

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5684408

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT	
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST	
<b>CONVEYING PARTY DATA</b>		
<b>Name</b>		<b>Execution Date</b>
SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC		08/12/2019
<b>RECEIVING PARTY DATA</b>		
<b>Name:</b>	DEUTSCHE BANK AG NEW YORK BRANCH, AS COLLATERAL AGENT	
<b>Street Address:</b>	60 WALL STREET	
<b>City:</b>	NEW YORK	
<b>State/Country:</b>	NEW YORK	
<b>Postal Code:</b>	10005	
<b>PROPERTY NUMBERS Total: 131</b>		
<b>Property Type</b>	<b>Number</b>	
Application Number:	16372938	
Application Number:	16373793	
Application Number:	16374015	
Application Number:	16374137	
Application Number:	16374597	
Application Number:	16374720	
Application Number:	16375039	
Application Number:	16377543	
Application Number:	16378722	
Application Number:	16383230	
Application Number:	16385127	
Application Number:	16385192	
Application Number:	16387874	
Application Number:	16387919	
Application Number:	16387958	
Application Number:	16387971	
Application Number:	16388361	
Application Number:	16389070	
Application Number:	16389492	
Application Number:	16390349	

PATENT

Property Type	Number
Application Number:	16390396
Application Number:	16390449
Application Number:	16390486
Application Number:	16391977
Application Number:	16392153
Application Number:	16395822
Application Number:	16396080
Application Number:	16396446
Application Number:	16396904
Application Number:	16402429
Application Number:	16402833
Application Number:	16404198
Application Number:	16405168
Application Number:	16406155
Application Number:	16406228
Application Number:	16406633
Application Number:	16406899
Application Number:	16408000
Application Number:	16410320
Application Number:	16412143
Application Number:	16413967
Application Number:	16415035
Application Number:	16415164
Application Number:	16417873
Application Number:	16419454
Application Number:	16419506
Application Number:	16422104
Application Number:	16429268
Application Number:	16429366
Application Number:	16433717
Application Number:	16436484
Application Number:	16437574
Application Number:	16438870
Application Number:	16444729
Application Number:	16444995
Application Number:	16446923
Application Number:	16447005
Application Number:	16447008

Property Type	Number
Application Number:	16447084
Application Number:	16447149
Application Number:	16447195
Application Number:	16447311
Application Number:	16447404
Application Number:	16448540
Application Number:	16449211
Application Number:	16449663
Application Number:	16449890
Application Number:	16450036
Application Number:	16450116
Application Number:	16450149
Application Number:	16450298
Application Number:	16451244
Application Number:	16451288
Application Number:	16451418
Application Number:	16451510
Application Number:	16453022
Application Number:	16453033
Application Number:	16454749
Application Number:	16454813
Application Number:	16454870
Application Number:	16455046
Application Number:	16455075
Application Number:	16455094
Application Number:	16455114
Application Number:	16455161
Application Number:	16455218
Application Number:	16455244
Application Number:	16455369
Application Number:	16455469
Application Number:	16455676
Application Number:	16456161
Application Number:	16456290
Application Number:	16456917
Application Number:	62827968
Application Number:	62827976
Application Number:	62827982

Property Type	Number
Application Number:	62828764
Application Number:	62830083
Application Number:	62830803
Application Number:	62830997
Application Number:	62831305
Application Number:	62831832
Application Number:	62832017
Application Number:	62832043
Application Number:	62834642
Application Number:	62835182
Application Number:	62835592
Application Number:	62837899
Application Number:	62839927
Application Number:	62840104
Application Number:	62840611
Application Number:	62842744
Application Number:	62844878
Application Number:	62846209
Application Number:	62848182
Application Number:	62848203
Application Number:	62851199
Application Number:	62851323
Application Number:	62852437
Application Number:	62852662
Application Number:	62854447
Application Number:	62854527
Application Number:	62856835
Application Number:	62856918
Application Number:	62858395
Application Number:	62860308
Application Number:	62860959
Application Number:	62862368
Application Number:	62862387
Application Number:	62863189
Application Number:	62864361

**CORRESPONDENCE DATA**

Fax Number: (602)244-3169

***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:** 6022443676  
**Email:** patents@onsemi.com  
**Correspondent Name:** SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC  
**Address Line 1:** 5005 EAST MCDOWELL ROAD  
**Address Line 2:** MD A700  
**Address Line 4:** PHOENIX, ARIZONA 85008

<b>ATTORNEY DOCKET NUMBER:</b>	Q2 2019 PSA
--------------------------------	-------------

<b>NAME OF SUBMITTER:</b>	KELLY A. HALL
---------------------------	---------------

<b>SIGNATURE:</b>	/Kelly A. Hall/
-------------------	-----------------

<b>DATE SIGNED:</b>	08/23/2019
---------------------	------------

**Total Attachments: 12**

source=2019.08.12 Q2 2019 Patent Security Agreement#page1.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page2.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page3.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page4.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page5.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page6.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page7.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page8.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page9.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page10.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page11.tif  
source=2019.08.12 Q2 2019 Patent Security Agreement#page12.tif

## PATENT SECURITY AGREEMENT

This PATENT SECURITY AGREEMENT, dated as of August 12, 2019 ("Patent Security Agreement"), made by each of the signatories hereto (together with any other entity that may become a party hereto as provided herein, the "Patent Grantors"), is in favor of DEUTSCHE BANK AG NEW YORK BRANCH, as collateral agent (in such capacity, the "Collateral Agent") for the Secured Parties.

### W I T N E S S E T H:

WHEREAS, the Patent Grantors are party to a Guarantee and Collateral Agreement dated as of April 15, 2016 (the "Guarantee and Collateral Agreement") in favor of the Collateral Agent pursuant to which the Patent Grantors are required to execute and deliver this Patent Security Agreement (capitalized terms used but not otherwise defined herein shall have the meanings given to them in the Guarantee and Collateral Agreement);

WHEREAS, pursuant to the terms of the Guarantee and Collateral Agreement, each Patent Grantor has created in favor of the Collateral Agent a security interest in, and the Collateral Agent has become a secured creditor with respect to, the Patent Collateral (as defined below);

NOW, THEREFORE, in consideration of the premises and to induce the Agents and the Lenders to enter into the Credit Agreement and to induce Lenders to make their respective extensions of credit to the Borrower thereunder and to induce the Qualified Counterparties to enter into the Specified Hedge Agreements and the Specified Cash Management Agreements and provide financial accommodation, each Patent Grantor hereby grants to the Collateral Agent, for the benefit of the Secured Parties, a security interest in all of the following property now owned or at any time hereafter acquired by such Patent Grantor or in which such Patent Grantor now has or at any time in the future may acquire any right, title or interest (collectively, the "Patent Collateral"), as collateral security for the complete payment and performance when due (whether at the stated maturity, by acceleration or otherwise) of all Secured Obligations:

(a) all Patents of such Patent Grantor, including, without limitation, the registered and applied-for Patents of such Grantor listed on Schedule 1 attached hereto;

(b) to the extent not covered by clause (a), all Proceeds of any of the foregoing;  
and

(c) to the extent not covered by clause (a), all causes of action arising prior to or after the date hereof for infringement of any of the Patents;

provided, that (i) this Patent Security Agreement shall not constitute a grant of a security interest in any property to the extent that and for as long as such grant of a security interest would be prohibited by the terms of the Guarantee and Collateral Agreement; and (ii) the security interest granted hereby (x) shall attach at all times to all proceeds of such property, (y) shall attach to such property immediately and automatically (without need for any further grant or act) at such time as the condition described in clause (i) ceases to exist and (z) to the extent severable shall in any event

attach to all rights in respect of such property that are not subject to the applicable condition described in clause (i).

The security interest granted pursuant to this Patent Security Agreement is granted in conjunction with security interest granted to the Collateral Agent pursuant to the Guarantee and Collateral Agreement and the Patent Grantors hereby acknowledge and affirm that the rights and remedies of the Collateral Agent with respect to the security interest in the Patents made and granted hereby are more fully set forth in the Guarantee and Collateral Agreement. In the event that any provision of this Patent Security Agreement is deemed to conflict with the Guarantee and Collateral Agreement, the provisions of the Guarantee and Collateral Agreement shall govern.

Each Patent Grantor hereby authorizes and requests that the Commissioner of Patents and Trademarks record this Patent Security Agreement.

**THIS PATENT SECURITY AGREEMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES UNDER THIS PATENT SECURITY AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED AND INTERPRETED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK.**

This Patent Security Agreement may be executed by one or more of the parties to this Patent Security Agreement on any number of separate counterparts, and all of said counterparts taken together shall be deemed to constitute one and the same instrument. Delivery of an executed signature page of this Patent Security Agreement by facsimile transmission or electronic transmission (in PDF format) shall be effective as delivery of a manually executed counterpart hereof. A copy of this Patent Security Agreement signed by all the parties shall be delivered to the Administrative Agent.

[Remainder of This Page Intentionally Left Blank.]

IN WITNESS WHEREOF, each Grantor has caused this PATENT SECURITY AGREEMENT to be executed and delivered by its duly authorized officer as of the date first above written.

SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

By: B. Gutmann

Name: Bernard Gutmann

Title: Executive Vice President, Chief Financial Officer and  
Treasurer



Accepted and Agreed:

DEUTSCHE BANK AG NEW YORK BRANCH, as Assignee

By:

Name:

Yumi Okabe

Title:

Vice President

By:

Name:

Michael Strobel

Title:

Vice President

## PATENTS

## Patent Applications

	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
1	Pending	CIRCUIT DEVICE AND METHOD OF MANUFACTURING THE SAME	16/406155	5/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
2	Pending	OPTICAL TOUCH SCREEN SYSTEM USING RADIATION PATTERN SENSING AND METHOD THEREFOR	16/385127	4/16/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
3	Pending	MERGED P-INTRINSIC-N (PIN) SCHOTTKY DIODE	16/406228	5/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
4	Pending	CONTROLLING OUTPUT VOLTAGE FOR POWER CONVERTER	16/402833	5/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
5	Pending	SYSTEM AND METHOD FOR CONTROLLING OUTPUT SIGNAL OF POWER CONVERTER	16/392153	4/23/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
6	Pending	"POWER CONVERTER RESPONSIVE TO DEVICE CONNECTION STATUS"	16/390349	4/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
7	Pending	POWER CONVERTER RESPONSIVE TO DEVICE CONNECTION STATUS	16/390396	4/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
8	Pending	IMPROVED STANDBY POWER	16/390449	4/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
9	Pending	IMPROVED STANDBY POWER	16/390486	4/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
10	Pending	LED DRIVER CIRCUIT AND LED DRIVING METHOD	16/436484	6/10/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
11	Pending	SYSTEM AND METHOD FOR CONTROLLING VOLTAGE CONTROL LOOP IN POWER CONVERTER	16/412143	5/14/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
12	Pending	SWITCH CONTROLLER, POWER SUPPLY DEVICE COMPRISING THE SAME, AND DRIVING METHOD OF THE POWER SUPPLY DEVICE	16/406633	5/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
13	Pending	SEMICONDUCTOR PACKAGES AND RELATED METHODS	16/387958	4/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
14	Pending	HIGH VOLTAGE CAPACITOR AND METHOD	16/450036	6/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
15	Pending	SEMICONDUCTOR COMPONENT AND METHOD OF MANUFACTURE	16/406899	5/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
16	Pending	SEMICONDUCTOR PACKAGE WITH ELASTIC COUPLER AND RELATED METHODS	16/396904	4/29/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
17	Pending	CASCODE SEMICONDUCTOR PACKAGE AND RELATED METHODS	16/389492	4/19/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
18	Pending	AUTOMATICALLY PROGRAMMABLE BATTERY PROTECTION SYSTEM AND RELATED METHODS	16/377543	4/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
19	Pending	GUARD RINGS FOR CASCODE GALLIUM NITRIDE DEVICES	16/387874	4/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
20	Published	HIGH RELIABILITY WAFER LEVEL SEMICONDUCTOR PACKAGING	16/374137	4/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
21	Pending	METHODS AND APPARATUS FOR A BATTERY	16/422104	5/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
22	Published	TOUCH SENSOR WITH MASKED LAYOUT PATTERN	16/374597	4/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
23	Published	IMAGE SENSOR SEMICONDUCTOR PACKAGES AND RELATED METHODS	16/374720	4/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
24	Pending	TUNABLE/DE-TUNABLE WIRELESS POWER RESONATOR SYSTEM AND RELATED METHODS	16/437574	6/11/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
25	Published	POWER SUPPLY CONTROLLER AND RELATED METHODS	16/372938	4/2/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
26	Pending	METHODS AND SYSTEM FOR A BATTERY	16/408000	5/9/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
27	Published	SEMICONDUCTOR PACKAGE AND RELATED METHODS	16/374015	4/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
28	Pending	METHOD OF SEPARATING ELECTRONIC DEVICES HAVING A BACK LAYER AND APPARATUS	16/438870	6/12/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
29	Pending	SEMICONDUCTOR DEVICE INCLUDING A CONDUCTIVE MEMBER WITHIN A TRENCH	16/415164	5/17/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
30	Pending	AVERAGE CURRENT AND FREQUENCY CONTROL	16/396080	4/26/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
31	Pending	RADIO FREQUENCY IDENTIFICATION (RFID) TAG DEVICE AND RELATED METHODS	16/404198	5/6/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
32	Pending	SINGLE-PHOTON AVALANCHE DIODE IMAGE SENSOR WITH PHOTON COUNTING AND TIME-OF-FLIGHT DETECTION CAPABILITIES	16/387971	4/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
33	Pending	TRENCH SEMICONDUCTOR DEVICE HAVING SHAPED GATE DIELECTRIC AND GATE ELECTRODE STRUCTURES AND METHOD	16/456290	6/28/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
34	Pending	METHODS AND APPARATUS FOR A TRACK AND HOLD AMPLIFIER	16/444995	6/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
35	Pending	METAL INSULATOR METAL (MIM) CAPACITORS	62/831305	4/9/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
36	Pending	THIN SEMICONDUCTOR PACKAGE AND RELATED METHODS	16/395822	4/26/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
37	Pending	METHOD OF SEPARATING A BACK LAYER ON A SUBSTRATE USING EXPOSURE TO REDUCED TEMPERATURE AND RELATED APPARATUS	16/433717	6/6/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
38	Pending	IMAGE SENSORS WITH DIFFRACTIVE LENSES FOR STRAY LIGHT CONTROL	16/387919	4/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
39	Pending	TERMINATION STRUCTURE FOR INSULATED GATE SEMICONDUCTOR DEVICE AND METHOD	16/396446	4/26/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
40	Pending	METHOD OF MANUFACTURING CISCSP WITHOUT DAM	16/451418	6/25/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
41	Pending	PACKAGE INCLUDING MULTIPLE SEMICONDUCTOR DEVICES	16/429366	6/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
42	Pending	SEMICONDUCTOR PACKAGE WITH CHAMFERED CORNERS AND RELATED METHODS	16/419454	5/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
43	Pending	DEFECT REDUCTION OF SEMICONDUCTOR LAYERS AND SEMICONDUCTOR DEVICES BY ANNEAL AND RELATED METHODS	16/388361	4/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
44	Pending	SEMICONDUCTOR WAFER THINNING SYSTEMS AND RELATED METHODS	16/448540	6/21/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
45	Pending	METHOD OF FORMING A SEMICONDUCTOR DEVICE AND STRUCTURE THEREFOR	16/446923	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
46	Pending	PVT-ROBUST MOD 3 FREQUENCY DIVIDER USING CURRENT-MODE LOGIC	16/447404	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
47	Pending	PVT-ROBUST MOD 3 FREQUENCY DIVIDER USING CURRENT-MODE LOGIC	62/830997	4/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
48	Pending	METHOD OF FORMING A SEMICONDUCTOR DEVICE AND STRUCTURE THEREFOR	62/862368	6/17/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
49	Pending	CURRENT SENSING FOR BRIDGELESS PFC CONVERTERS	16/373793	4/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
50	Pending	COMPUTATIONALLY EFFICIENT SPEECH CLASSIFIER AND RELATED METHODS	16/375039	4/4/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
51	Pending	NEURAL NETWORK ACCELERATOR	16/385192	4/16/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
52	Pending	SYSTEM FOR AND METHOD OF MANUFACTURE USING MULTIMODAL ANALYSIS	16/391977	4/23/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
53	Pending	WET CHEMICAL DIE SINGULATION SYSTEMS AND RELATED METHODS	62/827976	4/2/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
54	Pending	EVAPORATOR SUBSTRATE LOADING SYSTEMS AND RELATED METHODS	62/830803	4/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
55	Pending	SUBSTRATE PROCESSING CARRIER	62/827982	4/2/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
56	Pending	EDGE RING REMOVAL METHODS	62/827968	4/2/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
57	Pending	SEMICONDUCTOR DEVICE ASSEMBLIES	16/456161	6/28/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
58	Pending	SAFE OPERATING AREA IMPROVEMENT IN POWER DEVICES AND RELATED METHODS	16/450149	6/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
59	Pending	MUSIC CLASSIFIER AND RELATED METHODS	16/429268	6/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
60	Pending	METHOD OF REDUCING RESIDUAL CONTAMINATION IN SINGULATED SEMICONDUCTOR DIE	16/405168	5/7/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
61	Pending	METHODS AND SYSTEMS OF OPERATING POWER CONVERTERS	16/454813	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
62	Pending	AMPLIFIERS SUITABLE FOR MM-WAVE SIGNAL SPLITTING AND COMBINING	16/453033	6/26/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
63	Pending	AMPLIFIERS SUITABLE FOR MM-WAVE SIGNAL SPLITTING AND COMBINING	62/830083	4/5/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
64	Pending	IMAGE SENSORS HAVING BOOST CURRENT CONTROL CIRCUITRY FOR COLUMN SETTLING SPEEDUP	62/860308	6/12/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
65	Pending	SUPER-JUNCTION MOSFET WITH INTEGRATED SNUBBER CIRCUIT	16/451288	6/25/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
66	Pending	SEMICONDUCTOR SENSORS WITH CHARGE DISSIPATION LAYER AND RELATED METHODS	16/455046	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
67	Pending	MEMORY DEVICE AND DATA VERIFICATION METHOD	16/451244	6/25/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
68	Pending	CONTROLLABLE GAP HEIGHT FOR AN IMAGE SENSOR PACKAGE	62/828764	4/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
69	Pending	SWITCHABLE FMCW/PMCW RADAR TRANSCEIVER	16/455469	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
70	Pending	SWITCHABLE FMCW/PMCW RADAR TRANSCEIVER	62/839927	4/29/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
71	Pending	PIN FRAME BASEPLATE	62/840104	4/29/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
72	Pending	VIA FOR SEMICONDUCTOR DEVICES AND RELATED METHODS	16/451510	6/25/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
73	Pending	METHOD OF FORMING A SEMICONDUCTOR DEVICE AND STRUCTURE THEREFOR	16/447005	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
74	Pending	BACKSIDE ILLUMINATED IMAGE SENSORS WITH PIXELS THAT HAVE HIGH DYNAMIC RANGE, DYNAMIC CHARGE OVERFLOW, AND GLOBAL SHUTTER SCANNING	62/835182	4/17/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
75	Pending	METHODS AND APPARATUS FOR A CAPACITIVE SENSOR	16/413967	5/16/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
76	Pending	SEMICONDUCTOR DEVICES WITH SINGLE-PHOTON AVALANCHE DIODE PIXELS	16/389070	4/19/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
77	Pending	RADIO FREQUENCY SWITCH	62/844878	5/8/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
78	Pending	METHOD OF FORMING A SEMICONDUCTOR DEVICE	62/862387	6/17/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
79	Pending	METHODS AND APPARATUS FOR A CAPACITIVE SENSOR	16/455075	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
80	Pending	COMPARATOR SYSTEM HAVING INTERNAL INPUT OFFSET VOLTAGE	62/852437	5/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
81	Pending	METHOD AND SYSTEM OF DRIVING AN ELECTRICALLY CONTROLLED SWITCH WITH A SNUBBER CAPACITOR	16/449211	6/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
82	Pending	IMAGING SYSTEMS WITH IMPROVED NEAR-INFRARED DETECTION PIXELS	62/832043	4/10/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
83	Pending	IMAGE SENSORS WITH REDUCED NOISE	16/383230	4/12/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
84	Pending	MICROLENSSES FOR SEMICONDUCTOR DEVICE WITH SINGLE-PHOTON AVALANCHE DIODE PIXELS	16/402429	5/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
85	Pending	ADAPTIVE SR TURN ON CONTROL IN AN LLC RESONANT CONVERTER	16/450116	6/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
86	Pending	ETCHED NICKEL PLATED SUBSTRATE AND RELATED METHODS	62/848182	5/15/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
87	Pending	METHODS AND APPARATUS FOR A CAPACITIVE SENSOR	16/455161	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
88	Pending	METHODS AND SYSTEMS OF OPERATING DC TO DC POWER CONVERTERS	16/454870	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
89	Pending	METHODS AND SYSTEM FOR POSITION STABILIZATION	16/417873	5/21/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
90	Pending	METHODS AND APPARATUS FOR A BATTERY	16/455244	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
91	Pending	METHODS AND APPARATUS FOR A BATTERY	62/848203	5/15/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
92	Pending	IMAGE SENSORS HAVING HIGH DYNAMIC RANGE IMAGING PIXELS	62/840611	4/30/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
93	Pending	GATE POLYSILICON FEED STRUCTURES FOR TRENCH DEVICES	62/834642	4/16/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
94	Pending	ACOUSTIC DISTANCE MEASURING CIRCUIT AND METHOD FOR LOW FREQUENCY MODULATED (LFM) CHIRP SIGNALS	16/378722	4/9/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
95	Pending	METHODS AND APPARATUS FOR AN ANALOG-TO-DIGITAL	16/455114	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
96	Pending	ELECTRONIC DEVICE INCLUDING A HIGH ELECTRON MOBILITY TRANSISTOR INCLUDING A GATE ELECTRODE AND A DIELECTRIC FILM	62/835592	4/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
97	Pending	DUAL-MODE FREQUENCY MULTIPLIER	16/454749	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
98	Pending	Systems and Methods of Self-Aligned Trench MOSFET Contacts	16/449890	6/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
99	Pending	Systems and Methods of Self-Aligned Trench MOSFET Contacts	62/860959	6/13/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
100	Pending	HEAT TRANSFER FOR POWER MODULES	62/856918	6/6/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
101	Pending	CIRCUIT AND METHOD FOR CONTROLLING A COIL CURRENT DURING A SOFT SHUT DOWN	62/837899	4/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
102	Pending	HIGH VOLTAGE DIODE ON SOI SUBSTRATE WITH TRENCH MODIFIED CURRENT PATH	16/450298	6/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
103	Pending	SYSTEMS AND METHODS FOR REPLACING DATA RETRIEVED FROM MEMORY	16/444729	6/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
104	Pending	ANTI-FLARE SEMICONDUCTOR PACKAGES AND RELATED METHODS	16/456917	6/28/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
105	Pending	IMAGE SENSORS WITH REDUCED SIGNAL SAMPLING KICKBACK	62/856835	6/4/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
106	Pending	SEMICONDUCTOR DEVICE AND METHOD THEREFOR	16/410320	5/13/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
107	Pending	TEMPERATURE AND NON-UNIFORMITY COMPENSATION CIRCUITRY FOR SILICON PHOTOMULTIPLIER	16/447084	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
108	Pending	ELECTRICAL INTERCONNECTION OF IMAGE SENSOR PACKAGE	16/455676	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
109	Pending	METHODS AND APPARATUS FOR A CAPACITIVE TOUCH SENSOR	16/455218	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
110	Pending	METHODS AND APPARATUS FOR A CAPACITIVE TOUCH SENSOR	62/831832	4/10/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
111	Pending	METHOD OF FORMING A SEMICONDUCTOR DEVICE AND STRUCTURE THEREFOR	16/419506	5/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
112	Pending	SEMICONDUCTOR BASEPLATES	16/447195	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
113	Pending	POWER CONVERSION USING ARTIFICIAL INTELLIGENCE	62/854527	5/30/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
114	Pending	IMAGING SYSTEMS WITH IMPROVED MICROLENSES	62/842744	5/3/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
115	Pending	Adaptive Duty Cycle Limit	62/851323	5/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
116	Pending	METHODS AND APPARATUS FOR WATER DETECTION USING A CAPACITIVE SENSOR	16/455369	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
117	Pending	Outer door handle with touch sensor	62/854447	5/30/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
118	Pending	POWER MODULE HOUSING	62/846209	5/10/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
119	Pending	METHODS AND APPARATUS FOR A CAPACITIVE TOUCH SENSOR	16/415035	5/16/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
120	Pending	SEMICONDUCTOR PACKAGE WITH GUIDE PIN	62/851199	5/22/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC



	Status	App Title	App No.	Filing Date	Patent No.	Grant Date	Applicant
121	Pending	METHODS AND SYSTEM FOR AN INTEGRATED CIRCUIT	16/447008	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
122	Pending	METHODS AND APPARATUS FOR AN AMPLIFIER INTEGRATED CIRCUIT	16/447311	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
123	Pending	METHODS AND APPARATUS FOR AN AMPLIFIER INTEGRATED CIRCUIT	16/447149	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
124	Pending	ADAPTIVE THRESHOLD PROCESSING	62/832017	4/10/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
125	Pending	METHODS AND SYSTEMS FOR AN INTEGRATED CIRCUIT	16/449663	6/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
126	Pending	IMAGE SENSOR PACKAGES AND RELATED METHODS	16/455094	6/27/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
127	Pending	METHODS AND SYSTEM FOR COMMUNICATION BETWEEN A HOST DEVICE AND SLAVE DEVICES	16/453022	6/26/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
128	Pending	Flexible Printed RFID Data Logger	62/858395	6/7/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
129	Pending	SYSTEMS AND METHODS FOR A PHOTSENSOR	62/852662	5/24/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
130	Pending	RESONANT CURRENT OFFSET COMPENSATION	62/863189	6/18/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC
131	Pending	In Field Piezo Model Calculation	62/864361	6/20/2019	N/A	N/A	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC