02/16/2017 504230442

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4277119

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Ching-Wen Hung	07/02/2015
Wei-Cyuan Lo	07/02/2015
Ming-Jui Chen	07/02/2015
Chia-Lin Lu	07/02/2015
Jia-Rong Wu	07/02/2015
Yi-Hui Lee	07/02/2015
Ying-Cheng Liu	07/02/2015
Yi-Kuan Wu	07/02/2015
Chih-Sen Huang	07/02/2015
Yi-Wei Chen	07/02/2015
Tan-Ya Yin	07/02/2015
Chia-Wei Huang	07/02/2015
Shu-Ru Wang	07/02/2015
Yung-Feng Cheng	07/02/2015

RECEIVING PARTY DATA

Name:	UNITED MICROELECTRONICS CORP.
Street Address:	No.3, Li-Hsin Road 2, Science-Based Industrial Park
City:	Hsin-Chu City
State/Country:	TAIWAN

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15434067

CORRESPONDENCE DATA

(703)997-4517 **Fax Number:**

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: 3027291562

Email: Patent.admin.uspto.cr@naipo.com

Correspondent Name: WINSTON HSU Address Line 1: P.O.BOX 506

PATENT

REEL: 041731 FRAME: 0001 504230442

Address Line 4: ME	RRIFIELD, VIRGINIA 22116
ATTORNEY DOCKET NUMBER:	NAUP2501USA1
NAME OF SUBMITTER:	KATE YEH
SIGNATURE:	/KATE YEH/
DATE SIGNED:	02/16/2017
Total Attachments: 28	
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> PATENT REEL: 041731 FRAME: 0002

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

As the below named inventor, I here This declaration is directed to:	eby declare that:		
☑ The attached application, or			
☐ United States application nu	ımber	_filed on	, or
□ PCT international application	n number	filed on	
The above-identified application was	s made or authorized to be made	by me.	
I believe that I am the original inven application.	tor or an original joint inventor of a	a claimed invention in the	
I hereby acknowledge that any willfu under18 U.S.C. 1001 by fine or imp	Il false statement made in this decrisonment of not more than five (5	claration is punishable) years, or both.	
In consideration of the payment by	UNITED MICROELECTROI CORP.	NICS having a postal add	Iress of
No.3, Li-Hsin Road 2, Science	e-Based Industrial Park, Hs	in-Chu City 300, Taiwan	, R.O.C.
(referred to as "ASSIGNEE"below) t acknowledged, andfor other good an	o I of the sum of One Dollar (\$ 1.0 nd valuable consideration.	00), the receipt of which is he	reby
hereby sell, assign and transfer to the entire right, title and interest in a nvention as above-identified applica nvention by the above application o substitutes, or extensions thereof, a	nd to any and all improvements w ation and, in and to, all Letters Pat r any continuations, continuation-	which are disclosed in the ent to be obtained for said in-part, divisions, renewals.	EE
hereby covenant that no assignme entered into which would conflict wit	nt, sale, agreement or encumbrar h this assignment;	ice has been or will be made	or
further covenant that ASSIGNEE wand documents relating to said inversions, and accessible to I and will to related thereto and will promptly exe	ntion and said Letters Patent and estify as to the same in any interfe	legal equivalents as may be rence, litigation proceeding	ts
representatives any and all papers, maintain, issue and enforce said appequivalents thereof which may be no N WINTNESS WHEREOF, I have h	olication, said invention and said t ecessary or desirable to carry out	Letters Patent and said the proposes thereof.	of signing)
Note: An application data sheet (PT nventive entity, must accompany th			

Page 1 of 28

NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

Inventor: Ching-Wen Hung

Date: JUL 0 2 2015

Signature: Ching-Wen Hung

Page 2 of 28

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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(referred to as "ASSIGNEE"below) t acknowledged, andfor other good ar	o I of the sum of One Do nd valuable consideration	llar (\$ 1.00), the n.	receipt of which	is hereby
I hereby sell, assign and transfer to the entire right, title and interest in a invention as above-identified application of the above application of substitutes, or extensions thereof, and	nd to any and all improve ation and, in and to, all Le r any continuations, cont	ements which are etters Patent to b inuation-in-part,	e disclosed in the e obtained for sa divisions, renew	e aid als,
I hereby covenant that no assignme entered into which would conflict wit	nt, sale, agreement or er h this assignment;	ocumbrance has	been or will be r	nade or
I further covenant that ASSIGNEE wand documents relating to said inver known and accessible to I and will to related thereto and will promptly exe	ntion and said Letters Pa estify as to the same in a	tent and legal eq ny interference, l	uivalents as ma itigation proceed	y be
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be no IN WINTNESS WHEREOF, I have h	olication, said invention a ecessary or desirable to d	nd said Letters F carry out the prop	Patent and said coses thereof.	Pate of signing)
Note: An application data sheet (PT) inventive entity, must accompany this				

Page 3 of 28

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor:

Wei-Cyuan Lo

Date:

TJUL 0 2 2015

Signature:

Wei-Guan Lo

Page 4 of 28

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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□ PCT international application	n number	filed	on	
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(referred to as "ASSIGNEE"below) to acknowledged, and for other good an	o I of the sum of One Dollar (\$ ad valuable consideration.	1.00), the rec	eipt of which is hereb	у
I hereby sell, assign and transfer to A the entire right, title and interest in an invention as above-identified applica invention by the above application or substitutes, or extensions thereof, ar	nd to any and all improvement tion and, in and to, all Letters any continuations, continuati	ts which are di Patent to be o on-in-part, divi	sclosed in the btained for said isions, renewals,	:
I hereby covenant that no assignmer entered into which would conflict with	nt, sale, agreement or encumb n this assignment;	orance has be	en or will be made or	
I further covenant that ASSIGNEE wi and documents relating to said inven known and accessible to I and will te related thereto and will promptly exec	ition and said Letters Patent a stify as to the same in any inte	ınd legal equiv erference, litia	alents as may be	
representatives any and all papers, in maintain, issue and enforce said app equivalents thereof which may be ne IN WINTNESS WHEREOF, I have he	lication, said invention and sa cessary or desirable to carry (id Letters Pate	ent and said es thereof.	igning)
Note: An application data sheet (PTC inventive entity, must accompany this	D/SB/14 or equivalent), includi s form. Use this form for each	ng naming the	entire entor.	

Page 5 of 28

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor:

Ming-Jui Chen

Date:

JUL 0 2 2015

Signature:

Page 6 of 28

NPO#NAU-P2501-USA:0

REEL: 041731 FRAME: 0008

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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No.3, Li-Hsin Road 2, Science	e-Based Industrial Park, Hsi	in-Chu City 300), Taiwan, R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good are	o I of the sum of One Dollar (\$ 1.0 nd valuable consideration.	00), the receipt of v	which is hereby
I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica- invention by the above application o substitutes, or extensions thereof, an	nd to any and all improvements w ation and, in and to, all Letters Pat r any continuations, continuation-	rhich are disclosed ent to be obtained in-part, divisions, r	l in the for said enewals.
I hereby covenant that no assignment entered into which would conflict wit	nt, sale, agreement or encumbran h this assignment;	ice has been or wi	ll be made or
I further covenant that ASSIGNEE wand documents relating to said inver known and accessible to I and will te related thereto and will promptly exe	ntion and said Letters Patent and estify as to the same in any interfe	legal equivalents a rence, litigation pr	as mav be
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be ne IN WINTNESS WHEREOF, I have h	olication, said invention and said Lecessary or desirable to carry out	etters Patent and	said
Note: An application data sheet (PT0 inventive entity, must accompany thi			

Page 7 of 28

Inventor: Chia-Lin Lu Date: JUL 0 2 2015

Signature: Chia - Lih Lu

Page 8 of 28

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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No.3, Li-Hsin Road 2, Science	-Based Industrial Park, F	lsin-Chu	City 300,	Taiwan, R.	O.C.
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I hereby sell, assign and transfer to a the entire right, title and interest in an invention as above-identified applica invention by the above application of substitutes, or extensions thereof, ar	nd to any and all improvements tion and, in and to, all Letters F rany continuations, continuatio	s which are Patent to b on-in-part,	e disclosed in e obtained fo divisions, ren	the r said ewals,	
I hereby covenant that no assignmer entered into which would conflict with	nt, sale, agreement or encumb n this assignment;	rance has	been or will b	e made or	
I further covenant that ASSIGNEE w and documents relating to said inver known and accessible to I and will te related thereto and will promptly exe	ition and said Letters Patent ar stify as to the same in any inte	nd legal eq rference, l	uivalents as itigation proc	may be	
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be ne IN WINTNESS WHEREOF, I have he	lication, said invention and sai cessary or desirable to carry o	d Letters F ut the prop	Patent and sa		ıning)
Note: An application data sheet (PTC					

Page 9 of 28

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor:

Jia-Rong Wu

Date:

'JUL 0 2 2015

Signature:

Page 10 of 28

F#NPO-P0002E-US1201 DSC0-104U005397

NPO#NAU-P2501-USA:0

CUST#UMCD-2015-0191

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica invention by the above application of substitutes, or extensions thereof, an	nd to any and all improvements ition and, in and to, all Letters P r any continuations, continuation	which are disclosed in the Patent to be obtained for said n-in-part, divisions, renewals,	
I hereby covenant that no assignment entered into which would conflict with	nt, sale, agreement or encumbra h this assignment;	ance has been or will be made or	
I further covenant that ASSIGNEE w and documents relating to said inver known and accessible to I and will te related thereto and will promptly exe	ntion and said Letters Patent and estify as to the same in any inter	d legal equivalents as may be recence, litigation proceeding	
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be no IN WINTNESS WHEREOF, I have h	olication, said invention and said ecessary or desirable to carry ou	d Letters Patent and said	gning)
Note: An application data sheet (PT0 inventive entity, must accompany thi			

Page 11 of 28

NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

LEGAL NA	WE OF INVENTOR (ASSIGNOR)		*	
Inventor:	Yi-Hui Lee	Date:	JUL 02 2015	
Signature:	Ti Hui Lee			

Page 12 of 28

NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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I hereby covenant that no assignmer entered into which would conflict with	nt, sale, agreement or n this assignment;	encumbrance ha	as been or will	be made or	
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representatives any and all papers, in maintain, issue and enforce said app equivalents thereof which may be ne IN WINTNESS WHEREOF, I have he	lication, said inventio cessary or desirable t	n and said Letter to carry out the p	s Patent and s	aid of. (Date of signi	ng)
Note: An application data sheet (PTC					

Page 13 of 28

Docket No NAUP2501USA

LEGAL NA	ME OF INVENTOR(ASSIGNOR)			
Inventor:	Ying-Cheng Liu	Date:	JUL 02 2015	
Signature:	Ying - Cheng Liu			

Page 14 of 28

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

As the below named inventor, I here This declaration is directed to:	by declare that:		
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Page 15 of 28

NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

LEGAL NAME OF INVENTOR (ASSIGNOR)						
Inventor:	Yi-Kuan Wu		Date:	JUL	0 2 2015	
Signature:	Yi-Kuan	Wu		,		

Page 16 of 28

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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Page 17 of 28

LEGAL NAI	WE OF INVENTOR(AS:	SIGNOR)		
Inventor:	Chih-Sen Huang		Date:	JUL 0 2 2015
Signature:	Chih-Sea	Hagy		

Page 18 of 28

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be ne IN WINTNESS WHEREOF, I have he	olication, said invention and said	Letters Pate	ent and said es thereof	signing)
Note: An application data sheet (PTC inventive entity, must accompany this				

Page 19 of 28

LEGAL NAME OF INVENTOR(ASSIGNOR)						
Inventor:	Yi-Wei Chen	Date:	JUL	02	2015	
Signature:	Yi-Wei Ch	u				

Page 20 of 28

NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

Title of Invention: SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

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No.3, Li-Hsin Road 2, Science	e-Based Industrial	Park, Hsin-C	hu City 300, Tai	wan, R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good are			ne receipt of which	is hereby
I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica- invention by the above application o substitutes, or extensions thereof, an	nd to any and all impr ition and, in and to, al r any continuations, c	ovements which Letters Patent to ontinuation-in-pa	are disclosed in the b be obtained for sa rt, divisions, renewa	e aid als,
I hereby covenant that no assignme entered into which would conflict wit	nt, sale, agreement or h this assignment;	encumbrance ha	as been or will be n	nade or
I further covenant that ASSIGNEE wand documents relating to said inverknown and accessible to I and will to related thereto and will promptly exercise.	ntion and said Letters estify as to the same i	Patent and legal any interference	equivalents as mage, litigation proceed	y be
representatives any and all papers, i maintain, issue and enforce said app equivalents thereof which may be no IN WINTNESS WHEREOF, I have h	olication, said invention ecessary or desirable	n and said Letter to carry out the p	s Patent and said roposes thereof.	ate of signing)
Note: An application data sheet (PTo inventive entity, must accompany this				

Page 21 of 28

F#NPO-P0002E-US1201

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor: Tan-Ya Yin Date: JUL 0 2 2015

Signature: Tan-Ya Yin

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

As the below named inventor, I herel This declaration is directed to:	by declare that:			
$\ensuremath{\square}$ The attached application, or				
☐ United States application nur	nber	file	d on	, or
□ PCT international application	number		filed on	
The above-identified application was	made or authorized to b	e made by m	e.	
I believe that I am the original invento application.	or or an original joint inve	entor of a clai	med invention	in the
I hereby acknowledge that any willful under18 U.S.C. 1001 by fine or impri	false statement made in sonment of not more that	n this declarat ın five (5) yea	ion is punishal rs, or both.	ble
In consideration of the payment by	UNITED MICROELE CORP.	CTRONICS	having a p	oostal address of
No.3, Li-Hsin Road 2, Science	-Based Industrial Pa	ark, Hsin-C	hu City 300,	Taiwan, R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good an	l of the sum of One Dol d valuable consideration	lar (\$ 1.00), ti	ne receipt of w	hich is hereby
I hereby sell, assign and transfer to A the entire right, title and interest in an invention as above-identified applicat invention by the above application or substitutes, or extensions thereof, an	nd to any and all improve tion and, in and to, all Le any continuations, conti	ments which tters Patent to nuation-in-pa	are disclosed in the di	in the for said newals.
I hereby covenant that no assignmen entered into which would conflict with	rt, sale, agreement or en rthis assignment;	cumbrance h	as been or will	be made or
I further covenant that ASSIGNEE wi and documents relating to said inven known and accessible to I and will te related thereto and will promptly exec	tion and said Letters Pat stify as to the same in ar	ent and legal	equivalents as e, litigation pro	may be
representatives any and all papers, in maintain, issue and enforce said app equivalents thereof which may be ned IN WINTNESS WHEREOF, I have he	lication, said invention a cessary or desirable to c	nd said Letter arry out the p	s Patent and s	aid of. (Date of signing)
Note: An application data sheet (PTC				

Page 23 of 28

NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

Docket No NAUP2501USA

LEGAL NA	ME OF INVENTOR(ASSIGNOR)		
Inventor:	Chia-Wei Huang	Date:	JUL 02 2015
Signature:	Chia-Wei Huang		
	()		

Page 24 of 28

Title of Invention:

SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

As the below named inventor, I here This declaration is directed to:	by declare that:			
☑ The attached application, or				
☐ United States application nu	mber	filed o	on	, or
☐ PCT international application	n number	file	ed on	
The above-identified application was	s made or authorized to be n	nade by me.		
I believe that I am the original invent application.	tor or an original joint invento	or of a claime	d invention in th	he
I hereby acknowledge that any willfu under18 U.S.C. 1001 by fine or impr	Il false statement made in thi isonment of not more than fi	is declaration ve (5) years,	is punishable or both.	
In consideration of the payment by	UNITED MICROELECT CORP.	RONICS	having a post	al address of
No.3, Li-Hsin Road 2, Science	e-Based Industrial Park	, Hsin-Chu	_ City 300, Ta	iwan, R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good an	o I of the sum of One Dollar on the consideration.	(\$ 1.00), the	receipt of which	ı is hereby
I hereby sell, assign and transfer to A the entire right, title and interest in ar invention as above-identified applica invention by the above application or substitutes, or extensions thereof, ar	nd to any and all improveme tion and, in and to, all Letter r any continuations, continua	nts which are s Patent to b ition-in-part. (e disclosed in the e obtained for s divisions, renew	ne said vals
I hereby covenant that no assignmer entered into which would conflict with	nt, sale, agreement or encun n this assignment;	nbrance has	been or will be	made or
I further covenant that ASSIGNEE wand documents relating to said inven known and accessible to I and will te related thereto and will promptly exec	ntion and said Letters Patent estify as to the same in any ir	and legal eq iterference. li	uivalents as ma	av be
representatives any and all papers, in maintain, issue and enforce said app equivalents thereof which may be ne IN WINTNESS WHEREOF, I have he	olication, said invention and secessary or desirable to carry	said Letters F out the prop	Patent and said poses thereof.	Date of signing)
Note: An application data sheet (PTC inventive entity, must accompany this	D/SB/14 or equivalent), incluses form. Use this form for <u>eac</u>	ding naming h additional i	the entire nventor.	

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NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

LEGAL NA	ME OF INVENTOR(ASSIGNOR)		
Inventor:	Shu-Ru Wang	Date:	JUL 02 2015
Signature:	Shu-Ra Woung		

Title of Invention: SEMICONDUCTOR STRUCTURE AND METHOD OF FORMING THE SAME

As the below named inventor, I here This declaration is directed to:	eby declare that:			
☑ The attached application, or				
☐ United States application nu	file	filed on		
□ PCT international application	n number	f	filed on	
The above-identified application was	s made or authorized	to be made by m	e.	
I believe that I am the original inventage application.	tor or an original joint	inventor of a clair	med invention i	n the
I hereby acknowledge that any willfuunder18 U.S.C. 1001 by fine or impr	ıl false statement ma risonment of not more	de in this declarat e than five (5) yea	ion is punishab rs, or both.	ole
In consideration of the payment by	UNITED MICROI	ELECTRONICS	having a p	ostal address of
No.3, Li-Hsin Road 2, Science	e-Based Industria	I Park, Hsin-Cl	nu City 300,	Taiwan, R.O.C.
(referred to as "ASSIGNEE"below) to acknowledged, andfor other good are	o I of the sum of One nd valuable considera	Dollar (\$ 1.00), thation.	ne receipt of wh	nich is hereby
I hereby sell, assign and transfer to a the entire right, title and interest in a invention as above-identified applica- invention by the above application o substitutes, or extensions thereof, an	nd to any and all imp ation and, in and to, a r any continuations, c	rovements which Il Letters Patent to continuation-in-par	are disclosed in be obtained for t, divisions, re	n the or said newals,
I hereby covenant that no assignme entered into which would conflict wit	nt, sale, agreement o h this assignment;	r encumbrance ha	as been or will	be made or
I further covenant that ASSIGNEE wand documents relating to said invertence known and accessible to I and will to related thereto and will promptly exe	ntion and said Letters estify as to the same i	Patent and legal n any interference	equivalents as	may be
representatives any and all papers, maintain, issue and enforce said appequivalents thereof which may be not IN WINTNESS WHEREOF, I have h	olication, said invention ecessary or desirable	on and said Letter to carry out the p	s Patent and s	
Note: An application data sheet (PT				

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NPO#NAU-P2501-USA:0 CUST#UMCD-2015-0191

LEGAL NAME OF INVENTOR(ASSIGNOR)

Inventor:

Yung-Feng Cheng

Date:

JUL 0 2 2015

Signature:

NPO#NAU-P2501-USA:0

CUST#UMCD-2015-0191

yung Fenz Chang

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F#NPO-P0002E-US1201 DSC0-104U005397

PATENT
RECORDED: 02/16/2017 REEL: 041731 FRAME: 0030