L19	14,006	H01L27/11524.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/07/31 19:30
L20	28,729	H01L27/14643.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/07/31 19:30
L21	11,437	H01L29/36.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/07/31 19:30
L22	12,797	H01L29/7395.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/07/31 19:31
L23	1	((source drain "source/drain") and drift and ((gradient graded) near2 concentration near2 dop$3) and well and ((no near2 active) (inactive))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:32
L24	1	((source drain "source/drain") and drift and ((gradient graded) near2 concentration near2 dop$3) and ((no near2 active) (inactive))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:32
L26	11	("20010040622" | "20030030488" | "4160985").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:36

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L30	29	("5448087" | "5888857" | "20030030488" | "6720622" | "20030026126" | "5973575" | "5262345" | "20040027753").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:36
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L34	118	("20020074585" | "5496746" | "6683343" | "6696314" | "6452086" | "6472715" | "6747883" | "5797999" | "6670544" | "20040063288" | "4347654" | "4866000" | "6744117" | "6754093" | "5213988" | "5569612" | "RE37441" | "4001864" | "6756616" | "5130262" | "5329144" | "6706550" | "6753202" | "5480816" | "6713813" | "6737722" | "5575862" | "6211028").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:37
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L38	267	L3 L5 L7 L9 L11 L26 L28 L30 L32 L34 L36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:38
L39	276	("10510842" | "10734481" | "20010040622" | "20020056883" | "20020074585" | "20020084430" | "20020093281" | "20020102783" | "20020134419" | "20030026126" | "20030030488" | "20030042511" | "20030183856" | "20040027753" | "20040063288" | "20060113592" | "20070045682" | "20080142899" | "20120048462" | "20130001661" | "20150200314" | "4001864" | "4160985" | "4347654" | "4481522" | "4684971" | "4866000" | "5029277" | "5130262" | "5213988" | "5262345" | "5329144" | "5448087" | "5480816" | "5496746" | "5517052" | "5569612" | "5575862" | "5637898" | "5797999" | "5888857" | "5973575" | "6211028" | "6310366" | "6452086" | "6465862" | "6472715" | "6670544" | "6683343" |	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:39

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L40	50	("20010028097" | "20020195656" | "20030183856" | "20080142899" | "20170243876" | "4160985" | "4684971" | "4688063" | "4907058" | "4994887" | "5835402" | "6025237" | "6384431" | "6465862").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:40
L41	1	((source drain "source/drain" active) and drift and ((gradient graded) near2 concentration near2 dop$3) and well and ((no near2 active) (inactive))).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:47
L43	31	((source drain "source/drain" active) and drift and ((gradient graded) near2 concentration near2 dop$3) and well and ((no near2 active) (inactive)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:51
L44	0	l43 and L38	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:52
L45	1	l43 and L13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:52
L46	17	L14 and L18 and L19 and L20 and L21 and L22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2021/07/31 19:53

			DERWENT; IBM_TDB			
L47	17	L14 and L18 and L19 and L21 and L22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:53
L48	17	L14 and L19 and L21 and L22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:53
L49	267	L14 and L19	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/07/31 19:53
L50	1	("20070045682").PN.	US-PGPUB; USPAT	OR	OFF	2021/07/31 20:42

7/31/2021 9:53:28 PM
C:\Users\aarora\Documents\EAST\Workspaces\16947294.wsp

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16947294
Filing Date	2020-07-27
First Named Inventor	G.R. Mohan Rao
Art Unit	2892
Examiner Name	NA
Attorney Docket Number	GRTD.01.01.DV7

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4001864	A	1997-01-04	Gibbons	
	2	4160985	A	1979-07-10	Kamins et al.	
	3	4347654	A	1982-09-07	Allen et al.	
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	Attorney Docket Number	GRTD.01.01.DV7

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	21	6211028	B1	2001-04-03	Tsai et al.	
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	33	6737722	B2	2004-05-18	Yamamoto et al.	
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	47	7307327	B2	2007-12-11	Bahl et al.	
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	Attorney Docket Number	GRTD.01.01.DV7

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	Examiner Name	NA
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Examiner Initials*	Cite No	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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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EXAMINER SIGNATURE

Examiner Signature	/AJAY ARORA/	Date Considered	07/31/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	Examiner Name	NA
	Attorney Docket Number	GRTD.01.01.DV7

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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 the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Bill R. Naifeh, Reg. No. 44962/	Date (YYYY-MM-DD)	2020-09-29
Name/Print	Bill R. Naifeh	Registration Number	44962

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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 record s.

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.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16947294
Filing Date	2020-07-27
First Named Inventor	G.R. Mohan Rao
Art Unit	2892
Examiner Name	ARORA, AJAY
Attorney Docket Number	GRTD60-35294

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4160985	A	1979-07-10	Kamins et al.	
	2	4684971	A	1987-08-04	Payne	
	3	4688063	A	1987-08-18	Lu et al.	
	4	4907058	A	1990-03-06	Sakai	
	5	4994887	A	1991-02-19	Hutter et al.	
	6	5835402	A	1998-11-10	Rao et al.	
	7	6025237	A	2000-02-15	Choi	
	8	6384431	B1	2002-05-07	Takahashi et al.	

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	G.R. Mohan Rao
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	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

	9	6465862	B1	2002-10-15	Harris	

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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010028097	A1	2001-10-11	Matsuoka et al.	
	2	20020195656	A1	2002-12-26	Hattori	
	3	20030183856	A1	2003-10-02	Wieczorek et al.	
	4	20080142899	A1	2008-06-19	Morris et al.	
	5	20170243876	A1	2017-08-24	Rao	

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2003051551	JP	A	2003-02-21	Miyamoto et al.		X

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16947294
	Filing Date	2020-07-27
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	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

	2	2003218356	JP	A	2003-07-31	Matsumoto et al.		☒
	3	s6482563	JP	A	1989-03-28	Kondo		☒
	4	2004049453	WO	A1	2004-06-10	Zheng et al.		☐

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T5
	1	IPR2020-00288-Exhibit 1029-Claim Construction District Court 4 20-2020	
	2	IPR2020-00288-Exhibit 2007-Minutes for Markman Hearing Held Via Video Conference Before U.S. District Judge Rodney Gilstrap, Greenthread, LLC v. Samsung Electronics Co., Ltd., et al., Case No. 2:19-CV-147-JRG, Dkt. 61	
	3	IPR2020-00288-Petitioner Reply	
	4	IPR2020-00289-00289 Petitioner Reply	
	5	IPR2020-00292 - Petition for IPR	
	6	IPR2020-00292-Exhibit 2002-Excerpt from Exhibit 4 to Appendix B of Samsung Electronics Co., Ltd.'s Invalidity Contentions (Invalidity Contention based on U.S. Patent No. 6,384,431 to Takahashi	

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	Art Unit	2892
	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

	7	IPR2020-00288 - Ex. 1020 - Michael Nastasi and James W. Mayer, Ion Implantation and Synthesis of Materials (2006). 4 pages	
	8	IPR2020-00288-Exhibit 2001 - IPR2020-00288 - Excerpt from Exhibit 1 to Appendix A of Samsung Electronics Co., Ltd.'s Invalidity Contentions regarding Morris	
	9	IPR2020-00288-Exhibit 2002-xcerpt from Exhibit 2 to Appendix A of Samsung Electronics Co., Ltd.'s Invalidity Contentions regarding Miyamoto	
	10	IPR2020-00288-Exhibit 2009-Complaint for Patent Infringement, Greenthread, LLC v. Samsung Electronics Co., Ltd., et al., Case No. 2:19-CV-147-JRG, Dkt. 1	
	11	IPR2020-00288-Exhibit 2011- Exhibit A to Revised Joint Claim Construction Chart Pursuant to Patent Rule 4-5, Greenthread, LLC v. Samsung Electronics Co., Ltd., et al., Case No. 2:19-CV-147-JRG, Dkt. 60-1	
	12	IPR2020-00288-Exhibit 2012-Samsungs Responsive Claim Construction Brief - District Court	
	13	IPR2020-00288-Exhibit 2013- Glew Dec	
	14	IPR2020-00288-Exhibit 2014- Excerpt from Exhibit 10 to Appendix A of Samsung Electronics Co., Ltd.'s Invalidity Contentions	
	15	IPR2020-00288-Patent Owner Preliminary Response	
	16	IPR2020-00288-Patent Owner Sur Reply	
	17	IPR2020-00288-Petition	

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	Application Number	16947294
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	First Named Inventor	G.R. Mohan Rao
	Art Unit	2892
	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

	18	IPR2020-00289-Exhibit 1 to Appendix C of Samsung Electronics Co., Ltd.'s Invalidity Contentions regarding Payne	
	19	IPR2020-00289-Exhibit 1003-Smith Dec	
	20	IPR2020-00289-Exhibit 1010- S. M. Sze et al., Semiconductor Devices: Physics and Technology,John Wiley & Sons, 2nd Ed., 2002 ("Sze '02")	
	21	IPR2020-00289-Exhibit 1012-Ben G. Streetman, Solid State Electronic Devices, 2nd Ed., Prentice-Hall, 1980 ("Streetman")	
	22	IPR2020-00289-Exhibit 2001-Exhibit 1 to Appendix C of Samsung Electronics Co., Ltd.'s Invalidity Contentions regarding Payne	
	23	IPR2020-00289-Exhibit 2002- Exhibit 3 to Appendix C of Samsung Electronics Co., Ltd.'s Invalidity Contentions regarding Wieczorek	
	24	IPR2020-00289-Exhibit 2011-Behzad Razavi, Design of Analog CMOS Integrated Circuits, 2001 ("Razavi")	
	25	IPR2020-00289-Exhibit 2012-Excerpts from Wolf, S., Silicon Processing for the VLSI Era, Vol.4 - Deep-Submicron Process Technology (2002) ("Wolf Vol. 4")	
	26	IPR2020-00289-Exhibit 2013-Glew Dec	
	27	IPR2020-00289-Patent Owner Pre Resp	
	28	IPR2020-00289-Patent Owner Sur reply	

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	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

	29	IPR2020-00289-Petition	
	30	IPR2020-00290-Exhibit 1003-Declaration of Dr. Bruce Smith	
	31	IPR2020-00290-Exhibit 1013-Tango, Mega bit Memory Technology	
	32	IPR2020-00290-Patent Owner Preliminary Resp	
	33	IPR2020-00290-Patent Owner Sur Reply	
	34	IPR2020-00290-Petition	
	35	IPR2020-00290-Petitioners Reply to Patent Owner Preliminary Response	
	36	IPR2020-00291-Exhibit 1003-Declaration of Dr. Bruce Smith	
	37	IPR2020-00291-Exhibit 1011- The Insulated Gate Bipolar Transistor: IGBT Theory and Design, Vinod Kumar Khanna, IEEE Press and Wiley-Interscience, 2003	
	38	IPR2020-00291-Exhibit 1020-S. M. Sze, Physics of Semiconductor Devices, Wiley-Interscience, 2nd Ed., 1981 ("Sze '81")	
	39	IPR2020-00291-Exhibit 1021-S. M. Sze, Semiconductor Devices: Physics and Technology, John Wiley & Sons, 2nd Ed., 2002 ("Sze '02")	

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16947294
	Filing Date	2020-07-27
	First Named Inventor	G.R. Mohan Rao
	Art Unit	2892
	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

	40	IPR2020-00291-Exhibit 2001-Exhibit 2 to Appendix B of Samsung Electronics Co., LTD's Invalidity Contentions (Invalidity Contention based on U.S. Patent Application Publication No. 2002/0195656 ("Hattori"))	
	41	IPR2020-00291-Exhibit 2013- Declaration of Dr. Alexander D. Glew	
	42	IPR2020-00291-Patent Owner Preliminary Resp	
	43	IPR2020-00291-Patent Owner Sur Reply	
	44	IPR2020-00291-Petition	
	45	IPR2020-00291-Petitioners Reply	
	46	IPR2020-00292-Exhibit 1003-Declaration of Dr. Bruce Smith	
	47	IPR2020-00292-Exhibit 2001-Excerpt from Exhibit 1 to Appendix B of Samsung Electronics Co., Ltd.'s Invalidity Contentions (Invalidity Contention based on "Insulated Gate Bipolar Transistor IGBT Theory and Design" by Vinod Kumar Khanna	
	48	IPR2020-00292-Exhibit 2012-Excerpt from Exhibit A to Joint Claim Construction Chart Pursuant to Patent Rule 4-5, Greenthread, LLC v. Samsung Electronics Co., Ltd., et al., Case No. 2:19-CV-147-JRG, Dkt. 53-1 (Mar. 18, 2020)	
	49	IPR2020-00292-Patent Owner Preliminary Response	

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	First Named Inventor	G.R. Mohan Rao
	Art Unit	2892
	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

EXAMINER SIGNATURE			
Examiner Signature	/AJAY ARORA/	Date Considered	07/31/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	Art Unit	2892
	Examiner Name	ARORA, AJAY
	Attorney Docket Number	GRTD60-35294

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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 the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Gregory M. Howison, Reg. #30646/	Date (YYYY-MM-DD)	2021-06-24
Name/Print	Gregory M. Howison	Registration Number	30646

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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.

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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.

Bibliographic Data

Application No: 16/947,294

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /AJAY ARORA/ (Examiner's Signature) | (Initials)

Title: SEMICONDUCTOR DEVICES WITH GRADED DOPANT REGIONS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/27/2020	257	2892	GRTD60-35294
RULE			

APPLICANTS

GREENTHREAD, LLC, Dallas, TX, UNITED STATES

INVENTORS

G.R. Mohan Rao, Allen, TX, UNITED STATES

CONTINUING DATA

This application is a CON of 16717950 12/17/2019 PAT 10734481

16717950 is a CON of 15590282 05/09/2017 PAT 10510842

15590282 is a CON of 14931636 11/03/2015 PAT 9647070

14931636 is a CON of 14515584 10/16/2014 PAT 9190502

14515584 is a CON of 13854319 04/01/2013ABN

13854319 is a CON of 11622496 01/12/2007 PAT 8421195

11622496 is a DIV of 10934915 09/03/2004ABN

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/03/2020

STATE OR COUNTRY

UNITED STATES

ADDRESS

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P.O. Drawer 800889

DALLAS, TX 75380

UNITED STATES

FILING FEE RECEIVED

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PART B - FEE(S) TRANSMITTAL

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

By fax, send to: (571)-273-2885

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

25883 7590 08/11/2021
MUNCK WILSON MANDALA L.L.P
P.O. Drawer 800889
DALLAS, TX 75380

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.

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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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/947,294	07/27/2020	G.R. Mohan Rao	GRTD60-35294	6907

TITLE OF INVENTION: SEMICONDUCTOR DEVICES WITH GRADED DOPANT REGIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	11/12/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
ARORA, AJAY	2892	257-025000

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 03-09 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 Gregory M. Howison
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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: GREENTHREAD, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): DALLAS, TEXAS

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

4a. Fees submitted: ☒ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-0208

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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.
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.
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 /Gregory M. Howison, Reg. #30646/ Date August 11, 2021

Typed or printed name GREGORY M. HOWISON Registration No. 30,646

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	16947294
Filing Date:	27-Jul-2020
Title of Invention:	SEMICONDUCTOR DEVICES WITH GRADED DOPANT REGIONS
First Named Inventor/Applicant Name:	G.R. Mohan Rao
Filer:	Gregory Michael Howison/Anna Nguyen
Attorney Docket Number:	GRTD60-35294

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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
UTILITY APPL ISSUE FEE	1501	1	1200	1200
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt	
EFS ID:	43481763
Application Number:	16947294
International Application Number:	
Confirmation Number:	6907
Title of Invention:	SEMICONDUCTOR DEVICES WITH GRADED DOPANT REGIONS
First Named Inventor/Applicant Name:	G.R. Mohan Rao
Customer Number:	25883
Filer:	Gregory Michael Howison
Filer Authorized By:	
Attorney Docket Number:	GRTD60-35294
Receipt Date:	11-AUG-2021
Filing Date:	27-JUL-2020
Time Stamp:	15:54:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1200
RAM confirmation Number	E20218AF55164564
Deposit Account	500208
Authorized User	Gregory Howison
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.17 (Patent application and reexamination processing fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

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)	GRT35294IssueFeeTransmittal.pdf	1235057 bcc7d713d5093b3da2caf0714325c11158a3f3e9	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	40279 89ee78f80675f92f2bff9aca0fbabba28b7b353f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1275336		

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.

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/947,294	09/14/2021	11121222	GRTD60-35294	6907

25883 7590 08/25/2021

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P.O. Drawer 800889
DALLAS, TX 75380

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):

GREENTHREAD, LLC, Dallas, TX;
G.R. Mohan Rao, Allen, TX;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:22-cv-00105	1/27/2022	Western District of Texas, Waco Division

PLAINTIFF	DEFENDANT
GREENTHREAD, LLC	INTEL CORPORATION, DELL INC., AND DELL TECHNOLOGIES INC.,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,421,195	4/16/2013	GREENTHREAD, LLC
2	9,190,502	11/17/2015	GREENTHREAD, LLC
3	10,510,842	12/17/2019	GREENTHREAD, LLC
4	10,734,481	8/4/2020	GREENTHREAD, LLC
5	11,121,222	9/14/2021	GREENTHREAD, LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy