PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3678233

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	INTELLECTUAL PROPERTY SECURITY JOINDER AGREEMENT

CONVEYING PARTY DATA

Name	Execution Date
NEXPLANAR CORPORATION	12/31/2015

RECEIVING PARTY DATA

Name:	BANK OF AMERICA, N.A., AS ADMINISTRATIVE AGENT
Street Address:	135 S. LASALLE STREET
Internal Address:	IL4-135-05-41
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60603

PROPERTY NUMBERS Total: 63

Property Type	Number
Application Number:	14489177
Application Number:	13757163
Patent Number:	9211628
Application Number:	14610991
Application Number:	14307846
Patent Number:	7425172
Patent Number:	7704122
Patent Number:	8380339
Patent Number:	7704125
Patent Number:	8864859
Patent Number:	7377840
Patent Number:	7287793
Patent Number:	8932116
Patent Number:	8715035
Patent Number:	9180570
Patent Number:	8383003
Patent Number:	9017140
Patent Number:	9156124
Patent Number:	8628384

PATENT REEL: 037407 FRAME: 0071

503631603

Property Type	Number
Patent Number:	9028302
Patent Number:	8702479
Patent Number:	8657653
Patent Number:	8439994
Patent Number:	8968058
Patent Number:	8920219
Patent Number:	9067297
Patent Number:	9067298
Application Number:	14562589
Application Number:	14874179
Application Number:	14823956
Application Number:	14183894
Application Number:	14152792
Application Number:	14875513
Application Number:	13113655
Application Number:	14530534
Application Number:	14550129
Application Number:	14736568
Application Number:	14732497
Application Number:	14727586
Application Number:	13488149
Application Number:	13747139
Application Number:	13829990
Application Number:	13955398
Application Number:	14635973
Application Number:	62083101
Application Number:	62127734
Application Number:	14611064
Application Number:	14931737
PCT Number:	US2011020870
PCT Number:	US2011020840
PCT Number:	US2011053678
PCT Number:	US2011055796
PCT Number:	US2012021899
PCT Number:	US1234717
PCT Number:	US2012038212
PCT Number:	US2012046037
PCT Number:	US2012038211

Property Type	Number
PCT Number:	US2013043126
PCT Number:	US2014011792
PCT Number:	US2014020754
PCT Number:	US2014047065
PCT Number:	US2015035662
PCT Number:	US2015060343

CORRESPONDENCE DATA

Fax Number: (704)444-8857

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 70043432104

Email: twitcher@mcguirewoods.com

Correspondent Name: TERRY L. WITCHER, PARALEGAL

Address Line 1: MCGUIREWOODS LLP

Address Line 2: 201 N. TRYON STREET, SUITE 3000
Address Line 4: CHARLOTTE, NORTH CAROLINA 28202

ATTORNEY DOCKET NUMBER:	4452178-3929
NAME OF SUBMITTER:	TERRY L. WITCHER, PARALEGAL
SIGNATURE:	/s/ Terry L. Witcher
DATE SIGNED:	12/31/2015

Total Attachments: 29

source=Cabot IP Security Agreement#page1.tif source=Cabot IP Security Agreement#page2.tif source=Cabot IP Security Agreement#page3.tif source=Cabot IP Security Agreement#page4.tif source=Cabot IP Security Agreement#page5.tif source=Cabot IP Security Agreement#page6.tif source=Cabot IP Security Agreement#page7.tif source=Cabot IP Security Agreement#page8.tif source=Cabot IP Security Agreement#page9.tif source=Cabot IP Security Agreement#page10.tif source=Cabot IP Security Agreement#page11.tif source=Cabot IP Security Agreement#page12.tif source=Cabot IP Security Agreement#page13.tif source=Cabot IP Security Agreement#page14.tif source=Cabot IP Security Agreement#page15.tif source=Cabot IP Security Agreement#page16.tif source=Cabot IP Security Agreement#page17.tif source=Cabot IP Security Agreement#page18.tif source=Cabot IP Security Agreement#page19.tif source=Cabot IP Security Agreement#page20.tif source=Cabot IP Security Agreement#page21.tif

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INTELLECTUAL PROPERTY SECURITY JOINDER AGREEMENT

THIS INTELLECTUAL PROPERTY SECURITY JOINDER AGREEMENT dated as of December 31, 2015 (this "Intellectual Property Security Joinder Agreement"), is made by NexPlanar Corporation, a Delaware corporation (the "Joining Grantor"), in favor of BANK OF AMERICA, N.A., in its capacity as administrative agent (the "Administrative Agent") for the Secured Parties (as defined in the Credit Agreement referenced below unless otherwise indicated; all capitalized terms used but not defined herein shall have the meanings given to such terms in such Credit Agreement).

WITNESSETH:

- A. Cabot Microelectronics Corporation, a Delaware corporation (the "Borrower"), certain of its Subsidiaries and the Administrative Agent, are party to an Intellectual Property Security Agreement dated as of February 13, 2012 (as in effect on the date hereof, the "Intellectual Property Security Agreement").
- B. The Joining Grantor is a Subsidiary of the Borrower and is required by the terms of the Credit Agreement to become a Guarantor and be joined as a party to the Intellectual Property Security Agreement as a Grantor (as defined in the Intellectual Property Security Agreement).
- C. The Joining Grantor will materially benefit directly and indirectly from the making and maintenance of the extensions of credit made from time to time under the Credit Agreement, Secured Cash Management Agreements and Secured Hedge Agreements.

In order to induce the Secured Parties to from time to time make and maintain extensions of credit under the Credit Agreement, Secured Cash Management Agreements and Secured Hedge Agreements, the Joining Grantor hereby agrees as follows:

- 1. Joinder. The Joining Grantor hereby irrevocably, absolutely and unconditionally becomes a party to the Intellectual Property Security Agreement as a Grantor and bound by all the terms, conditions, obligations, liabilities and undertakings of each Grantor or to which each Grantor is subject thereunder, including without limitation the grant pursuant to Section 3 of the Intellectual Property Security Agreement of a security interest to the Administrative Agent for the benefit of the Secured Parties in, and collateral assignment to the Administrative Agent for the benefit of the Secured Parties of, the Collateral (as defined in the Intellectual Property Security Agreement) of such Grantor or in which such Grantor has or may have or acquire an interest or the power to transfer rights therein, whether now owned or existing or hereafter created, acquired or arising and wheresoever located, as security for the payment and performance of the Secured Obligations (as defined in the Intellectual Property Security Agreement), all with the same force and effect as if the Joining Grantor were a signatory to the Intellectual Property Security Agreement.
- **2.** Affirmations. The Joining Grantor hereby acknowledges and affirms as of the date hereof with respect to itself, its properties and its affairs each of the waivers,

representations, warranties, acknowledgements and certifications applicable to any Grantor contained in the Intellectual Property Security Agreement.

- 3. <u>Supplemental Schedules</u>. Attached to this Intellectual Property Security Joinder Agreement are duly completed schedules (the "<u>Supplemental Schedules</u>") supplementing as thereon indicated the respective Schedules to the Intellectual Property Security Agreement. The Joining Grantor represents and warrants that the information contained on each of the Supplemental Schedules with respect to such Joining Grantor and its properties and affairs is true, complete and accurate as of the date hereof.
- 4. <u>Severability</u>. If any provision of this Intellectual Property Security Joinder Agreement is held to be illegal, invalid or unenforceable, (a) the legality, validity and enforceability of the remaining provisions of this Intellectual Property Security Joinder Agreement shall not be affected or impaired thereby and (b) the parties shall endeavor in good faith negotiations to replace the illegal, invalid or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the illegal, invalid or unenforceable provisions. The invalidity of a provision in a particular jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.
- **5.** <u>Counterparts.</u> This Intellectual Property Security Joinder Agreement may be executed in any number of counterparts each of which when so executed and delivered shall be deemed an original, and it shall not be necessary in making proof of this Intellectual Property Security Joinder Agreement to produce or account for more than one such counterpart executed by the Joining Grantor. Without limiting the foregoing provisions of this <u>Section 5</u>, the provisions of <u>Section 10.10</u> of the Credit Agreement shall be applicable to this Intellectual Property Security Joinder Agreement.
- 6. <u>Delivery</u>. The Joining Grantor hereby irrevocably waives notice of acceptance of this Intellectual Property Security Joinder Agreement and acknowledges that the Secured Obligations are and shall be deemed to be incurred, and credit extensions under the Loan Documents, Secured Cash Management Agreements and Secured Hedge Agreements made and maintained, in reliance on this Intellectual Property Security Joinder Agreement and the Grantor's joinder as a party to the Intellectual Property Security Agreement as herein provided.
- **7.** Governing Law; Jurisdiction; Waiver of Jury Trial; Etc. The provisions of Section 16 of the Intellectual Property Security Agreement are hereby incorporated by reference as if fully set forth herein.

[Signature page follows.]

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IN WITNESS WHEREOF, the Joining Grantor has duly executed and delivered this Intellectual Property Security Joinder Agreement as of the day and year first written above.

JOINING GRANTOR:

NexPlanar Corporation

Name: H. Caro/ Bernstein

Title: Vice President, Secretary and

General Counsel

Intellectual Property Security Joinder Agreement Signature Page

SUPPLEMENTAL SCHEDULE I

Patents and Patent Applications

POLISHING PAD WITH MULTI- MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 CN	POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 CN	SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 CN	CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 CN	CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 CN	METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636 CN	SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 CN	TITLE REFERENCE #
10/11/1	9/28/11	1/11/11	1/11/11	2/21/06	7/15/05	6/3/04	FILED
201180049789.4	201180057370.3	201180043031.X	201180005898.6	200680012730.7	200580024127.6	200480018857.0	SERIAL#
				9/7/11	4/3/13	6/22/11	ISSUED
				ZL200680012730.7	ZL200580024127.6	ZL200480018857.0	PATENT#
Pending	Pending	Pending	Pending	Issued	Issued	Issued	STATUS
China	China	China	China	China	China	China	COUNTRY

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH CONCENTRIC	1/19/12	201280013062.5			Pending	China
POLYGON GROOVE PATTERN						
Reference 100646 CN	E /16/17	201280021702 F				Chisa
HOMOGENEOUS BODY HAVING	2/10/12	201280024/32.3			relialis	
DISCRETE PROTRUSIONS THEREON Reference 100648 CN						
POLISHING PAD WITH APERTURE	7/10/12	201280045294.9			Pending	China
Reference 100649 CN						
POLISHING PAD WITH FOUNDATION	5/16/12	201280058372.9			Pending	China
LAYER						
Reference 100650 CN						
POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN	5/29/13	201380041299.9			Pending	China
APERTURE OR OPENING ABOVE A						
TRANSPARENT FOUNDATION LAYER						
POLISHING PAD HAVING POLISHING	3/5/14				Pending	China
SURFACE WITH CONTINUOUS						
PROTRUSIONS HAVING TAPERED						
Reference 100655 CN						
POLISHING PAD WITH FOUNDATION	5/16/12				Pending	Germany
LAYER AND POLISHING SURFACE						
Reference 100650 DE						
CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL	3/25/04	04758522.9	10/22/14	1610929	Issued	Europe
PLANARIZATION						
Reference 100634 EP						
CMP PAD WITH LOCAL AREA	1/11/11	11700493.7	12/2/15	2523777	Issued	Europe
Reference 100640 EP						

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TTT		GERIAI#	ISSI ED	#TENT#	CTATUS	COUNTRY
REFERENCE #		German	1000012	A A M A A A A A A A A A A A A A A A A A	000	
POLISHING PAD WITH	5/16/12	12723065.4	4/1/15	2714331	Issued	Europe
HOMOGENEOUS BODY HAVING						
DISCRETE PROTRUSIONS THEREON						
Reference 100648 EP						
METHODS FOR PRODUCING IN-SITU	7/15/05	05772600.2			Pending	Europe
GROOVES IN CHEMICAL						
MECHANICAL PLANARIZATION						
(CMP) PADS, AND NOVEL CMP PAD						
DESIGNS						
Reference 100636 EP						
CUSTOMIZED POLISHING PADS FOR	2/21/06	06735719.4			Pending	Europe
CMP AND METHODS OF						
FABRICATION AND USE THEREOF						
Reference 100637 EP						
SOFT POLISHING PAD FOR	1/11/11	11700490.3			Pending	Europe
POLISHING A SEMICONDUCTOR						
SUBSTRATE						
Reference 100641 EP						
POLISHING PAD WITH MULTI-	10/11/1	11773633.0			Pending	Europe
MODAL DISTRIBUTION OF PORE	1					
DIAMETERS						
Reference 100643 EP						
POLISHING PAD WITH CONCENTRIC	1/19/12	12702367.9			Pending	Europe
OR APPROXIMATELY CONCENTRIC						
POLYGON GROOVE PATTERN						
Reference 100646 EP						
POLISHING PAD WITH	5/16/12	14198969.9			Pending	Europe
HOMOGENEOUS BODY HAVING						
DISCRETE PROTRUSIONS THEREON						
Reference 100648 EP DIV						
POLISHING PAD WITH FOUNDATION	5/16/12	12723064.7			Pending	Europe
LAYER AND POLISHING SURFACE						
LAYER						
Reference 100650 EP						

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POLISHING PAD WITH MULTI- MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 IL	SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 IL	CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 IL	CUSTOMIZED POLISHING PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100637 IL	POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE LAYER Reference 100650 GB	POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 EP	POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654 EP	POLISHING PAD WITH POLISHING SURFACE LAYER HAVING AN APERTURE OR OPENING ABOVE A TRANSPARENT FOUNDATION LAYER Reference 100653 EP	TITLE REFERENCE #
10/11/1	1/11/11	1/11/11	2/21/06	5/16/12	3/5/14	1/16/14	5/29/13	FILED
225390	224052	220649	185099		14712132.1	14702711.4	13728287.7	SERIAL#
			3/1/14					ISSUED
			185099					PATENT#
Pending	Pending	Pending	Issued	Pending	Pending	Pending	Pending	STATUS
Israel	Israel	Israel	Israel	Great Britain	Europe	Europe	Europe	COUNTRY

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SYNTHESIS OF FUNCTIONALLY GRADED PAD FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100635 JP	POLISHING PAD WITH MULTI- MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 JP	CMP PAD WITH LOCAL AREA 1/ TRANSPARENCY Reference 100640 JP	POLISHING PAD WITH MULTI- MODAL DISTRIBUTION OF PORE DIAMETERS Reference 100643 IN	SOFT POLISHING PAD FOR 1, POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 IN	CMP PAD WITH LOCAL AREA 1, TRANSPARENCY Reference 100640 IN	OUCING IN-SITU CAL ARIZATION OVEL CMP PAD	POLISHING PAD HAVING POLISHING 3 SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 IL	TITLE F
6/3/04	10/11/1	1/11/11	10/11/1 1	1/11/11	1/11/11	7/15/05	3/5/14	EILED
2006-515172	2013-533944	2012-549005	1223/KOLNP/2013	4167/KOLNP/2012	2023/KOLNP/2012	3936/KOLNP/2006		SERIAL#
5/20/11								ISSUED
4746540								PATENT#
Issued	Allowed	Allowed	Pending	Pending	Pending	Pending	Pending	STATUS
Japan	Japan	Japan	India	India	India	India	Israel	COUNTRY

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TITLE		SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
SYNTHESIS OF ELINCTIONALLY	6/3/0/	2010-6337/	1/10/1/	5,448177	בפוסא	
GRADED PAD FOR CHEMICAL	0/0/04	10.00-0107	1/10/14	U+10+//	וממכט	Japan
MECHANICAL PLANARIZATION						
Reference 100635 JP DIV						
METHODS FOR PRODUCING IN-SITU	7/15/05	2007-522606	4/20/12	4977604	Issued	Japan
GROOVES IN CHEMICAL						
(CMP) PADS, AND NOVEL CMP PAD						
DESIGNS						
Reference 100636 JP						
TRANSPARENCY	1/11/11	2013-259/88	10/9/15	5820869	Issued	Japan
Reference 100640 JP DIV						
POLISHING PAD FOR EDDY	9/28/11	2013-531768	1/30/15	5688466	Issued	Japan
CURRENT END-POINT DETECTION Poferonce 1006/17 IB						
POLISHING PAD WITH	5/16/12	2014-511502	12/5/14	5657178	Issued	Japan
HOMOGENEOUS BODY HAVING						
Reference 100648 JP						
CUSTOMIZED POLISHING PADS FOR	2/21/06	2007-556409			Pending	Japan
FABRICATION AND USE THEREOF						
Reference 100637 JP						
CMP PAD WITH LOCAL AREA	1/11/11	2015-8413			Pending	Japan
Reference 100640 JP DIV2						
SOFT POLISHING PAD FOR	1/11/11	2013-518379			Pending	Japan
POLISHING A SEMICONDUCTOR SUBSTRATE						
Reference 100641 JP						
SOFT POLISHING PAD FOR	1/11/11	2014-267011			Pending	Japan
POLISHING A SEMICONDUCTOR						
SUBSTRATE Reference 100641 JP DIV						

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Pending Pend	TITLE REFERENCE #	FILED	SERIAL#	**********	PATENT#	STATUS	COUNTRY
ION 9/28/11 2015-225406 Pending PRE 10/11/1 2015-88319 Pending Pending PRE 1 1 2015-88319 Pending Pending TRIC 1/19/12 2013-552021 Pending TRIC 1/19/12 2013-552021 Pending PRIC 1/19/12 2014-209683 Pending REON S/16/12 2014-209683 Pending REON S/16/12 2014-543467 Pending REON S/29/13 2015-515155 Pending Pending REA LAYER Pending Pending Pending PEA LAYER Pending Pe	POLISHING PAD FOR EDDY	9/28/11	2014-132128			Pending	Japan
10N 9/28/11 2015-225406 Pending Pend	CURRENT END-POINT DETECTION						
Pending Pend	Reference 100642 JP DIV						
ION RE 10/11/1 2015-88319 Pending RIRIC 1/19/12 2013-552021 Pending ITRIC 1/19/12 2013-59242 Pending ITRIC 1/19/12 2014-209683 4G REON ATION 5/16/12 2014-243467 CE INING 5/29/13 2015-515155 Pending	POLISHING PAD FOR EDDY	9/28/11	2015-225406			Pending	Japan
RE 10/11/1 2015-88319 Pending RE 1 1/19/12 2013-552021 Pending TRIC 1/19/12 2013-552021 Pending TRIC 1/19/12 2015-59242 TRIC 1/19/12 2014-209683 GEON 5/16/12 2014-209683 Pending ATION 5/16/12 2014-543467 CE Pending ING 5/29/13 2015-515155 Pending VE A LAYER LAYER SHING 1/16/14 2015-552686 Pending	CURRENT END-POINT DETECTION						
RE 10/11/1 2015-88319 Pending RE 1 1/19/12 2013-552021 Pending TRRC 1/19/12 2013-552021 Pending TRRC 1/19/12 2015-59242 TRRC 5/16/12 2014-209683 GE 5/16/12 2014-209683 Pending ATION 5/16/12 2014-543467 (CE FA LAYER S/29/13 2015-515155 Pending VE A LAYER 1/16/14 2015-552686 Pending	Reference 100642 JP DIV2						
RE 1 NITRIC 1/19/12 2013-552021 Pending Pending ITRIC 1/19/12 2015-59242 TRIC 1/19/12 2014-209683 Pending Pe	POLISHING PAD WITH MULTI-	10/11/1	2015-88319			Pending	Japan
NITRIC 1/19/12 2013-552021 Pending Pending ITRIC 1/19/12 2015-59242 Pending Pe	MODAL DISTRIBUTION OF PORE	Ь					
NTRIC 1/19/12 2013-552021 Pending TRIC 1/19/12 2015-59242 Pending TRIC 1/19/12 2014-209683 USATION 5/16/12 2014-209683 Pending REON S/16/12 2014-543467 UCE S/19/13 2015-515155 Pending Pend	DIAMETERS						
NTRIC 1/19/12 2013-552021 Pending Pen	Reference 100643 JP DIV						
NTRIC 1/19/12 2015-59242 Pending TRIC 1/19/12 2014-209683 Pending REON 5/16/12 2014-209683 Pending REON 5/16/12 2014-543467 Pending RCE S/29/13 2015-515155 Pending ROW S/29/13 2015-515155 Pending ROW S/29/13 2015-515155 Pending ROW S/16/14 2015-552686 Pending Pending Pending ROW SHING 1/16/14 2015-552686 Pending Pend	POLISHING PAD WITH CONCENTRIC	1/19/12	2013-552021			Pending	Japan
NTRIC 1/19/12 2015-59242 Pending TRIC 1/19/12 2014-209683 Pending AG REON 5/16/12 2014-209683 Pending NATION 5/16/12 2014-543467 Pending ACE S/29/13 2015-515155 Pending NE A LAYER SHING 1/16/14 2015-552686 Pending Pending	POLYGON GROOVE PATTERN						
NTRIC 1/19/12 2015-59242 Pending TRIC 5/16/12 2014-209683 Pending AG 5/16/12 2014-209683 Pending ACE 5/16/12 2014-543467 Pending IING 5/29/13 2015-515155 Pending VE A Pending Pending VE A Pending Pending SHING 1/16/14 2015-552686 Pending	Reference 100646 JP						
TRIC 5/16/12 2014-209683 IG REON ATION 5/16/12 2014-543467 IGE Fending Pending	POLISHING PAD WITH CONCENTRIC	1/19/12	2015-59242			Pending	Japan
AGREON 5/16/12 2014-209683 Pending ATION 5/16/12 2014-543467 (CE HING 5/29/13 2015-515155 Pending	DOLACEN CROOKE DATTERN						
AGREON S/16/12 2014-209683 Pending ATION 5/16/12 2014-543467 ACE HING 5/29/13 2015-515155 Pending	Reference 100646 IP DIV						
AGREON 5/16/12 2014-543467 Pending ACE Pending S/29/13 2015-515155 Pending	POLISHING PAD WITH	5/16/12	2014-209683			Pending	Japan
REON 5/16/12 2014-543467 Pending CE Pending Pending NTION 5/29/13 2015-515155 Pending	HOMOGENEOUS BODY HAVING						
ATION 5/16/12 2014-543467 Pending CE HING 5/29/13 2015-515155 Pending	DISCRETE PROTRUSIONS THEREON						
ATION 5/16/12 2014-543467 Pending CE Pending	Reference 100648 JP DIV						
ING 5/29/13 2015-515155 Pending VE A LAYER SHING 1/16/14 2015-552686 Pending	POLISHING PAD WITH FOUNDATION	5/16/12	2014-543467			Pending	Japan
HING 5/29/13 2015-515155 Pending VE A LAYER SHING 1/16/14 2015-552686 Pending	LAYER AND POLISHING SURFACE						
HING 5/29/13 2015-515155 Pending VE A LAYER SHING 1/16/14 2015-552686 Pending	LAYER						
HING 5/29/13 2015-515155 Pending VE A LAYER SHING 1/16/14 2015-552686 Pending	Reference 100650 JP						
VE A LAYER SHING 1/16/14 2015-552686 Pending	POLISHING PAD WITH POLISHING	5/29/13	2015-515155			Pending	Japan
VE A LAYER SHING 1/16/14 2015-552686 Pending	SURFACE LAYER HAVING AN						
SHING 1/16/14 2015-552686 Pending	APERTURE OR OPENING ABOVE A						
SHING 1/16/14 2015-552686 Pending	TRANSPARENT FOUNDATION LAYER						
SHING 1/16/14 2015-552686 Pending	Reference 100653 JP						
SURFACE WITH CONTINUOUS PROTRUSIONS Reference 100654 JP	POLISHING PAD HAVING POLISHING	1/16/14	2015-552686			Pending	Japan
Reference 100654 JP	SURFACE WITH CONTINUOUS						
Reference 100654 JP	PROTRUSIONS						
	Reference 100654 JP						

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TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD HAVING POLISHING	3/5/14		200000000000000000000000000000000000000		Pending	Japan
SURFACE WITH CONTINUOUS						
PROTRUSIONS HAVING TAPERED						
SIDEWALLS						
Reference 100655 JP						
POLISHING PAD WITH MULTI-	10/11/1	10-2014-7024352			Allowed	Republic of Korea
MODAL DISTRIBUTION OF PORE	┙					
DIAMETERS						
Reference 100643 KR DIV						
POLISHING PAD WITH APERTURE	7/10/12	10-2014-7002650			Allowed	Republic of Korea
Reference 100649 KR						
SYNTHESIS OF FUNCTIONALLY	6/3/04	10-2005-7022758	1/13/12	10-1108024	Issued	Republic of Korea
GRADED PAD FOR CHEMICAL						
MECHANICAL PLANARIZATION						
Reference 100635 KR						
METHODS FOR PRODUCING IN-SITU	7/15/05	10-2007-7000129	11/6/12	10-1200312	Issued	Republic of Korea
GROOVES IN CHEMICAL						
MECHANICAL PLANARIZATION						
(CMP) PADS, AND NOVEL CMP PAD						
DESIGNS						
Reference 100636 KR						
METHODS FOR PRODUCING IN-SITU	7/15/05	10-2012-7011484	2/12/13	10-1234168	Issued	Republic of Korea
GROOVES IN CHEMICAL						
MECHANICAL PLANARIZATION						
(CMP) PADS, AND NOVEL CMP PAD						
DESIGNS						
Reference 100636 KR DIV						
CMP PAD WITH LOCAL AREA	1/11/11	10-2012-7019401	2/24/15	10-1495145	Issued	Republic of Korea
TRANSPARENCY						
Reference 100640 KR						
POLISHING PAD FOR EDDY	9/28/11	10-2013-7010876	10/8/14	10-1451230	Issued	Republic of Korea
CURRENT END-POINT DETECTION						
Reference 100642 KR						

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E E	711 70	CEDIAT#	Teering	DAMBNUT#		
REFERENCE #	· · · · · · · · · · · · · · · · · · ·		1000011	* ** * ****	Cities	Cochiana
POLISHING PAD FOR EDDY	9/28/11	10-2014-7008035	2/24/15	10-1495141	Issued	Republic of Korea
CURRENT END-POINT DETECTION						
Reference 100642 KR DIV						
POLISHING PAD FOR EDDY	9/28/11	10-2004-7008037	2/24/15	10-1495143	Issued	Republic of Korea
CURRENT END-POINT DETECTION						
Reference 100642 KR DIV2						
CUSTOMIZED POLISHING PADS FOR	2/21/06	10-2007-7021088			Pending	Republic of Korea
CMP AND METHODS OF						
FABRICATION AND USE THEREOF						
Reference 100637 KR						
CUSTOMIZED POLISHING PADS FOR	2/21/06	10-2013-7019342			Pending	Republic of Korea
CMP AND METHODS OF						
FABRICATION AND USE THEREOF						
Reference 100637 KR DIV						
CUSTOMIZED POLISHING PADS FOR	2/21/06	10-2015-7013802			Pending	Republic of Korea
CMP AND METHODS OF						
FABRICATION AND USE THEREOF						
Reference 100637 KR DIV2						
POLISHING PAD WITH MULTI-	10/11/1	10-2013-7010017			Pending	Republic of Korea
MODAL DISTRIBUTION OF PORE	1					
DIAMETERS						
Reference 100643 KR						
POLISHING PAD WITH MULTI-	10/11/1	10-2015-7020203			Pending	Republic of Korea
MODAL DISTRIBUTION OF PORE	1					
DIAMETERS						
Reference 100643 KR DIV2						
POLISHING PAD WITH CONCENTRIC	1/19/12	10-2013-7020419			Pending	Republic of Korea
OR APPROXIMATELY CONCENTRIC						
POLYGON GROOVE PATTERN						
Reference 100646 KR						
POLISHING PAD WITH CONCENTRIC	1/19/12	10-2015-7029008			Pending	Republic of Korea
OR APPROXIMATELY CONCENTRIC						
POLYGON GROOVE PATTERN						
Reference 100646 KR DIV						

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TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH	5/16/12	10-2013-7029736			Pending	Republic of Korea
HOMOGENEOUS BODY HAVING						
DISCRETE PROTRUSIONS THEREON						
Reference 100648 KR						
POLISHING PAD WITH	5/16/12	10-2015-7029108			Pending	Republic of Korea
HOMOGENEOUS BODY HAVING						
DISCRETE PROTRUSIONS THEREON						
Reference 100648 KR DIV						
POLISHING PAD WITH APERTURE	7/10/12	10-2015-7020491			Pending	Republic of Korea
Reference 100649 KR DIV						
POLISHING PAD WITH FOUNDATION	5/16/12	10-2014-7017782			Pending	Republic of Korea
LAYER AND POLISHING SURFACE						
LAYER						
Reference 100650 KR						
POLISHING PAD WITH FOUNDATION	5/16/12	10-2015-7023009			Pending	Republic of Korea
LAYER AND POLISHING SURFACE						
LAYER						
Reference 100650 KR DIV						
POLISHING PAD WITH POLISHING	5/29/13	10-2014-7036283			Pending	Republic of Korea
SURFACE LAYER HAVING AN						
APERTURE OR OPENING ABOVE A						
TRANSPARENT FOUNDATION LAYER						
Reference 100653 KR						
POLISHING PAD HAVING POLISHING	1/16/14	10-2015-7020592			Pending	Republic of Korea
SURFACE WITH CONTINUOUS						
PROTRUSIONS						
Reference 100654 KR						
POLISHING PAD HAVING POLISHING	3/5/14	10-2015-7027915			Pending	Republic of Korea
SURFACE WITH CONTINUOUS						
PROTRUSIONS HAVING TAPERED						
SIDEWALLS						
Reference 100655 KR						

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TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
CUSTOMIZED POLISHING PADS FOR	2/21/06	MX/a/2007/00982	5/10/13	309514	Issued	Mexico
CMP AND METHODS OF		2				
FABRICATION AND USE THEREOF						
Reference 100637 MX						
CMP PAD WITH LOCAL AREA	1/11/11	PI 2012003162			Pending	Malaysia
TRANSPARENCY						
Reference 100640 MY						
SOFT POLISHING PAD FOR	1/11/11	PI 2013000052			Pending	Malaysia
POLISHING A SEMICONDUCTOR						
SUBSTRATE						
Reference 100641 MY						
POLISHING PAD WITH MULTI-	10/11/1	PI 2013001300			Pending	Malaysia
MODAL DISTRIBUTION OF PORE	Ľ					
DIAMETERS						
Reference 100643 MY						
POLISHING PAD HAVING POLISHING	3/5/14	PI 2015703096			Pending	Malaysia
SURFACE WITH CONTINUOUS						
PROTRUSIONS HAVING TAPERED						
SIDEWALLS						
Reference 100655 MY						
CUSTOMIZED POLISH PADS FOR	3/25/04	2005058946	10/31/07	115092	Issued	Singapore
CHEMICAL MECHANICAL						
PLANARIZATION						
Reference 100634 SG						
CUSTOMIZED POLISH PADS FOR	3/25/04	200708864-4	4/13/12	153668	Issued	Singapore
CHEMICAL MECHANICAL						
PLANARIZATION						
Reference 100634 SG DIV						
CUSTOMIZED POLISH PADS FOR	3/25/04	201008653-6	4/28/15	185141	Issued	Singapore
CHEMICAL MECHANICAL						
PLANARIZATION						
Reference 100634 SG DIV2						

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7171 5		CEDIAI#		DATENT#	Q VAN	COUNTRY
REFERENCE #	I III III	SEMAL	ESSOLE	10101111	015100	COOMING
SYNTHESIS OF FUNCTIONALLY	6/3/04	200507614-6	7/31/08	117762	lssued	Singapore
GRADED PAD FOR CHEMICAL						
MECHANICAL PLANARIZATION						
Reference 100635 SG						
SYNTHESIS OF FUNCTIONALLY	6/3/04	200802604-9	10/15/12	168412	Issued	Singapore
GRADED PAD FOR CHEMICAL						
MECHANICAL PLANARIZATION						
Reference 100635 SG DIV						
METHODS FOR PRODUCING IN-SITU	7/15/05	200700235-5	7/31/09	129005	Issued	Singapore
GROOVES IN CHEMICAL						
MECHANICAL PLANARIZATION						
(CMP) PADS, AND NOVEL CMP PAD						
DESIGNS						
Reference 100636 SG						
CUSTOMIZED POLISHING PADS FOR	2/21/06	200706048-6	2/26/10	134788	Issued	Singapore
CMP AND METHODS OF						
FABRICATION AND USE THEREOF						
Reference 100637 SG						
CMP PAD WITH LOCAL AREA	1/11/11	201204908-6	1/29/15	182327	Issued	Singapore
TRANSPARENCY						
Reference 100640 SG						
SOFT POLISHING PAD FOR	1/11/11	201300033-6	7/14/15	186908	Issued	Singapore
POLISHING A SEMICONDUCTOR						
SUBSTRATE						
Reference 100641 SG						
POLISHING PAD FOR EDDY	9/28/11	201302127-4	9/25/15	188632	Issued	Singapore
CURRENT END-POINT DETECTION						
Reference 100642 SG						
POLISHING PAD WITH MULTI-	10/11/1	201302131-6	3/27/14	189053	Issued	Singapore
MODAL DISTRIBUTION OF PORE	ightharpoonup					
DIAMETERS						
Reference 100643 SG						

TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH CONCENTRIC	1/20/12	201200479-2	7/22/14	182934	Issued	Singapore
OR APPROXIMATELY CONCENTRIC						
POLYGON GROOVE PATTERN						
Reference 100646 SG						
SYNTHESIS OF FUNCTIONALLY	6/3/04	201207372-2			Pending	Singapore
GRADED PAD FOR CHEMICAL						
MECHANICAL PLANARIZATION						
Reference 100635 SG DIV2						
CMP PAD WITH LOCAL AREA	1/11/11	10201408738R			Pending	Singapore
TRANSPARENCY						
Reference 100640 SG DIV						
SOFT POLISHING PAD FOR	1/11/11	10201505004 Q			Pending	Singapore
POLISHING A SEMICONDUCTOR						
SUBSTRATE						
Reference 100641 SG DIV						
POLISHING PAD WITH CONCENTRIC	1/20/12	10201404027T			Pending	Singapore
OR APPROXIMATELY CONCENTRIC						
POLYGON GROOVE PATTERN						
Reference 100646 SG DIV						
POLISHING PAD WITH FOUNDATION	5/16/12	11201402224W			Pending	Singapore
LAYER AND POLISHING SURFACE						
LAYER						
Reference 100650 SG						
POLISHING PAD WITH FOUNDATION	5/16/12	10201508090W			Pending	Singapore
LAYER AND POLISHING SURFACE						
LAYER						
Reference 100650 SG DIV						
POLISHING PAD WITH POLISHING	5/29/13	11201407839P			Pending	Singapore
SURFACE LAYER HAVING AN						
APERTURE OR OPENING ABOVE A						
TRANSPARENT FOUNDATION LAYER						
Reference 100653 SG						

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TITLE REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS	3/5/14	11201507373V			Pending	Singapore
PROTRUSIONS HAVING TAPERED						
SIDEWALLS						
Reference 100655 SG						
POLISHING PAD WITH APERTURE Reference 100649 TW	7/13/12	101125451			Allowed	Taiwan
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE	5/22/12	101118246			Allowed	Taiwan
Reference 100650 TW						
CUSTOMIZED POLISH PADS FOR	3/25/04	093108134	9/21/07	1286964	Issued	Taiwan
CHEMICAL MECHANICAL PLANARIZATION						
Reference 100634 TW						
CUSTOMIZED POLISH PADS FOR	2/17/06	095105518	2/11/13	1 385050	Issued	Taiwan
FABRICATION AND USE THEREOF						
Reference 100634X TW						
CMP PAD WITH LOCAL AREA	1/13/11	100101301	7/1/15	1490083	Issued	Taiwan
Reference 100640 TW						
POLISHING PAD FOR EDDY	9/30/11	100135659	1/21/15	1470714	Issued	Taiwan
CURRENT END-POINT DETECTION Reference 100642 TW						
POLISHING PAD FOR EDDY	9/30/11	103123861	9/21/15	1501335	Issued	Taiwan
CURRENT END-POINT DETECTION Reference 100642 TW DIV						
POLISHING PAD WITH ALIGNMENT	5/4/12	101116093	5/11/15	1483810	Issued	Taiwan
FEATURE	,					
Reference 100647 TW						
POLISHING PAD WITH	5/22/12	101118247	10/21/15	1504479	Issued	Taiwan
HOMOGENEOUS BODY HAVING						
DISCRETE PROTRUSIONS THEREON						
Reterence 100648 I W						

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TITLE REFERENCE #	PHED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR	1/13/11	100101304			Pending	Taiwan
SUBSTRATE						
Reference 100641 TW						
POLISHING PAD WITH MULTI-	10/14/1	100137387			Pending	Taiwan
MODAL DISTRIBUTION OF PORE	Ľ					
DIAMETERS						
Reference 100643 TW						
POLISHING PAD WITH CONCENTRIC	1/20/12	101102753			Pending	Taiwan
OR APPROXIMATELY CONCENTRIC						
POLYGON GROOVE PATTERN						
Reference 100646 TW						
POLISHING PAD WITH ALIGNMENT	5/4/12	104110571			Pending	Taiwan
FEATURE						
Reference 10064/ TW DIV					:	
HOMOGENEOLIS BODY HAVING	2/22/12	104123294			Pending	laiwan
DISCRETE PROTRUSIONS THEREON						
Reference 100648 TW DIV						
POLISHING PAD WITH APERTURE	7/13/12	104129817			Pending	Taiwan
Reference 100649 TW DIV						
POLISHING PAD WITH FOUNDATION	5/22/12	104119891			Pending	Taiwan
LAYER AND POLISHING SURFACE						
LAYER						
Reference 100650 TW DIV						
POLISHING PAD WITH POLISHING	6/3/13	102119630			Pending	Taiwan
SURFACE LAYER HAVING AN						
APERTURE OR OPENING ABOVE A						
TRANSPARENT FOUNDATION LAYER						
Reference 100653 TW						
POLISHING PAD HAVING POLISHING	1/21/14	103102159			Pending	Taiwan
SURFACE WITH CONTINUOUS						
PROTRUSIONS						
Reference 100654 TW						

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CUSTOMIZED POLISH PADS FOR 3/25/04 10/810,070 9/16/08 7,425,172 Issued	NG POROGENS 6/18/14 14/307,846	POLISHING PAD WITH ALIGNMENT 1/30/15 14/610,991 Allow FEATURE Reference 100647DIV	POLISHING PAD WITH CONCENTRIC 1/26/11 13/014,630 12/15/15 9,211,628 Allow OR APPROXIMATELY CONCENTRIC POLYGON GROOVE PATTERN Reference 100646	POLISHING SYSTEMS 2/1/13 13/757,163 Allow Reference 100639DIV 2/1/13 13/757,163 Allow	NG PADS FOR 9/17/14 14/489,177	POLISHING Reference 100658 TW	E SUBPAD 11/20/1 ANICAL 5	POLISHING PAD HAVING POROGENS 6/17/15 104119621 Pendi WITH LIQUID FILLER Reference 100657 TW 6/17/15 104119621	LOW DENSITY POLISHING PAD7/30/14103126073PendiReference 100656 TW	POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655 TW	FILED SERIAL# ISSUED PATENT#
	Allowed	Allowed		Allowed	Allowed		Pending	Pending	Pending	Pending	PATENT#
US	us	US	US	US	US		Taiwan	Taiwan	Taiwan	Taiwan	S COUNTRY

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GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636DIV METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636DIV2	METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS Reference 100636	CUSTOMIZED POLISH PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100634X CUSTOMIZED POLISH PADS FOR CMP AND METHODS OF FABRICATION AND USE THEREOF Reference 100634XDIV	REFERENCE # CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634CON CUSTOMIZED POLISH PADS FOR CHEMICAL MECHANICAL PLANARIZATION Reference 100634CON2
9/12/12	7/21/04	10/14/0 5 11/28/0 7	FILED 11/28/0 7 4/26/10
13/612,135	10/897,192	11/251,547 11/998,319	SERIAL# 11/998,196 12/767,712
1/13/15	5/27/08	4/27/10	4/27/10 4/27/10 2/19/13
8,932,116	7,377,840	7,704,125	PATENT# 7,704,122 8,380,339
Issued	Issued	Issued Issued	STATUS Issued Issued
US	US US	US SU	US US

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	3					800000000000000000000000000000000000000
REFERENCE #	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
CUSTOMIZED POLISHING PADS FOR	10/16/0	11/884,829	5/6/14	8,715,035	Issued	SN
CMP AND METHODS OF	∞					
Reference 100637						
GROOVED CMP PAD	3/16/09	12/381,709	11/10/15	9,180,570	Issued	SN
Reference 100638						
POLISHING SYSTEMS	6/18/09	12/456,546	2/26/13	8,383,003	Issued	SN
Reference 100639						
CMP PAD WITH LOCAL AREA	1/13/10	12/657,135	4/28/15	9,017,140	Issued	SU
TRANSPARENCY						
Reference 100640						
SOFT POLISHING PAD FOR	7/8/10	12/832,908	10/13/15	9,156,124	Issued	SU
POLISHING A SEMICONDUCTOR						
Reference 100641						
POLISHING PAD FOR EDDY	9/30/10	12/895,465	1/14/14	8,628,384	Issued	SU
CURRENT END-POINT DETECTION						
Reference 100642						
POLISHING PAD FOR EDDY	12/6/13	14/099,655	5/12/15	9,028,302	Issued	US
CURRENT END-POINT DETECTION						
Reference 100642CON						
POLISHING PAD WITH MULTI-	12/27/1	12/979,123	4/22/14	8,702,479	Issued	SN
MODAL DISTRIBUTION OF PORE	0					
DIAMETERS						
Reference 100643						
HOMOGENEOUS POLISHING PAD	9/30/10	12/895,479	2/25/14	8,657,653	Issued	US
FOR EDDY CURRENT END-POINT						
DETECTION						
Reference 100644						
METHOD OF FABRICATING A	9/30/10	12/895,529	5/14/13	8,439,994	Issued	SN
POLISHING PAD WITH AN END-						
POINT DETECTION REGION FOR						
EDDY CURRENT END-POINT						
DETECTION						
Reference 100645						

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THE	FILED	SERIAL#	ISSUED	PATENT#	STATUS	COUNTRY
POLISHING PAD WITH ALIGNMENT	5/5/11	13/101,826	3/3/15	8,968,058	Issued	US
Reference 100647						
POLISHING PAD WITH ALIGNMENT	7/15/11	13/184,395	12/30/14	8,920,219	Issued	SN
APERTURE Reference 100649						
POLISHING PAD WITH FOUNDATION	11/29/1	13/306,845	6/30/15	9,067,297	Issued	US
LAYER AND POLISHING SURFACE	ш					
LAYER						
Reference 100650						
POLISHING PAD WITH GROOVED FOUNDATION LAYER AND	11/29/1 1	13/306,849	6/30/15	9,067,298	Issued	Sn
POLISHING SURFACE LAYER						
WETHODS FOR BRODILICING IN SITIL	17/5/1/	1//562 500			Donding	
GROOVES IN CHEMICAL					Ó	
MECHANICAL PLANARIZATION						
(CMP) PADS, AND NOVEL CMP PAD						
DESIGNS						
Reference 100636DIV2						
GROOVED CMP PADS	10/2/15	14/874,179			Pending	SU
Reference 100638DIV						
SOFT POLISHING PAD FOR	8/11/15	14/823,956			Pending	US
POLISHING A SEMICONDUCTOR						
SUBSTRATE						
Reference 100641CON						
POLISHING PAD WITH MULTI-	2/19/14	14/183,894			Pending	SU
MODAL DISTRIBUTION OF PORE						
DIAMETERS						
Reference 100643DIV						
HOMOGENEOUS POLISHING PAD	1/10/14	14/152,792			Pending	SU
FOR EDDY CURRENT END-POINT						
DETECTION						
Reference 100644DIV						

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TITLE		SERIAL#	ISSUED	PATENT#	STANTS	COUNTRY
REFERENCE #	דיל דו 🤇 ג	ייי דוכן יי			7	5
OR APPROXIMATELY CONCENTRIC	10/5/15	14/875,513			Pending	US
Reference 100646DIV						
POLISHING PAD WITH	5/23/11	13/113,655			Pending	SN
DISCRETE PROTRUSIONS THEREON						
Reference 100648						
POLISHING PAD WITH	10/31/1	14/530,534			Pending	SN
HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON	4					
Reference 100648DIV						
POLISHING PAD WITH APERTURE Reference 100649DIV	11/21/1 4	14/550,129			Pending	NS
POLISHING PAD WITH FOUNDATION	6/11/15	14/736,568			Pending	SN
LAYER AND POLISHING SURFACE						
Reference 100650CON						
POLISHING PAD WITH FOUNDATION	6/5/15	14/732,497			Pending	SN
LAYER AND POLISHING SURFACE						
LAYER						
Reference 100650DIV						
POLISHING PAD WITH GROOVED	6/1/15	14/727,586			Pending	SN
FOUNDATION LAYER AND						
POLISHING SURFACE LAYER						
Reference 100652DIV						
POLISHING PAD WITH POLISHING	6/4/12	13/488,149			Pending	SN
SURFACE LAYER HAVING AN						
APERTURE OR OPENING ABOVE A						
TRANSPARENT FOUNDATION LAYER						
Reference 100653						
POLISHING PAD HAVING POLISHING	1/22/13	13/747,139			Pending	SN
SURFACE WITH CONTINUOUS						
PROTRUSIONS 12251						
velerence 100034						

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POLISHING PAD FOR EDDY CURRENT END-POINT DETECTION Reference 100642 PCT	SOFT POLISHING PAD FOR POLISHING A SEMICONDUCTOR SUBSTRATE Reference 100641 PCT	CMP PAD WITH LOCAL AREA TRANSPARENCY Reference 100640 PCT	POLISHING PAD WITH FOUNDATION LAYER AND WINDOW ATTACHED THERETO Reference 100661	LOW DENSITY POLISHING PAD Reference 100660	MESH SUBPAD FOR CHEMICAL MECHANICAL POLISHING Reference 100659Z	DOUBLE COATED COMPRESSIVE FOAM SUBPAD Reference 100658Z	COATED COMPRESSIVE SUBPAD FOR CHEMICAL MECHANICAL POLISHING Reference 100658	LOW DENSITY POLISHING PAD Reference 100656	POLISHING PAD HAVING POLISHING SURFACE WITH CONTINUOUS PROTRUSIONS HAVING TAPERED SIDEWALLS Reference 100655	TITLE REFERENCE #
9/28/11	1/11/11	1/11/11	11/3/15	1/30/15	3/3/15	11/21/1 4	3/2/15	7/31/13	3/14/13	FILED
PCT/US2011/0536 78	PCT/US2011/0208 40	PCT/US2011/0208 70	14/931,737	14/611,064	62/127,734	62/083,101	14/635,973	13/955,398	13/829,990	SERIAL#
										ISSUED
										PATENT#
Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	STATUS
PCT	PCT	PCT	US	US	US	US	US	US	US	COUNTRY

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TITLE REFERENCE #	FILED	SERIAL# ISS	ISSUED PATENT#	STATUS	COUNTRY
POLISHING PAD WITH MULTI-	10/11/1	PCT/US2011/0557		Pending	PCT
MODAL DISTRIBUTION OF PORE DIAMFTERS	Ь	96			
Reference 100643 PCT					
POLISHING PAD WITH CONCENTRIC OR APPROXIMATELY CONCENTRIC	1/19/12	PCT/US2012/0218 99		Pending	PCT
POLYGON GROOVE PATTERN Reference 100646 PCT					
POLISHING PAD WITH ALIGNMENT	4/23/12	PCT/US12/34717		Pending	PCT
Reference 100647 PCT					
POLISHING PAD WITH	5/16/12	PCT/US2012/0382		Pending	PCT
HOMOGENEOUS BODY HAVING DISCRETE PROTRUSIONS THEREON		12			
Reference 100648 PCT					
POLISHING PAD WITH APERTURE	7/10/12	PCT/US2012/0460		Pending	PCT
VELELETICE TOOG43 LCT		3/			
POLISHING PAD WITH FOUNDATION LAYER AND POLISHING SURFACE	5/16/12	PCT/US2012/0382 11		Pending	PCT
LAYER					
Reference 100650 PCT					
POLISHING PAD WITH POLISHING	5/29/13	PCT/US2013/0431		Pending	PCT
SURFACE LAYER HAVING AN		26			
APERTURE OR OPENING ABOVE A					
TRANSPARENT FOUNDATION LAYER					
POLISHING PAD HAVING POLISHING	1/16/14	PCT/US2014/0117		Pending	PCT
SURFACE WITH CONTINUOUS		92		1	
PROTRUSIONS					
Reference 100654 PCT					
POLISHING PAD HAVING POLISHING	3/5/14	PCT/US2014/0207		Pending	PCT
SURFACE WITH CONTINUOUS		54			
PROTRUSIONS HAVING TAPERED					
SIDEWALLS					
Velelelice TOOODD LC1					

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SUPPLEMENTAL SCHEDULE II

Trademarks and Trademark Applications

TRADEMARK	COUNTRY	APPLICATION NUMBER	APPLICATION DATE	REGISTRATION NUMBER	REGISTRATION DATE
ELEMENT	United States of America	77869721	11/10/2009	4372801	7/23/2013
NEXPLANAR	United States of America	77509846	6/27/2008	3702810	10/27/2009

SUPPLEMENTAL CHEDULE III

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None.

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SUPPLEMENTAL SCHEDULE IV

License Agreements

None.

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