6563174" | "6586346" | "6727522" | "6960812" | "7049190" | "7061014" | "7064346" | "7105868" | "7211825" | "7282782" | "7297977" | "7301211" | "7323356" | "7385224" | "7402506" | "7411209" | "7453065" | "7453087" | "7462862" | "7468304" | "7501293" | "7576394" | "7674650" | "7732819" | "7749825" | "7919365" | "7923287" | "7981734" | "8134156" | "8158464" | "8222098" | "8253252" | "8368079" | "8525165").PN. OR ("8841661").URPN.				

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	Art Unit
	JEREMY JOY	2896

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
See search notes from parent applications 12/613,769 and 13/763874	8/25/2014	Jeremy J. Joy
General keyword and EAST search is attached.	8/25/2014	Jeremy J. Joy
General keyword and EAST search is attached.	2/26/2015	Jeremy J. Joy

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/JEREMY JOY/ Examiner.Art Unit 2816	February 26, 2015

Attorney Docket No. 0756-10566

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Confirmation No. 5776
Shunpei YAMAZAKI et al.	)	Group Art Unit: 2896
Serial No. 14/451,680	)	Examiner: Jeremy J. Joy
Filed: August 5, 2014	)	
For: SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF	)	

AMENDMENT

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Official Action dated September 11, 2014, please consider the following amendments and remarks in connection with the above-identified application.

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) A semiconductor device comprising:

a glass substrate;

a gate electrode over the glass substrate;

a gate insulating film over the gate electrode;

a ~~source electrode~~ first metal film and a ~~drain electrode~~ second metal film over the gate insulating film; and

an oxide semiconductor film in contact with the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film,

wherein a side surface of the ~~source electrode~~ first metal film faces a side surface of the ~~drain electrode~~ second metal film, and

wherein each of the side surface of the ~~source electrode~~ first metal film and the side surface of the ~~drain electrode~~ second metal film has a step in a lower end portion thereof.

3. (Currently Amended) The semiconductor device according to claim 2, wherein the oxide semiconductor film is positioned on the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film.

4. (Currently Amended) The semiconductor device according to claim 2, wherein the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film are in contact with the gate insulating film.

5. (Previously Presented) The semiconductor device according to claim 2, wherein the oxide semiconductor film comprises indium, gallium, and zinc.

6. (Currently Amended) The semiconductor device according to claim 2,

wherein a first angle of the step that is made between the side surface of the ~~source electrode~~ first metal film and an upper surface of the glass substrate is greater than or equal to 20° and smaller than or equal to 90°, and

wherein a second angle of the step that is made between the side surface of the ~~drain electrode~~ second metal film and the upper surface of the glass substrate is greater than or equal to 20° and smaller than or equal to 90°.

7. (Currently Amended) The semiconductor device according to claim 2, comprising:

a first buffer layer between the oxide semiconductor film and the ~~source electrode~~ first metal film; and

a second buffer layer between the oxide semiconductor film and the ~~drain electrode~~ second metal film,

wherein each of the first buffer layer and the second buffer layer has lower resistivity than the oxide semiconductor film.

8. (Currently Amended) A display device comprising:

a pixel portion comprising:

the semiconductor device according to claim 2; and

a display element electrically connected to one of the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film.

9. (Previously Presented) The display device according to claim 8, wherein the display element is a liquid crystal element.

10. (Previously Presented) The display device according to claim 8, wherein the display element is a light-emitting element.

11. (Currently Amended) A semiconductor device comprising:

a glass substrate;

a gate electrode over the glass substrate;

a gate insulating film over the gate electrode;

a ~~source electrode~~ first metal film and a ~~drain electrode~~ second metal film over the gate insulating film; and

an oxide semiconductor film in contact with the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film,

wherein a side surface of the ~~source electrode~~ first metal film faces a side surface of the ~~drain electrode~~ second metal film,

wherein each of the side surface of the ~~source electrode~~ first metal film and the side surface of the ~~drain electrode~~ second metal film has a step in a lower end portion thereof,

wherein each of the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film comprises a first layer and a second layer, and

wherein the first layer and the second layer comprises different material from each other.

12. (Currently Amended) The semiconductor device according to claim 11, wherein the oxide semiconductor film is positioned on the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film.

13. (Currently Amended) The semiconductor device according to claim 11, wherein the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film are in contact with the gate insulating film.

14. (Previously Presented) The semiconductor device according to claim 11, wherein the oxide semiconductor film comprises indium, gallium, and zinc.

15. (Currently Amended) The semiconductor device according to claim 11,

wherein a first angle of the step that is made between the side surface of the ~~source electrode~~ first metal film and an upper surface of the glass substrate is greater than or equal to 20° and smaller than or equal to 90°, and

wherein a second angle of the step that is made between the side surface of the ~~drain electrode~~ second metal film and the upper surface of the glass substrate is greater than or equal to 20° and smaller than or equal to 90°.

16. (Currently Amended) The semiconductor device according to claim 11, comprising:

a first buffer layer between the oxide semiconductor film and the ~~source electrode~~ first metal film; and

a second buffer layer between the oxide semiconductor film and the ~~drain electrode~~ second metal film,

wherein each of the first buffer layer and the second buffer layer has lower resistivity than the oxide semiconductor film.

17. (Currently Amended) A display device comprising:

a pixel portion comprising:

the semiconductor device according to claim 11; and

a display element electrically connected to one of the ~~source electrode~~ first metal film and the ~~drain electrode~~ second metal film.

18. (Previously Presented) The display device according to claim 17, wherein the display element is a liquid crystal element.

19. (Previously Presented) The display device according to claim 17, wherein the display element is a light-emitting element.

20. (New) The semiconductor device according to claim 2,
wherein the first metal film is a source electrode, and
wherein the second metal film is a drain electrode.

21. (New) The semiconductor device according to claim 11,
wherein the first metal film is a source electrode, and
wherein the second metal film is a drain electrode.

REMARKS

The Official Action mailed September 11, 2014, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicant respectfully submits that this response is being timely filed.

An Information Disclosure Statement was submitted on August 29, 2014 and consideration of this Information Disclosure Statement is respectfully requested.

Claims 2-19 were pending in the present application prior to the above amendment. Claims 2-4, 6-8, 11-13 and 15-17 have been amended to better recite the features of the present invention and new claims 20 and 21 have been added to recite additional protection to which the Applicant is entitled. Accordingly, claims 2-21 are now pending in the present application, of which claims 2 and 11 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 3 of the Official Action rejects claims 2-19 as obvious based on the combination of U.S. Publication No. 2008/0099757 to Furukawa and U.S. Publication No. 2007/0108446 to Akimoto. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended.

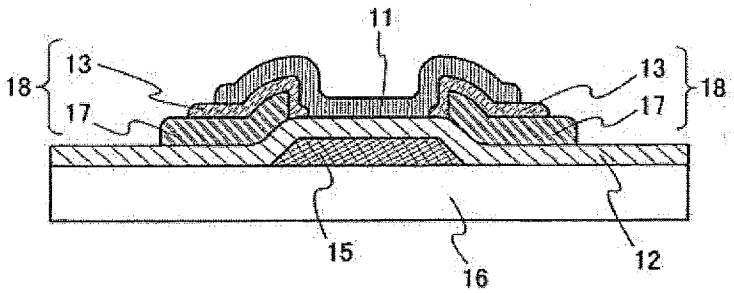
As stated in MPEP §§ 2142-2144.04, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some reason to do so found either explicitly or implicitly in the references themselves or in the knowledge generally

available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims, as amended. Independent claims 2 and 11 have been amended to change "a source electrode" to --a first metal film-- and "a drain electrode" to --a second metal film--. As amended, claims 2 and 11 recite *inter alia* that each of the side surface of the first metal film and the side surface of the second metal film has a step in a lower end portion thereof. The amendment is supported in the original specification, for example, by paragraph [0049]. For the reasons provided below, Furukawa and Akimoto, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

The Official Action asserts that "Furukawa teaches ... a source electrode and a drain electrode over the gate insulating film (Fig. 3A, source and drain electrode 18); an organic semiconductor film in contact with the source electrode and the drain electrode (Fig. 3A, oxide semiconductor film 11); wherein a side surface of the source electrode faces a side surface of the drain electrode; and wherein each of the side surface of the source electrode and the side surface of the drain electrode has a step in a lower end portion thereof (Fig. 3A; ¶s 0115-0155 and 0183-0185)" (page 3, Paper No. 20140825).

FIG. 3A



However, Furukawa only potentially teaches that the alleged source and drain electrodes 18 each include a conductive layer 17 and a composite layer 13, while the composite layer contains *an organic compound and an inorganic compound*, not a metal film. See, Furukawa at FIG. 3A (reproduced above) and paragraph [0112]. On the other hand, Furukawa does not teach an oxide semiconductor film in contact with a first *metal* film and a second *metal* film or that each of the side surface of the first *metal* film and the side surface of the second *metal* film has a step in a lower end portion thereof, as recited in the amended independent claims. Furthermore, Akimoto does not cure the deficiency of Furukawa in this regard.

Therefore, the Applicant respectfully submits that Furukawa and Akimoto, either alone or in combination, do not teach or suggest that each of the side surface of the first metal film and the side surface of the second metal film has a step in a lower end portion thereof. Since Furukawa and Akimoto do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

New claims 20 and 21 have been added to recite additional protection to which the Applicant is entitled. The features of claims 20 and 21 are supported in the present specification, for example, by paragraph [0049]. For the reasons stated above, the Applicant respectfully submits that new claims 20 and 21 are in condition for allowance.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized to charge fees under 37 C.F.R. §§ 1.16, 1.17, 1.20(a), 1.20(b), 1.20(c), and 1.20(d) (except the Issue Fee) which may be required now or hereafter, or credit any overpayment to Deposit Account No. 50-2280.

Respectfully submitted,

Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, Virginia 22033
(571) 434-6789

Electronic Acknowledgement Receipt

EFS ID:	20936334
Application Number:	14451680
International Application Number:	
Confirmation Number:	5776
Title of Invention:	SEMICONDUCTOR DEVICE
First Named Inventor/Applicant Name:	Shunpei YAMAZAKI
Customer Number:	31780
Filer:	Eric J. Robinson/Jennifer Rosenfeld
Filer Authorized By:	Eric J. Robinson
Attorney Docket Number:	0756-10566
Receipt Date:	11-DEC-2014
Filing Date:	05-AUG-2014
Time Stamp:	16:08:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	AMENDMENT_11DEC2014.pdf	1226703 10c79fc65af3550675d40f135b377d2666883f87	no	10

Warnings:	
Information:	

Total Files Size (in bytes):	1226703

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/451,680	Filing Date 08/05/2014	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **12/11/2014**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $80 =	0
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $420 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/MONICA FRANCIS/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566

CONFIRMATION NO. 5776

31780
Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

PUBLICATION NOTICE

OC000000071952046

Title:SEMICONDUCTOR DEVICE

Publication No.US-2014-0339556-A1
Publication Date:11/20/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/451,680	08/05/2014	Shunpei YAMAZAKI	0756-10566	5776

31780 7590 09/11/2014

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033

EXAMINER	
JOY, JEREMY J	

ART UNIT	PAPER NUMBER
2896	

MAIL DATE	DELIVERY MODE
09/11/2014	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 14/451,680	Applicant(s) YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2896	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08/14/2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *2-19* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *2-19* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *08/05/2014* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☒ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 13/763,874.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment to the claims filed on 08/14/2014 has been acknowledged and entered. Claim 1 has been cancelled and claims 2-19 have been added. Non-final office action on the merits is as follows:

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

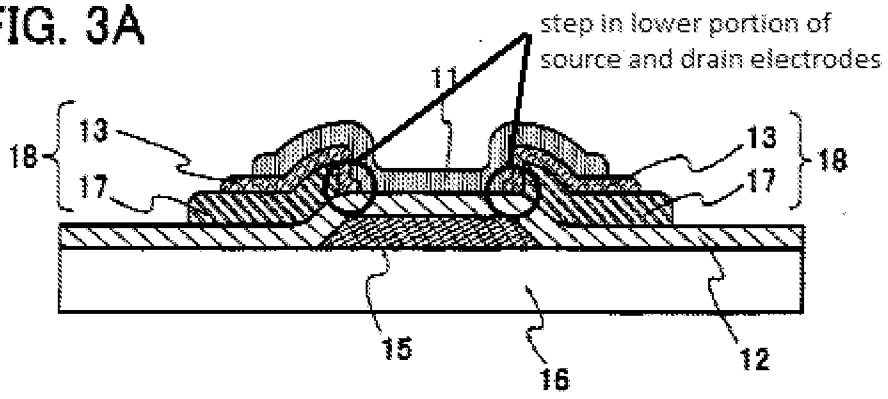
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims **2-19** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *Furukawa et al.* (**U.S. Patent Pub. No. 2008/0099757**, from hereinafter "*Furukawa*) in view of *Akimoto* (**U.S. Patent Pub. No. 2007/0108446**).

Regarding Claim 2, ***Furukawa*** teaches a glass substrate (Fig. 3A, substrate 16); a gate electrode over the glass substrate (Fig. 3A, gate electrode 15); a gate insulating film over the gate electrode (Fig. 3A, gate dielectric 12); a source electrode and a drain electrode over the gate insulating film (Fig. 3A, source and drain electrode 18); an organic semiconductor film in contact with the source electrode and the drain electrode (Fig. 3A, oxide semiconductor film 11); wherein a side surface of the source electrode faces a side surface of the drain electrode; and wherein each of the side surface of the source electrode and the side surface of the drain electrode has a step in a lower end portion thereof (Fig. 3A; ¶'s 0115-0155 and 0183-0185).

FIG. 3A



Furukawa fails to teach an oxide semiconductor film formed on the source and drain regions rather than the organic semiconductor film as disclosed.

Akimoto teaches an oxide semiconductor film formed on source and drain regions in a display device similar to that of the applicant (Fig. 1A, oxide semiconductor film 13; ¶ 0065).

In view of the teachings of *Akimoto*, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of *Furukawa* to include an oxide semiconductor layer as the active semiconductor channel layer because oxide semiconductors are well known in the art of thin film transistors as they provide adequate channel mobility during device operation. Also, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding Claim 3, *Furukawa* teaches wherein the oxide semiconductor film is positioned on the source and the drain electrode (Fig. 2A).

Regarding Claim 4, *Furukawa* teaches wherein the source electrode and the drain electrode are in contact with the gate insulating film (Fig. 2A).

Regarding Claim 5, as in the combination of *Shunpei* and *Akimoto* above, *Akimoto* teaches the oxide semiconductor film comprises zinc (¶ 0066).

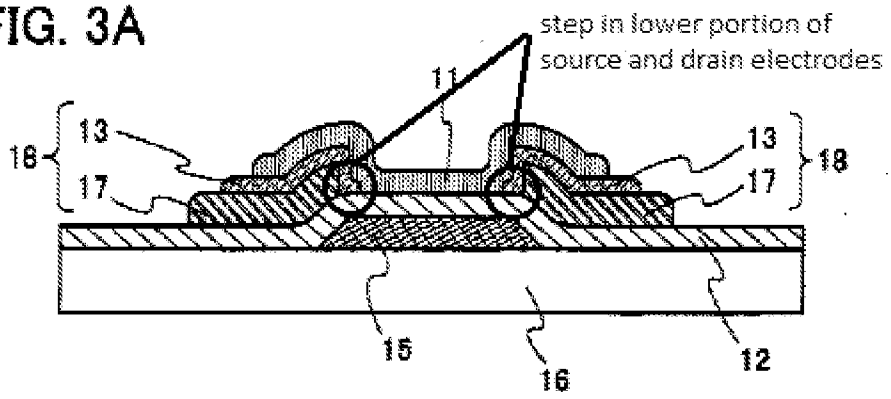
Regarding Claim 6, *Furukawa* teaches the step lays flat on the substrate creating about a 90° angle which satisfies the claims in regards to the angle of inclination of the step in relation to the surface of the substrate (Fig. 2A).

Regarding Claim 7, *Furkawa* teaches a first buffer layer between the oxide semiconductor film and the source region and a second buffer layer between the oxide semiconductor film and the drain region, wherein each of the first buffer layer and the second buffer layer has a lower resistivity than the oxide semiconductor film (Fig. 12A, buffer layer 19; ¶0206-0211).

Regarding Claims 8-10, *Furukawa* teaches the device comprising a pixel portion comprising: the semiconductor device as claimed above and a display element electrically connected to one of the source electrode and the drain electrode and more specifically wherein the display element is a liquid crystal element or a light emitting element (Fig. 8B and 9B, depicting the semiconductor device as taught above with a display element as claimed, LC element 564, light emitting element 637).

Regarding Claim 11, *Furukawa* teaches a glass substrate (Fig. 2A, substrate 16); a gate electrode over the glass substrate (Fig. 2A, gate electrode 15); a gate insulating film over the gate electrode (Fig. 2A, gate dielectric 12); a source electrode and a drain electrode over the gate insulating film (Fig. 2A, source and drain electrode 18); an organic semiconductor film in contact with the source electrode and the drain electrode (Fig. 2A, oxide semiconductor film 11); wherein a side surface of the source electrode faces a side surface of the drain electrode; and wherein each of the side surface of the source electrode and the side surface of the drain electrode has a step in a lower end portion thereof, wherein each of the source and drain electrode comprises a first layer and a second layer and wherein the first layer and the second layer comprise different materials (Fig. 2A, layer 13 vs. 17; ¶'s 0084-0099 and 0112-0115).

FIG. 3A



Furukawa fails to teach an oxide semiconductor film formed on the source and drain regions rather than the organic semiconductor film as disclosed.

Akimoto teaches an oxide semiconductor film formed on source and drain regions in a display device similar to that of the applicant (Fig. 1A, oxide semiconductor film 13; ¶ 0065).

In view of the teachings of *Akimoto*, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of *Furukawa* to include an oxide semiconductor layer as the active semiconductor channel layer because oxide semiconductors are well known in the art of thin film transistors as they provide adequate channel mobility during device operation. Also, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding Claim 12, *Furukawa* teaches wherein the oxide semiconductor film is positioned on the source and the drain electrode (Fig. 2A).

Regarding Claim 13, *Furukawa* teaches wherein the source electrode and the drain electrode are in contact with the gate insulating film (Fig. 2A).

Regarding Claim 14, as in the combination of *Furukawa* and *Akimoto* above, *Akimoto* teaches the oxide semiconductor film comprises zinc (¶ 0066).

Regarding Claim 15, *Furukawa* teaches the step lays flat on the substrate creating about a 90° angle which satisfies the claims in regards to the angle of inclination of the step in relation to the surface of the substrate (Fig. 2A).

Regarding Claim 16, *Furkawa* teaches a first buffer layer between the oxide semiconductor film and the source region and a second buffer layer between the oxide semiconductor film and the drain region, wherein each of the first buffer layer and the second buffer layer has a lower resistivity than the oxide semiconductor film (Fig. 12A, buffer layer 19; ¶0206-0211).

Regarding Claims 17-19, *Furukawa* teaches the device comprising a pixel portion comprising: the semiconductor device as claimed above and a display element electrically connected to one of the source electrode and the drain electrode and more specifically wherein the display element is a liquid crystal element or a light emitting element (Fig. 8B and 9B, depicting the semiconductor device as taught above with a display element as claimed, LC element 564, light emitting element 637).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMY JOY whose telephone number is (571)270-7445. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Such can be reached on (571)-272-8895. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEREMY JOY/
Examiner, Art Unit 2896
August 25, 2014

/CHEUNG LEE/
Primary Examiner, Art Unit 2896

Notice of References Cited	Application/Control No. 14/451,680	Applicant(s)/Patent Under Reexamination YAMAZAKI ET AL.	
	Examiner JEREMY JOY	Art Unit 2896	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0099757	05-2008	Furukawa et al.	257/40
*	B	US-2007/0108446	05-2007	Akimoto, Kengo	257/061
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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BIB DATA SHEET

CONFIRMATION NO. 5776

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/451,680	08/05/2014	257	2896	0756-10566

APPLICANTS

Semiconductor Energy Laboratory Co., Ltd., Atsugi-shi, JAPAN, Assignee (with 37 CFR 1.172 Interest);

INVENTORS

Shunpei YAMAZAKI, Setagaya, JAPAN;
Kengo AKIMOTO, Atsugi, JAPAN;
Daisuke KAWAE, Yamato, JAPAN;

**** CONTINUING DATA ***************************

This application is a CON of 13/763,874 02/11/2013 PAT 8803146
which is a CON of 12/613,769 11/06/2009 PAT 8373164
which is a CON of 12/606,262 10/27/2009 ABN

**** FOREIGN APPLICATIONS ***************************

JAPAN 2008-287187 11/07/2008

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

08/13/2014

Foreign Priority claimed	35 USC 119(a-d) conditions met	Verified and Acknowledged	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☑ Yes ☐ No	☑ Yes ☐ No	/JEREMY J JOY/ Examiner's Signature	☐ Initials	JAPAN	37	1	1

ADDRESS

Robinson Intellectual Property Law Office, P.C.
3975 Fair Ridge Drive
Suite 20 North
Fairfax, VA 22033
UNITED STATES

TITLE

SEMICONDUCTOR DEVICE

FILING FEE RECEIVED		
1600	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	**Art Unit**
	JEREMY JOY	2896

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/25/2014								
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	19	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14451680	YAMAZAKI ET AL.
	Examiner	Art Unit
	JEREMY JOY	2896

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
See search notes from parent applications 12/613,769 and 13/763874	8/25/2014	Jeremy J. Joy
General keyword and EAST search is attached.	8/25/2014	Jeremy J. Joy

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/JEREMY JOY/ Examiner.Art Unit 2896	August 25, 2014

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	7097	((Shunpei) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
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L3	98	((Daisuke) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/08/25 07:56
L4	7378	1 2 3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/25 07:57
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L41	5	("2006/0033098").URPN.	USPAT	OR	ON	2014/08/25 09:46
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S3	128	"257/E21.459".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
S4	1431	"438/158".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
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S7	1225	"438/104".CCLS.	US-PGPUB; USPAT	OR	ON	2012/04/04 14:32
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S12	6	"2007123861"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/04/04 14:47
S13	7	"2007096055"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/04/04 14:47
S14	41	("20020153587" | "20030013261" | "20030047785" | "20030111663" | "20030207502" | "20030218221" | "20030218222" | "20030219530" | "20040023432" | "4887255" | "5744864" | "6225655" | "6255130" | "6362499" | "6563174" | "7067843").PN. OR ("7282782").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:20
S15	51	("20020171085" | "20030047785" | "20030111663" | "20030218221" | "20030218222" | "20040023432" | "20040127038" | "20050017244" | "3294660" | "5289016" | "5744864" | "6362499" | "6391462" | "6727522").PN. OR ("7297977").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:21
S16	132	("20010046027" | "20020056838" | "20020109796" | "20020132454" | "20040038446" | "20040127038" | "20040132293" | "20050017302" | "20050199959" | "20050259206" | "20050275038" | "20060035452" | "20060086933" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060163743" | "20060169973" | "20060170067" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:23

		"20060284172" | "20060286737" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070158652" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080198108" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080308796" | "20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090073325" | "20090114910" | "20090114911" | "20090134399" | "20090152541" | "20090153762" | "20090186437" | "20090186445" | "20090189155" | "20090189156" | "5530265" | "5696011" | "5701167" | "5731856" | "5817548" | "6294274" | "6532045" | "6674136" | "6727522" | "6852998" | "6900461" | "7009204" | "7049190").PN. OR ("7061014" | "7064346" | "7075614" | "7105868" | "7211825" | "7282782" | "7297977" | "7323356" | "7402506" | "7411209" | "7453065" | "7453087" | "7462862" | "7468304" | "7501293").PN. OR ("7674650").URPN.				
S17	9604	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S18	4685	S17 and ((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:25
S19	322	(((semiconductor adj oxide) ((zinc indium gallium zn in ga) adj oxide)) near3 channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S20	118	S17 and S19	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:26
S21	1	("7638360").PN.	US-PGPUB; USPAT	OR	OFF	2012/04/04 16:33
S22	7	("20050017302" | "20060244107" | "20070048970" | "20070072439" | "20070184571" | "20080254569").PN. OR ("7638360").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:33
S23	2	"US 8134156"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 16:36
S24	3	"US 20070108446"	US-PGPUB; USPAT;	OR	ON	2012/04/04 16:36

			USOCR; DERWENT			
S25	177	("20010046027" | "20020011978" | "20020044111" | "20020056838" | "20020106839" | "20020109796" | "20020110703" | "20020132454" | "20030047785" | "20030207506" | "20030218222" | "20040038446" | "20040127038" | "20040132293" | "20040252270" | "20050017302" | "20050082541" | "20050084999" | "20050104071" | "20050164423" | "20050199959" | "20050231107" | "20050233509" | "20050250308" | "20050259206" | "20050275038" | "20060035452" | "20060043377" | "20060054888" | "20060086933" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060163743" | "20060169973" | "20060170067" | "20060170111" | "20060183274" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060249733" | "20060284171" | "20060284172" | "20060286737" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070141784" | "20070152217" | "20070158652" | "20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070238228" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080108198" | "20080128689" | "20080129195" | "20080166834" | "20080174710" | "20080182358" | "20080198108" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080308796").PN. OR ("20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090068773" | "20090073325" | "20090114910" | "20090114911" | "20090134399" | "20090152541" | "20090153762" | "20090186437" | "20090186445" | "20090189155" | "20090189156" | "20090239335" | "20090278122" | "20090280600" | "20090305461" | "20100003783" | "20100038639" | "20100085283" | "20100240157" | "20110012119" | "20110024787" | "5382457" | "5530265" | "5696011" | "5701167" | "5731856" | "5803975"	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:36

		"5817548" | "5888410" | "5930607" | "5952708" | "5994157" | "6294274" | "6459418" | "6529251" | "6532045" | "6563174" | "6674136" | "6727522" | "6819368" | "6852998" | "6900461" | "6921627" | "7009204" | "7012658" | "7049190" | "7061014" | "7064346" | "7067843" | "7075614" | "7105868" | "7189992" | "7211825" | "7264979" | "7268842" | "7282782" | "7297977" | "7323356" | "7330234" | "7339187" | "7365805" | "7385224" | "7391055" | "7402506" | "7411209" | "7453065" | "7453087" | "7456430" | "7462862" | "7468304" | "7470607" | "7485478" | "7501293" | "7560396" | "7633471" | "7732818" | "7825419" | "7855380" | "RE38292").PN. OR ("8134156").URPN.				
S26	95	S25 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:44
S27	0	(buffer near5 (source drain) with (ozide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:48
S28	0	(buffer with (source drain) with (ozide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:48
S29	0	(source drain) with (ozide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 16:49
S30	5583	(source drain) with (oxide near2 semiconductor) with channel	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S31	371	(buffer with (source drain) with (oxide near2 semiconductor))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S32	118	(buffer with (source drain) with (oxide near2 semiconductor) with channel)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:03
S33	24	S32 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:04
S34	108	("20010046027" | "20020056838" | "20020132454" | "20030189401" | "20030218222" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060035452" | "20060043377" | "20060091793" | "20060108529" | "20060108636" | "20060110867" | "20060113536" | "20060113539" | "20060113549" | "20060113565" | "20060169973" | "20060170111" | "20060197092" | "20060208977" | "20060228974" | "20060231882" | "20060238135" | "20060244107" | "20060284171" | "20060284172" | "20060292777" | "20070024187" | "20070046191" | "20070052025" | "20070054507" | "20070072439" | "20070090365" | "20070108446" | "20070152217" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:08

		"20070172591" | "20070187678" | "20070187760" | "20070194379" | "20070252928" | "20070272922" | "20070287296" | "20080006877" | "20080038882" | "20080038929" | "20080050595" | "20080073653" | "20080083950" | "20080106191" | "20080128689" | "20080129195" | "20080166834" | "20080182358" | "20080203387" | "20080224133" | "20080254569" | "20080258139" | "20080258140" | "20080258141" | "20080258143" | "20080296568" | "20080308796" | "20080308797" | "20080308804" | "20080308805" | "20080308806" | "20090008639" | "20090065771" | "20090068773" | "20090073325" | "20090114910" | "20090134399" | "20090152541" | "20090278122" | "20090280600" | "20100025678" | "20110012118" | "5731856" | "5744864" | "5847410" | "6294274" | "6563174" | "6586346" | "6727522" | "6960812" | "7049190" | "7061014" | "7064346" | "7105868" | "7211825" | "7282782" | "7297977" | "7301211" | "7323356" | "7385224").PN. OR ("7402506" | "7411209" | "7453065" | "7453087" | "7462862" | "7468304" | "7501293" | "7674650" | "7732819" | "7915075").PN. OR ("8021917").URPN.				
S35	43	S34 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S36	0	S34 and ((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:10
S37	54124	((angle taper) near5 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S38	217	S37 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:13
S39	164	S38 not (angle adj implant$3)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:15
S40	3037	(((taper incline decline angle) near3 (side sidewall surface) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:23
S41	178	(tft (thin adj film adj transistor)) and S40	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:24
S42	10	"US 7081641"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 17:29
S43	11	("20050056897" | "6569707" | "6858527").PN. OR ("7081641").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:30

S44	48	((taper near2 angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:40
S45	32689	((taper angle) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:41
S46	161	S45 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S47	243	((taper angle) near3 ((source drain) adj electrode))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S48	243	(taper angle) near3 ((source drain) adj electrode)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:42
S49	206	(tft (thin adj film adj transistor)) and S48	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:43
S50	69	S25 and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:53
S51	519	(source drain) near3 (tilt adj angle)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56
S52	54	S51 and S17	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:56
S53	5614	S8 S9 S10	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S54	3354	S53 and (tft (thin adj film)) and (angle taper)	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 17:59
S55	145	S53 and (tft (thin adj film)) and ((angle taper) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:00
S56	5	"US 7564058"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2012/04/04 18:04
S57	20	("20020043662" | "20030148561" | "20030213959" | "20030234424" | "20040189188" | "4797108" | "5028551" | "5151806" | "5640067" | "6037197" | "6121660" | "6388270" | "6433363" | "6448116" | "6476416" | "6639244" | "6709901").PN. OR ("7564058").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:04
S58	8	S57 and angle	US-PGPUB; USPAT; USOCR	OR	ON	2012/04/04 18:05
S59	218	("20030189401" | "20080128689" | "20080308796" | "20080308806" | "7061014" | "20060110867" | "20060284172" | "20080258141" | "20090068773" | "20060244107" | "5847410" | "6563174" | "20020132454" | "20060231882" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/18 18:08

		"20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090152541" | "6294274" | "7402506" | "7411209" | "20110012118" | "7915075" | "7462862" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "5731856" | "7385224" | "7732819" | "20080203387" | "20090008639" | "20100025678" | "20030218222" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080254569" | "20080258140" | "20090278122" | "20090280600" | "7049190" | "20070172591" | "20080296568" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "7211825" | "7453065" | "7674650" | "20080182358" | "20090073325" | "7453087" | "7501293" | "20070072439" | "7282782" | "20070187760" | "20080308797" | "5744864" | "6586346" | "6727522" | "6960812" | "7301211" | "20060035452" | "20060091793" | "20060108636" | "20060113549" | "20060197092" | "20070090365" | "20080166834" | "20090134399" | "7064346" | "7468304" | "20050199959" | "20070108446" | "7297977" | "20080308804" | "20080308805" | "20090065771" | "20040038446" | "20040127038" | "20050017302" | "20060043377" | "20060113536" | "20060170111" | "20070046191" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20090114910" | "7105868" | "7323356").PN.				
S60	18460	(tft (thin adj film)) and ((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:28
S61	133336	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S62	10304	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S63	1628	S61 and S62	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:29
S64	34920	((angle taper gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/18 18:30
S65	193	S64 and S62	US-PGPUB;	OR	ON	2012/09/18

			USPAT; USOCR			18:30
S66	1	("20120132910").PN.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:00
S67	10	("20110318916" | "20120058599" | "8021917" | "8030663" | "8115201").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:01
S68	11	S66 S67	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:01
S69	5731	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S70	294	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S71	62	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2012/09/26 22:04
S72	5942	S69 S70 S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S73	5403	S72 and (tft (thin$1film) (thin adj film))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S74	3556	S73 and (angle taper)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:04
S75	878	S73 and ((angle taper) with electrode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:05
S76	133560	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S77	10334	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:06
S78	1631	S76 and S77	US-PGPUB;	OR	ON	2012/09/26

			USPAT; USOCR			22:06
S79	532	S72 and S78	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/26 22:06
S80	89	((angle taper gradation stair) near3 (source drain)) and S77 and S72	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:08
S81	5466	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:19
S82	5099	(257/72).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:19
S83	45	((angle taper gradation stair) near3 (source drain)) and S77 and S81	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S84	40	((angle taper gradation stair) near3 (source drain)) and S77 and S82	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S85	60	S83 S84	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:19
S86	674	(257/e29.277).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:21
S87	311	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:24
S88	1543	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:27
S89	15	((angle taper gradation stair) near3 (source drain)) and S77 and S88	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:27
S90	3682	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/09/26 22:28
S91	17	((angle taper gradation stair) near3 (source drain)) and S77 and S90	US-PGPUB; USPAT; USOCR	OR	ON	2012/09/26 22:28
S95	6242	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S96	356	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S97	75	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/07/01 10:27
S98	6489	S95 S96 S97	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S99	142606	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S100	11746	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT;	OR	ON	2013/07/01 10:27

			USOCR			
S101	1860	S99 and S100	US-PGPUB; USPAT; USOCR	OR	ON	2013/07/01 10:27
S102	600	S98 and S101	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/07/01 10:27
S103	5191	(semiconductor near5 ((indium in) and (gallium ga) and (zinc zn)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 02:30
S104	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30
S105	1268	S103 and S104	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 02:30
S106	1058	(IN$2ga$2zn)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 02:33
S107	268	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" | "7402506" | "7411209" | "8030663" | "8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01

		"8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" | "20090152506" | "5744864" | "6586346" | "6727522" | "6960812" | "7064346" | "7282782" | "7298084" | "7301211" | "7468304" | "20090186445" | "8368079" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20060292726" | "20070046191" | "20070108446" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20080308804" | "20080308805" | "20090065771" | "20090114910" | "20100092800" | "20120058599" | "7105868" | "7297977" | "7323356" | "20100003783").PN.				
S108	6320	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S109	368	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S110	77	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/08/12 09:01
S111	6569	S108 S109 S110	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/08/12 09:01
S112	143950	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S113	11923	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S114	1895	S112 and S113	US-PGPUB; USPAT; USOCR	OR	ON	2013/08/12 09:01
S115	617	S111 and S114	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2013/08/12 09:01

			IBM_TDB			
S116	133	("20030189401" | "20050050897" | "20060110867" | "20060284172" | "20080128689" | "20080258141" | "20080308796" | "20080308806" | "20090068773" | "7061014" | "20090189155" | "20020132454" | "20060231882" | "20060244107" | "20060284171" | "20070054507" | "20070152217" | "20070287296" | "20080224133" | "20080258139" | "20090114917" | "20090152541" | "20100044711" | "20110318916" | "20120132910" | "5847410" | "6294274" | "6563174" | "7323368" | "7402506" | "7411209" | "8030663" | "8115201" | "8158464" | "20060108529" | "20060113565" | "20060169973" | "20060228974" | "20060292777" | "20080050595" | "20080106191" | "20100065844" | "20100117086" | "5731856" | "7385224" | "7462862" | "7732819" | "20030218222" | "20060027804" | "20070024187" | "20070187678" | "20070194379" | "20080006877" | "20080038882" | "20080038929" | "20080083950" | "20080203387" | "20080254569" | "20080258140" | "20090008639" | "20090278122" | "20090280600" | "20100025678" | "7049190" | "20090189156" | "8134156" | "20010046027" | "20020056838" | "20060113539" | "20060208977" | "20060238135" | "20070052025" | "20070172591" | "20080296568" | "20100109002" | "7211825" | "7453065" | "20080182358" | "20090073325" | "6532045" | "7453087" | "7501293" | "7674650" | "8021917" | "20050056897" | "20060035452" | "20060108636" | "20060113549" | "20060197092" | "20070072439" | "20070090365" | "20070158652" | "20070187760" | "20080166834" | "20080308797" | "20090134399" | "20090152506" | "5744864" | "6586346" | "6727522" | "6960812" | "7064346" | "7282782" | "7298084" | "7301211" | "7468304" | "20090186445" | "8368079" | "20040038446" | "20040127038" | "20050017302" | "20050199959" | "20060043377" | "20060113536" | "20060170111" | "20060292726" | "20070046191" | "20070108446" | "20070252928" | "20070272922" | "20080073653" | "20080129195" | "20080258143" | "20080308804" | "20080308805" | "20090065771" | "20090114910" | "20100092800" | "20120058599" | "7105868" | "7297977" | "7323356"	US-PGPUB; USPAT; FPRS; EPO; JPO; IBM_TDB	OR	ON	2013/08/12 09:02

		"20100003783").PN.				
S117	2	"US 20130214270"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2013/12/11 01:46
S118	1	("20060033098").PN.	US-PGPUB; USPAT	OR	OFF	2013/12/11 01:57
S119	6558	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S120	385	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S121	82	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2013/12/11 02:41
S122	6814	S119 S120 S121	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/12/11 02:41
S123	148280	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S124	12541	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S125	1990	S123 and S124	US-PGPUB; USPAT; USOCR	OR	ON	2013/12/11 02:41
S126	649	S122 and S125	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/12/11 02:41
S127	6765	((SHUNPEI) near2 (YAMAZAKI)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S128	395	((KENGO) near2 (AKIMOTO)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S129	87	((DAISUKE) near2 (KAWAE)).INV.	US-PGPUB; USPAT	OR	ON	2014/03/23 19:33
S130	7028	S127 S128 S129	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S131	151627	((angle taper step gradation stair) near3 (source drain))	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S132	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33
S133	2067	S131 and S132	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:33

S134	680	S130 and S133	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:33
S135	9	"2008205451"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S136	10	"2005223049"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S137	3	"07064112"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:34
S138	13059	(tft (thin adj film adj transistor)) and ((bottom adj gate) bottom$1gate)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S139	6584	(257/59).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S140	48	((angle taper gradation stair) near3 (source drain)) and S138 and S139	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S141	4077	(438/149).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:57
S142	18	((angle taper gradation stair) near3 (source drain)) and S138 and S141	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:57
S143	1947	(438/158).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S144	17	((angle taper gradation stair) near3 (source drain)) and S138 and S143	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S145	17	S144	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/23 19:58
S146	320	(257/e21.535).CCLS.	US-PGPUB; USPAT	OR	OFF	2014/03/23 19:58
S147	72	S140 S142 S144	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/03/23 19:58

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