

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4695665

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	PATENT SECURITY AGREEMENT

**CONVEYING PARTY DATA**

Name	Execution Date
SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	05/04/2017
FAIRCHILD SEMICONDUCTOR CORPORATION	05/04/2017

**RECEIVING PARTY DATA**

<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

**PROPERTY NUMBERS Total: 353**

Property Type	Number
Application Number:	15418887
Application Number:	15453354
Application Number:	15454279
Application Number:	15407918
Application Number:	15408709
Application Number:	15449473
Application Number:	15439516
Application Number:	15423775
Application Number:	15397468
Application Number:	15413352
Application Number:	15418340
Application Number:	15442858
Application Number:	62445547
Application Number:	15398910
Application Number:	15398912
Application Number:	62447477
Application Number:	15430058
Application Number:	15474414
Application Number:	15416726

PATENT

<b>Property Type</b>	<b>Number</b>
Application Number:	15410288
Application Number:	15403676
Application Number:	15402379
Application Number:	15427172
Application Number:	15419286
Application Number:	15430649
Application Number:	15453633
Application Number:	15461622
Application Number:	15408890
Application Number:	15405487
Application Number:	15403978
Application Number:	15428549
Application Number:	15408839
Application Number:	15421505
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Application Number:	15403341
Application Number:	15398137
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Application Number:	15410939
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<b>Property Type</b>	<b>Number</b>
Application Number:	15439672
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<b>Property Type</b>	<b>Number</b>
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Application Number:	15204138
Application Number:	62359324
Application Number:	62361157
Application Number:	62366688
Application Number:	15242018
Application Number:	62377063
Application Number:	62377817
Application Number:	62402311
Application Number:	15337748
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Application Number:	62420813
Application Number:	62422980
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Application Number:	11784162

<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	11696801
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<b>Application Number:</b>	11879550
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<b>Application Number:</b>	12013354
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Application Number:	14546624
Application Number:	14614605
Application Number:	14619403
Application Number:	14668852
Application Number:	14678504
Application Number:	14853525

**CORRESPONDENCE DATA**

**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:** 6463667120

**Email:** iprecordations@whitecase.com

**Correspondent Name:** DANIEL GOLD/WHITE & CASE LLP

**Address Line 1:** 1221 AVENUE OF THE AMERICAS

**Address Line 4:** NEW YORK, NEW YORK 10020

**PATENT**

**REEL: 044481 FRAME: 0550**

<b>ATTORNEY DOCKET NUMBER:</b>	1111779-2989-N997
<b>NAME OF SUBMITTER:</b>	DANIEL GOLD
<b>SIGNATURE:</b>	/Daniel Gold/
<b>DATE SIGNED:</b>	11/17/2017

**Total Attachments: 42**

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## PATENT SECURITY AGREEMENT

This PATENT SECURITY AGREEMENT, dated as of May 4, 2017 ("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.

### WITNESSETH:

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.

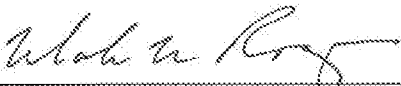
SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

By: 

Name: Bernard Gutmann

Title: Executive Vice President, Chief Financial Officer and Treasurer

FAIRCHILD SEMICONDUCTOR CORPORATION

By: 

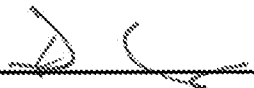
Name: Mark N. Rogers

Title: Assistant Secretary

Accepted and Agreed:

DEUTSCHE BANK AG NEW YORK BRANCH,  
as Assignee

By:   
Name: **Anca Trifan**  
Title: **Managing Director**

By:   
Name: **Dusan Lazarevic**  
Title: **Director**

*[Signature Page to 2017 Q1 Patent Security Agreement]*

**PATENT**  
**REEL: 044481 FRAME: 0555**

**PATENTS**

## Patent Registrations and Applications

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
1.	ACTIVE CLAMP FLYBACK CONVERTER	15/418887	2017-01-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
2.	VOLTAGE DISCHARGE WITH SLEW RATE CONTROL IN USB TYPE C	15/453354	2017-03-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
3.	SIGNAL RECEIVING CIRCUIT AND METHOD, THE SIGNAL DETECTION CIRCUIT	15/454279	2017-03-09			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
4.	LASER GROOVING AS A SOLUTION FOR WETTABLE FLANK TECHNOLOGY	15/407918	2017-01-17			FAIRCHILD SEMICONDUCTOR CORPORATION	
5.	REDUCTION OF ELECTROMAGNETIC INTERFERENCE IN A FLYBACK CONVERTER	15/408709	2017-01-18			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
6.	STRAY INDUCTANCE REDUCTION IN PACKAGED SEMICONDUCTOR DEVICES AND MODULES	15/449473	2017-03-03			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
7.	ACCELEROMETER TECHNIQUES TO COMPENSATE PACKAGE STRESS	15/439516	2017-02-22			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
8.	LED DIRECT AC DRIVE CIRCUIT	15/423775	2017-02-03			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
9.	POWER DEVICE AND FABRICATING METHOD THEREOF	15/397468	2017-01-03			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
10.	LOAD CAPACITANCE DETERMINATION CIRCUITRY AND POWER SUPPLY CONTROL	15/413352	2017-01-23			FAIRCHILD SEMICONDUCTOR CORPORATION	
11.	PRIMARY-SIDE	15/418340	2017-01-27			SEMICONDUCTOR	



No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	CONTROL OF RESONANT CONVERTERS					COMPONENTS INDUSTRIES, LLC	
12.	USB ELECTRONIC MARKER CIRCUIT AND METHOD THEREFOR	15/442858	2017-02-27			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
13.	COMPONENT AUTHENTICATION UTILIZING MULTI-LEVEL ARBITER	62/445547	2017-01-12			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
14.	SYSTEM AND METHOD FOR CONTROLLING SWITCHING POWER SUPPLY	15/398910	2017-01-05			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
15.	MULTI-PHASE CONTROL FOR PULSE WIDTH MODULATION POWER CONVERTERS	15/398912	2017-01-05			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
16.	DC-DC CONVERTER WITH GATE CHARGE RE-USE	62/447477	2017-01-18			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
17.	ACCOMMODATING INTERFERENCE BETWEEN WIRELESS STREAMING AND CONTROL PROTOCOLS	15/430058	2017-02-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
18.	DC-DC CONVERTER WITH GATE CHARGE RE-USE	15/474414	2017-03-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
19.	HIGH-VOLTAGE SUPERJUNCTION FIELD EFFECT TRANSISTOR	15/416726	2017-01-26			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
20.	SEMICONDUCTOR PACKAGES WITH AN INTERMETALLIC LAYER	15/410288	2017-01-19			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
21.	METHOD OF SEPARATING ELECTRONIC DEVICES HAVING A BACK LAYER AND APPARATUS	15/403676	2017-01-11			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
22.	METHODS AND APPARATUS FOR A	15/402379	2017-01-10			SEMICONDUCTOR COMPONENTS	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	TOUCH SENSOR					INDUSTRIES, LLC	
23.	METHODS AND APPARATUS FOR OPTICAL IMAGE STABILIZATION	15/427172	2017-02-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
24.	SYSTEMS AND METHODS FOR AN OPTICAL IMAGE STABILIZER SYSTEM	15/419286	2017-01-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
25.	METHODS AND APPARATUS FOR VIGNETTE AND OUT-OF-FOCUS CORRECTION	15/430649	2017-02-13			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
26.	MOTOR DRIVING METHOD	15/453633	2017-03-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
27.	METHODS AND APPARATUS FOR MEASURING BATTERY CHARACTERISTICS	15/461622	2017-03-17			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
28.	METHODS AND APPARATUS FOR A DELTA SIGMA ADC WITH PARALLEL-CONNECTED INTEGRATORS	15/408890	2017-01-18	9647679	2017-05-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
29.	METHODS AND APPARATUS FOR AN ANALOG-TO-DIGITAL CONVERTER	15/405487	2017-01-13			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
30.	EMCCD IMAGE SENSOR WITH STABLE CHARGE MULTIPLICATION GAIN	15/403978	2017-01-11			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
31.	MULTI-CONVERSION GAIN PIXEL CONFIGURATIONS	15/428549	2017-02-09			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
32.	METHODS AND APPARATUS FOR AN IMAGE SENSOR	15/408839	2017-01-18			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
33.	EDGE SEALS FOR SEMICONDUCTOR PACKAGES	15/421505	2017-02-01			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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34.	HIGH DYNAMIC RANGE GLOBAL SHUTTER IMAGE SENSORS HAVING HIGH SHUTTER EFFICIENCY	15/419211	2017-01-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
35.	DIE STACKED IMAGE SENSORS AND RELATED METHODS	15/409237	2017-01-18			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
36.	IMAGE SENSOR INCLUDING TEMPERATURE SENSOR AND ELECTRONIC SHUTTER FUNCTION	15/403341	2017-01-11			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
37.	METHODS AND APPARATUS FOR A CMOS IMAGE SENSOR WITH AN IN-PIXEL AMPLIFIER	15/398137	2017-01-04			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
38.	METHODS AND APPARATUS FOR A POWER MANAGEMENT UNIT	15/398177	2017-01-04			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
39.	PHASE DETECTION PIXELS WITH HIGH SPEED READOUT	15/410937	2017-01-20			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
40.	IMAGE SENSORS WITH HYBRID THREE-DIMENSIONAL IMAGING	15/410939	2017-01-20			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
41.	LEADLESS SEMICONDUCTOR PACKAGES, LEADFRAMES THEREFOR, AND METHODS OF MAKING	15/415504	2017-01-25			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
42.	SEMICONDUCTOR DEVICES AND METHODS OF MAKING THE SAME	15/421515	2017-02-01			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
43.	MOLDED IMAGE SENSOR CHIP SCALE PACKAGES AND RELATED	15/405519	2017-01-13			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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	METHODS						
44.	SEMICONDUCTOR DIE AND METHOD OF PACKAGING MULTI-DIE WITH IMAGE SENSOR	15/407224	2017-01-16			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
45.	RECESSED LEAD LEADFRAME PACKAGES	15/410341	2017-01-19			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
46.	IMAGE SENSOR WITH GLOBAL RESET RELEASE AND REDUCED SHADING	62/452007	2017-01-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
47.	SYSTEM AND METHOD FOR CONTROLLING A PHASE LOCK LOOP	15/423311	2017-02-02			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
48.	III-V SEMICONDUCTOR DEVICE AND METHOD THEREFOR	15/422764	2017-02-02			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
49.	SEMICONDUCTOR DEVICE AND METHOD OF FORMING EMBEDDED THERMOELECTRIC COOLER FOR HEAT DISSIPATION OF IMAGE SENSOR	15/425171	2017-02-06			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
50.	RIPPLE REDUCTION METHOD FOR CHOPPER AMPLIFIERS	15/430139	2017-02-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
51.	METHODS AND APPARATUS FOR AUTOFOCUS	15/450640	2017-03-06			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
52.	EXTERNAL RESISTANCE DIAGNOSIS OF LED DRIVER	62/459771	2017-02-16			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
53.	FLEXIBLE PRESS FIT PINS FOR SEMICONDUCTOR PACKAGES AND RELATED METHODS	15/443671	2017-02-27			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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54.	METHOD OF FORMING A SEMICONDUCTOR DEVICE AND METHOD THEREFOR	15/438675	2017-02-21			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
55.	REGULATING TRANSISTOR SLOPE	15/440439	2017-02-23			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
56.	METHODS AND APPARATUS FOR PIXEL BINNING AND READOUT	15/435351	2017-02-17			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
57.	SUBSTRATE STRUCTURES AND METHODS OF MANUFACTURE	15/440967	2017-02-23			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
58.	PACKAGED SEMICONDUCTOR DEVICES AND RELATED METHODS	15/439672	2017-02-22			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
59.	SEMICONDUCTOR DEVICE AND METHOD FOR SUPPORTING ULTRA-THIN SEMICONDUCTOR DIE	15/446281	2017-03-01			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
60.	SEMICONDUCTOR DEVICE AND METHOD OF FORMING WLCSP	15/446182	2017-03-01			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
61.	SEMICONDUCTOR DEVICE AND METHOD OF FORMING BACKSIDE OPENINGS FOR AN ULTRA-THIN SEMICONDUCTOR DIE	15/452888	2017-03-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
62.	ACOUSTIC SIGNAL PROCESSING SYSTEM CAPABLE OF DETECTING DOUBLE-TALK AND METHOD	15/445704	2017-02-28			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
63.	SEMICONDUCTOR DEVICE AND METHOD THEREFOR	15/472802	2017-03-29			FAIRCHILD SEMICONDUCTOR CORPORATION	
64.	SEMICONDUCTOR DEVICE AND	15/471666	2017-03-28			FAIRCHILD SEMICONDUCTOR	

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	METHOD THEREFOR					CORPORATION	
65.	SWITCH CONTROL CIRCUIT INCLUDING MULTIPIN TO SET DEAD TIME INFORMATION AND/OR PROTECTION MODE	15/446513	2017-03-01			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
66.	COMPONENT AUTHENTICATION UTILIZING MULTI-LEVEL ARBITER	15/454129	2017-03-09			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
67.	SEMICONDUCTOR BACKMETAL (BM) AND OVER PAD METALLIZATION (OPM) STRUCTURES AND RELATED METHODS	15/448008	2017-03-02			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
68.	ENABLE AND DISABLE COMPARATOR VOLTAGE REFERENCE	15/466638	2017-03-22			FAIRCHILD SEMICONDUCTOR CORPORATION	
69.	IMAGING SYSTEMS WITH THROUGH-OXIDE VIA CONNECTIONS	15/453038	2017-03-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
70.	ADVANCED FREQUENCY REDUCTION WITH QUASI-RESONANT CONTROL FOR WIDE INPUT AND OUTPUT CONDITIONS	62/469873	2017-03-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
71.	CONSTANT CURRENT WITH MAXIMUM POWER LIMIT CONTROL FOR ADAPTIVE OUTPUT SYSTEM	62/469893	2017-03-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
72.	LED DRIVE CIRCUIT WITH A PROGRAMMABLE INPUT FOR LED LIGHTING	15/455272	2017-03-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
73.	RESISTIVITY-BASED DETERMINATION OF MEMS CALIBRATION	15/456990	2017-03-13			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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	COEFFICIENT						
74.	METHODS AND APPARATUS FOR AN ANALOG-TO-DIGITAL CONVERTER	15/454381	2017-03-09			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
75.	SEMICONDUCTOR DEVICE WITH SUPER JUNCTION AND METHOD OF MANUFACTURING THE SAME	15/454861	2017-03-09			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
76.	IMAGE SENSOR WITH FLEXIBLE INTERCONNECT CAPABILITIES	15/464068	2017-03-20			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
77.	METHODS OF FORMING IMAGE SENSOR INTEGRATED CIRCUIT PACKAGES	15/459228	2017-03-15			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
78.	SYSTEM AND METHOD FOR CONTROLLING SWITCHING POWER SUPPLY	15/461658	2017-03-17			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
79.	LOW VOLTAGE BANDGAP REFERENCE CIRCUIT AND METHOD	62/472391	2017-03-16			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
80.	RADIO FREQUENCY IDENTIFICATION (RFID) TAG DEVICE AND RELATED METHODS	15/474938	2017-03-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
81.	HIGH DYNAMIC RANGE STORAGE GATE PIXEL CIRCUITRY	15/476060	2017-03-31			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
82.	A SINGLE POINT FAILURE PROTECTION MECHANISM FOR A PULSE WIDTH MODULATION CONTROLLER	62/480028	2017-03-31			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
83.	REDUCING EMI BY DITHERING OF PULSE WIDTH MODULATION	62/480145	2017-03-31			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional

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	RAMP GENERATOR						
84.	ACCELEROMETER TECHNIQUES TO COMPENSATE PACKAGE STRESS	15/439516	2017-02-22			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
85.	ACTIVE CLAMP FLYBACK CONVERTER	15/418887	2017-01-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
86.	POWER DEVICE AND FABRICATING METHOD THEREOF	15/397468	2017-01-03			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
87.	SWITCH CONTROL CIRCUIT INCLUDING MULTIPIN TO SET DEAD TIME INFORMATION AND/OR PROTECTION MODE	15/446513	2017-03-01			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
88.	SEMICONDUCTOR DEVICE WITH SUPER JUNCTION AND METHOD OF MANUFACTURING THE SAME	15/454861	2017-03-09			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
89.	VOLTAGE MEASURING APPARATUS AND BATTERY MANAGEMENT SYSTEM INCLUDING THE SAME	14/189495	2014-02-25	9553462	2017-01-24	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
90.	JACK DETECTOR AND JACK DETECTING METHOD	14/174394	2014-02-06	9602941	2017-03-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
91.	POWER SUPPLY DEVICE	13/920448	2013-06-18	9590509	2017-03-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
92.	PHASE SHIFT CIRCUIT AND DIMMING CIRCUIT INCLUDING THE SAME	13/234656	2011-09-16			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
93.	SUPERJUNCTION SEMICONDUCTOR DEVICE	13/325690	2011-12-14			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
94.	POWER DEVICE INCLUDING A FIELD STOP LAYER	13/868629	2013-04-23			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	



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95.	SWITCH CONTROLLER, POWER SUPPLY DEVICE COMPRISING THE SAME, AND DRIVING METHOD OF THE POWER SUPPLY DEVICE	13/889789	2013-05-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
96.	PHASE-CUT PRE-REGULATOR AND POWER SUPPLY COMPRISING THE SAME	13/899240	2013-05-21	9685870	2017-06-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
97.	CABLE COMPENSATION CIRCUIT	13/957660	2013-08-02			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
98.	CABLE COMPENSATION CIRCUIT AND POWER SUPPLY INCLUDING THE SAME	14/091978	2013-11-27			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
99.	SWITCH CONTROL CIRCUIT AND POWER SUPPLY DEVICE INCLUDING THE SAME	14/272580	2014-05-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
100.	POWER SUPPLY	14/324704	2014-07-07	9748849	2017-08-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
101.	MODE SELECTION CIRCUIT AND SWITCH CONTROL CIRCUIT INCLUDING THE MODE SELECTION CIRCUIT AND MULTI FUNCTIONS PIN	14/447479	2014-07-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
102.	CHARGE PUMP AND SWITCH CONTROL CIRCUIT	14/446502	2014-07-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
103.	WIRELESS POWER TRANSFER SYSTEM	14/494112	2014-09-23			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
104.	WIRELESS POWER TRANSFER SYSTEM AND DRIVING METHOD THEREOF	14/498140	2014-09-26			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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105.	POWER MODULE PACKAGE AND METHOD OF MANUFACTURING THE SAME	14/513456	2014-10-14			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
106.	CONVERTER AND DRIVING METHOD THEREOF	14/514802	2014-10-15			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
107.	ACTIVE DAMPER AND POWER SUPPLY INCLUDING THE SAME	14/527033	2014-10-29			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
108.	SENSING RESISTOR SHORT DETERMINER, SWITCH CONTROL CIRCUIT INCLUDING THE SAME AND POWER SUPPLY INCLUDING THE SWITCH CONTROL CIRCUIT	14/567693	2014-12-11			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
109.	METHOD AND APPARATUS FOR CHARGING A BATTERY	14/576402	2014-12-19			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
110.	OUTPUT CURRENT ESTIMATING METHOD AND POWER SUPPLY DEVICE USING THE SAME	14/597517	2015-01-15			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
111.	SWITCH CONTROL CIRCUIT AND POWER SUPPLY DEVICE INCLUDING THE SAME	14/597660	2015-01-15			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
112.	PRIMARY SIDE REGULATION POWER SUPPLY DEVICE	14/598451	2015-01-16			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
113.	RESONANT CONVERTER AND DRIVING METHOD THEREOF	14/619201	2015-02-11	9729072	2017-08-08	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
114.	LOAD DETECTING DEVICE	14/678262	2015-04-03			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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115.	PULSE GENERATOR AND DRIVING CIRCUIT COMPRISING THE SAME	14/699732	2015-04-29	9755625	2017-09-05	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
116.	VEHICLE CHARGER	14/706472	2015-05-07	9716399	2017-07-25	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
117.	POWER DEVICE AND METHOD FOR FABRICATING THE SAME	14/742328	2015-06-17			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
118.	BI-DIRECTIONAL TRANSMITTER/RECEIVER COMPRISING TEMPERATURE SENSOR AND DRIVING CIRCUIT COMPRISING THE SAME	14/748997	2015-06-24	9735565	2017-08-15	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
119.	POWER SEMICONDUCTOR DEVICES	14/845939	2015-09-04			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
120.	CONTROL SYSTEM FOR PHASE-CUT DIMMING	14/937179	2015-11-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
121.	STANDBY CURRENT SUPPLIER	14/937038	2015-11-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
122.	RESONANT CONVERTER AND DRIVING METHOD THEREOF	14/964998	2015-12-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
123.	MODULATION MODE CONTROL CIRCUIT, SWITCH CONTROL CIRCUIT INCLUDING THE MODULATION MODE CONTROL CIRCUIT AND POWER SUPPLY DEVICE INCLUDING THE SWITCH CONTROL CIRCUIT	14/965238	2015-12-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
124.	PROTECTION MODE CONTROL CIRCUIT, SWITCH CONTROL CIRCUIT INCLUDING THE PROTECTION MODE	14/965125	2015-12-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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	CONTROL CIRCUIT AND POWER SUPPLY DEVICE INCLUDING THE SWITCH CONTROL CIRCUIT						
125.	REFERENCE VOLTAGE GENERATION FOR DIMMING	62/269,330	2015-12-18			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
126.	FREQUENCY MODULATION AND STANDBY MODE FOR A DIMMING CONTROL OF LED LIGHTING SYSTEM	62/269,333	2015-12-18			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
127.	PFC CONTROL METHOD TO PROVIDE CCM AND DCM OPERATION ENTIRE LOAD AND LINE RANGE	62/273,647	2015-12-31			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
128.	STRUCTURE FOR THE PCB FOR PLANAR TRANSFORMER	62/276,337	2016-01-08			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
129.	THERMAL PATH FOR NTC	62/280,303	2016-01-19			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
130.	RIPPLE REMOVER WITH ADAPTIVE SATURATION VOLTAGE TRACKING CIRCUIT IN POWER SWITCH FOR LED LIGHTING	62/287,081	2016-01-26			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
131.	ACTIVE CLAMP FLYBACK	62/307,431	2016-03-12			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
132.	POWER FACTOR CORRECTION CIRCUIT AND DRIVING METHOD THEREOF	15/077,280	2016-03-22			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
133.	WIDE INPUT LED DRIVER	62/320,740	2016-04-11			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
134.	PLANAR MAGNETIC ELEMENT	15/145079	2016-05-03			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
135.	ACTIVE CLAMP	62/334,104	2016-05-10			SEMICONDUCTOR	Provisional

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	FLYBACK					COMPONENTS INDUSTRIES, LLC	
136.	OVERCURRENT PROTECTION CIRCUIT AND POWER FACTOR CORRECTION CIRCUIT COMPRISING THE SAME	15/154094	2016-05-13			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
137.	SIGNAL CALCULATOR	15/166,847	2016-05-27	9748935	2017-08-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
138.	HYSTERETIC CONTROL METHOD WITH LOW SIDE SENSING	62/344,763	2016-06-02			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
139.	OVER VOLTAGE TUNED BUCK TOPOLOGY FOR A LED LIGHTING CONTROL IN A WIDE RANGE INPUT VOLTAGE.	62/344,752	2016-06-02			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
140.	CONVERTER AND REGULATOR	62/344,780	2016-06-02			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
141.	QR BUCK CONVERTER WITHOUT AUXILIARY WINDING	62/348,417	2016-06-10			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
142.	INPUT VOLTAGE DETECTION CIRCUIT AND POWER SUPPLY INCLUDING THE SAME	15/196348	2016-06-29			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
143.	SWITCH CONTROL CIRCUIT AND BUCK CONVERTER INCLUDING THE SAME	15/196678	2016-06-29			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
144.	SOFT-START CIRCUIT AND BUCK CONVERTER COMPRISING THE SAME	15/196559	2016-06-29			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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145.	SWITCH CONTROL CIRCUIT AND BUCK CONVERTER COMPRISING THE SAME	15/196409	2016-06-29			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
146.	SWITCH CONTROL CIRCUIT AND CONVERTER INCLUDING THE SAME	15/196483	2016-06-29			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
147.	POWER-ON RESET CIRCUIT AND UNDER-VOLTAGE LOCKOUT CIRCUIT COMPRISING THE SAME	15/204138	2016-07-07			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
148.	FILTER DISCHARGER CIRCUIT FOR PHASE-CUT LED DRIVER	62/359,324	2016-07-07			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
149.	VARIABLE SWITCHING FREQUENCY RANGE TO IMPROVE EFFICIENCY	62/361,157	2016-07-12			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
150.	FILTER DISCHARGER CIRCUIT FOR PHASE-CUT LED DRIVER	62/366,688	2016-07-26			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
151.	SUPERJUNCTION SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME	15/242,018	2016-08-19			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
152.	LLC CONVERTER	62/377,063	2016-08-19			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
153.	HYBRID DIMMING	62/377,817	2016-08-22			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
154.	ADAPTIVE VOLTAGE AMPLIFIER FOR FAST RESPONSE IN PFC RECTIFIER	62/402,311	2016-09-30			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
155.	POWER SEMICONDUCTOR DEVICE	15/337748	2016-10-28			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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156.	POWER MCM(MULTI CHIP MODULE) PACKAGE STRUCTURE AND MANUFACTURING METHOD	62/415939	2016-11-01			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
157.	VERTICALLY STACKED MULTICHIP MODULES	62/420813	2016-11-11			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
158.	MULTIPLE LINEAR REGULATION	62/422980	2016-11-16			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	Provisional
159.	PLANAR TRANSFORMER WITH MULTILAYER CIRCUIT BOARD	15/374239	2016-12-09			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
160.	REFERENCE VOLTAGE GENERATION FOR DIMMING	15/380248	2016-12-15			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
161.	LED DRIVING CIRCUIT, LED DEVICE COMPRISING THE SAME, AND DRIVING METHOD OF LED	15/380254	2016-12-15			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
162.	LED LIGHTING CIRCUIT WITH RIPPLE REDUCER	15/388243	2016-12-22			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
163.	CIRCUIT BOARD WITH THERMAL PATHS FOR THERMISTOR	15/388322	2016-12-22			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
164.	POWER FACTOR CORRECTION CIRCUIT AND DRIVING METHOD THEREOF	15/392964	2016-12-28			SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
165.	POWER DEVICE INCLUDING A FIELD STOP LAYER	14/316248	2014-06-26	9685335	2017-06-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
166.	CLAMPING CIRCUIT, POWER SUPPLY DEVICE INCLUDING THE SAME AND DRIVING METHOD OF POWER SUPPLY DEVICE	14/557880	2014-12-02	9680455	2017-06-13	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
167.	SEMICONDUCTOR	14/709786	2015-05-12	9666512	2017-05-30	SEMICONDUCTOR	

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	PACKAGE					COMPONENTS INDUSTRIES, LLC	
168.	SWITCHING MODE POWER SUPPLY WITH COMPENSATED PROPAGATION DELAY	11/586992	2006-10-25	7558084	2009-07-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
169.	CURRENT SENSING CIRCUIT AND BOOST CONVERTER HAVING THE SAME	11/560783	2006-11-16	7528633	2009-05-05	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
170.	HIGH VOLTAGE INTEGRATION CIRCUIT WITH FREEWHEELING DIODE EMBEDDED IN TRANSISTOR	11/603671	2006-11-22	7732858	2010-06-08	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
171.	RC OSCILLATOR INTEGRATED CIRCUIT INCLUDING CAPACITOR	11/607357	2006-12-01	7420431	2008-09-02	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
172.	BALLAST INTEGRATED CIRCUIT (IC)	11/607358	2006-12-01	7323825	2008-01-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
173.	CURRENT CONTROLLED SWITCHING MODE POWER SUPPLY	11/639005	2006-12-14	7760520	2010-07-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
174.	PACKAGE AND PACKAGE ASSEMBLY OF POWER DEVICE	11/680061	2007-02-28	7847395	2010-12-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
175.	SWITCHING MODE POWER SUPPLY	11/713987	2007-03-05	7773393	2010-08-10	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
176.	RESONANT INVERTER EXHIBITING DEPRESSED DUTY VARIATION	11/784162	2007-04-04	7492141	2009-02-17	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
177.	POWER SYSTEM MODULE AND METHOD OF FABRICATING THE SAME	11/696801	2007-04-05	7706146	2010-04-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
178.	POWER MODULE FOR ENERGY RECOVERY AND DISCHARGE	11/787276	2007-04-16	7859528	2010-12-28	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	



No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	SUSTAIN OF PLASMA DISPLAY PANEL						
179.	HALF-BRIDGE POWER CONVERTER SYSTEM AND METHOD OF OPERATION	11/796332	2007-04-27	7889518	2011-02-15	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
180.	POWER MODULE FOR LOW THERMAL RESISTANCE AND METHOD OF FABRICATING THE SAME	11/743829	2007-05-03	7701048	2010-04-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
181.	MIXED TYPE FREQUENCY COMPENSATING CIRCUIT AND CONTROL CIRCUIT	11/805872	2007-05-24	7777464	2010-08-17	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
182.	QUASI-RESONANT CONVERTER AND CONTROLLING METHOD THEREOF	11/818421	2007-06-13	7791909	2010-09-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
183.	SWITCHING MODE POWER SUPPLY AND METHOD OF OPERATION	11/827196	2007-07-11	7768802	2010-08-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
184.	SWITCHING MODE POWER SUPPLY AND METHOD OF OPERATION	11/879550	2007-07-18	8000119	2011-08-16	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
185.	METHOD OF FORMING HIGH BREAKDOWN VOLTAGE LOW ON-RESISTANCE LATERAL DMOS TRANSISTOR	11/828128	2007-07-25	7605040	2009-10-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
186.	SWITCHING MODE POWER SUPPLY AND DRIVING METHOD THEREOF	11/881180	2007-07-26	7684215	2010-03-23	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
187.	VARIABLE-MODE CONVERTER CONTROL CIRCUIT AND HALF-BRIDGE CONVERTER HAVING THE SAME	11/888056	2007-07-31	7813151	2010-10-12	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
188.	BURST MODE OPERATION IN A	11/888480	2007-08-01	7750615	2010-07-06	SEMICONDUCTOR COMPONENTS	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	DC-DC CONVERTER					INDUSTRIES, LLC	
189.	SWITCH MODE POWER SUPPLY AND DRIVING METHOD THEREOF	11/888488	2007-08-01	7957162	2011-06-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
190.	SCR CONTROLLED BY THE POWER BIAS	11/846231	2007-08-28	7834378	2010-11-16	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
191.	SUPERJUNCTION SEMICONDUCTOR DEVICE	11/872949	2007-10-16	7655981	2010-02-02	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
192.	HIGH-VOLTAGE SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING THE SAME	11/939264	2007-11-13	7868384	2011-01-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
193.	ENERGY TRANSFER ELEMENT AND CONVERTER INCLUDING THE SAME	11/985159	2007-11-14	7710085	2010-05-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
194.	INSULATED GATE BIPOLAR TRANSISTOR FAULT PROTECTION SYSTEM	11/986615	2007-11-21	7817392	2010-10-19	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
195.	HIGH VOLTAGE GATE DRIVER INTEGRATED CIRCUIT INCLUDING HIGH VOLTAGE JUNCTION CAPACITOR AND HIGH VOLTAGE LD MOS TRANSISTOR	11/950959	2007-12-05	7655979	2010-02-02	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
196.	HIGH POWER SEMICONDUCTOR PACKAGE AND METHOD OF MAKING THE SAME	11/951634	2007-12-06	7714428	2010-05-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
197.	POWER DEVICE PACKAGE	11/965983	2007-12-28	7800224	2010-09-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
198.	HIGH POWER SEMICONDUCTOR PACKAGE	11/969410	2008-01-04	8350369	2013-01-08	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
199.	POWER DEVICE PACKAGE	11/970911	2008-01-08	8067826	2011-11-29	SEMICONDUCTOR COMPONENTS	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	COMPRISING METAL TAB DIE ATTACH PADDLE (DAP) AND METHOD OF FABRICATING THE PACKAGE					INDUSTRIES, LLC	
200.	HIGH VOLTAGE SEMICONDUCTOR DEVICE WITH FLOATING REGIONS FOR REDUCING ELECTRIC FIELD CONCENTRATION	12/013354	2008-01-11	8072029	2011-12-06	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
201.	CONVERTER AND DRIVING METHOD THEREOF	12/011343	2008-01-25	7701735	2010-04-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
202.	POWER DEVICE PACKAGE AND SEMICONDUCTOR PACKAGE MOLD FOR FABRICATING THE SAME	12/011844	2008-01-29	8258622	2012-09-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
203.	POWER MODULE HAVING STACKED FLIP-CHIP AND METHOD OF FABRICATING THE POWER MODULE	12/074225	2008-02-28	7675148	2010-03-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
204.	STACKED SCR WITH HIGH HOLDING VOLTAGE	12/051118	2008-03-19	7773356	2010-08-10	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
205.	OVERLOAD AND SHORT PROTECTED SOFT-START CONVERTER	12/079184	2008-03-25	7848124	2010-12-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
206.	QUASI RESONANT SWITCHING MODE POWER SUPPLY	12/079703	2008-03-28	7684216	2010-03-23	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
207.	SWITCHING MODE POWER SUPPLY AND SWITCH THEREOF	12/148314	2008-04-18	7960952	2011-06-14	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
208.	SWITCH CONTROLLER OF A CONVERTER WITH A SOFT START SIGNAL GENERATOR COMPRISING A PLURALITY OF CURRENT SOURCES	12/150226	2008-04-25	8169802	2012-05-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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209.	SWITCHING MODE POWER SUPPLY AND DRIVING METHOD THEREOF	12/151903	2008-05-09	7710746	2010-05-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
210.	SWITCH CONTROL DEVICE, SWITCH CONTROL METHOD, AND CONVERTER USING THE SAME	12/154207	2008-05-21	7881083	2011-02-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
211.	POWER MODULE AND METHOD OF FABRICATING THE SAME	12/220638	2008-07-24	7687903	2010-03-30	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
212.	CONVERTER AND DRIVING METHOD THEREOF	12/220769	2008-07-25	8115466	2012-02-14	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
213.	FREQUENCY MODULATION DEVICE AND SWITCHING MODE POWER SUPPLY USING THE SAME	12/220768	2008-07-25	8194425	2012-06-05	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
214.	POWER DEVICE PACKAGE AND METHOD OF FABRICATING THE SAME	12/194843	2008-08-20	7846779	2010-12-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
215.	POWER DEVICE PACKAGE AND METHOD OF FABRICATING THE SAME	12/284217	2008-09-18	8198139	2012-06-12	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
216.	INTERLEAVED SWITCHING CONVERTER, AND SWITCHING CONTROLLER AND CONTROLLING METHOD THEREOF	12/257774	2008-10-24	7880453	2011-02-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
217.	POWER CONVERTER AND DRIVING METHOD THEREOF	12/258157	2008-10-24	8144486	2012-03-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
218.	SEMICONDUCTOR PACKAGES AND METHODS OF FABRICATING THE SAME	12/260963	2008-10-29	7714455	2010-05-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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219.	SEMICONDUCTOR PACKAGE HAVING INSULATED METAL SUBSTRATE AND METHOD OF FABRICATING THE SAME	12/264292	2008-11-04	7659559	2010-02-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
220.	SEMICONDUCTOR POWER MODULE PACKAGES WITH SIMPLIFIED STRUCTURE AND METHODS OF FABRICATING THE SAME	12/264823	2008-11-04	8125080	2012-02-28	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
221.	POWER DEVICE PACKAGES AND METHODS OF FABRICATING THE SAME	12/273373	2008-11-18	7863725	2011-01-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
222.	STRUCTURE AND METHOD FOR FORMING A GUARD RING TO PROTECT A CONTROL DEVICE IN A POWER SEMICONDUCTOR IC	12/273424	2008-11-18	8686531	2014-04-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
223.	SEMICONDUCTOR POWER MODULE PACKAGE WITHOUT TEMPERATURE SENSOR MOUNTED THEREON AND METHOD OF FABRICATING THE SAME	12/277699	2008-11-25	7871848	2011-01-18	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
224.	MULTI-CHIP PACKAGE	12/316367	2008-12-10	7936054	2011-05-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
225.	SYNCHRONOUS RECTIFIER	12/343967	2008-12-24	8089784	2012-01-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
226.	LEADLESS PACKAGE	12/349960	2009-01-07	7808103	2010-10-05	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
227.	WAFER-LEVEL CHIP SCALE PACKAGE AND METHOD FOR FABRICATING AND USING THE SAME	12/350065	2009-01-07	7632719	2009-12-15	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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228.	SEMICONDUCTOR PACKAGE AND METHODS OF FABRICATING THE SAME	12/358566	2009-01-23	8723304	2014-05-13	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
229.	HEAT SINK PACKAGE	12/358758	2009-01-23	7786570	2010-08-31	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
230.	RESONANT CONVERTER	12/361401	2009-01-28	8085558	2011-12-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
231.	SYNCHRONOUS RECTIFIER NETWORK UNIT CIRCUIT AND METHOD	12/361785	2009-01-29	8711581	2014-04-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
232.	SOFT-BURST CIRCUIT FOR SWITCHED-MODE POWER SUPPLIES	12/367290	2009-02-06	8625308	2014-01-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
233.	HIGH-VOLTAGE INTEGRATED CIRCUIT DEVICE INCLUDING HIGH-VOLTAGE RESISTANT DIODE	12/397426	2009-03-04	7906828	2011-03-15	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
234.	HIGH VOLTAGE SEMICONDUCTOR DEVICE HAVING SHIFTERS AND METHOD OF FABRICATING THE SAME	12/402528	2009-03-12	7777524	2010-08-17	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
235.	POWER DEVICE PACKAGES HAVING THERMAL ELECTRIC MODULES USING PELTIER EFFECT AND METHODS OF FABRICATING THE SAME	13/101078	2011-05-04	8552541	2013-10-08	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
236.	COMPLEX SEMICONDUCTOR PACKAGES AND METHODS OF FABRICATING THE SAME	12/413399	2009-03-27	8796831	2014-08-05	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
237.	SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING THE	12/414172	2009-03-30	7803676	2010-09-28	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	SAME						
238.	RESONANT CONVERTER WITH VARIABLE FREQUENCY CONTROLLED BY PHASE COMPARISON	12/417168	2009-04-02	8036001	2011-10-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
239.	A CONVERTER THAT ACTUATES A SWITCH CORRESPONDING TO A DETECTED VALLEY OF A RESONANCE WAVEFORM	12/424195	2009-04-15	8259471	2012-09-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
240.	DRIVING DEVICE	12/476800	2009-06-02	8258764	2012-09-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
241.	SWITCH CONTROL DEVICE AND CONVERTER INCLUDING THE SAME	12/486322	2009-06-17	8242755	2012-08-14	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
242.	HIGH VOLTAGE SEMICONDUCTOR DEVICE INCLUDING FIELD SHAPING LAYER AND METHOD OF FABRICATING THE SAME	12/495948	2009-07-01	8399923	2013-03-19	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
243.	SWITCH CONTROL DEVICE AND CONVERTER INCLUDING THE SAME	12/497261	2009-07-02	9148051	2015-09-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
244.	SWITCH CONTROLLER, SWITCH CONTROL METHOD, AND CONVERTER USING THE SAME	12/509013	2009-07-24	8125197	2012-02-28	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
245.	INVERTER AND LAMP DRIVER INCLUDING THE SAME	12/510511	2009-07-28	8120275	2012-02-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
246.	POWER CONVERTER, AND SWITCHING CONTROLLER AND DRIVING METHOD	12/534227	2009-08-03	8139381	2012-03-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	THEREOF						
247.	SWITCHING MODE POWER SUPPLY AND THE DRIVING METHOD THEREOF	12/544893	2009-08-20	9374008	2016-06-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
248.	ELECTROSTATIC DISCHARGE DIODE	12/556957	2009-09-10	8203183	2012-06-19	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
249.	INVERTER DRIVER AND LOAD DRIVER INCLUDING THE SAME, AND DRIVING METHOD THEREOF	12/564632	2009-09-22	8120337	2012-02-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
250.	POWER FACTOR CORRECTION CIRCUIT AND METHOD OF DRIVING THE SAME	12/608727	2009-10-29	8148956	2012-04-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
251.	MOTOR DRIVING INVERTER CIRCUIT MODULE, MOTOR DRIVING APPARATUS HAVING THE MOTOR DRIVING INVERTER CIRCUIT MODULE, AND INVERTER INTEGRATED CIRCUIT PACKAGE	12/626465	2009-11-25	7952317	2011-05-31	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
252.	SEMICONDUCTOR PACKAGE HAVING INSULATED METAL SUBSTRATE AND METHOD OF FABRICATING THE SAME	12/641554	2009-12-18	7842545	2010-11-30	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
253.	POWER MODULE HAVING STACKED FLIP-CHIP AND METHOD OF FABRICATING THE POWER MODULE	12/643901	2009-12-21	8766419	2014-07-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
254.	POWER MODULE FOR LOW THERMAL RESISTANCE AND METHOD OF FABRICATING THE SAME	12/702615	2010-02-09	7951645	2011-05-31	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
255.	AUTO-RESTART CIRCUIT AND	12/716983	2010-03-03	8179172	2012-05-15	SEMICONDUCTOR COMPONENTS	



No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	AUTO-RESTART METHOD					INDUSTRIES, LLC	
256.	PROTECTION CIRCUIT, RESONANT CONVERTER INCLUDING THE PROTECTION CIRCUIT, AND PROTECTING METHOD OF THE RESONANT CONVERTER	12/716683	2010-03-03	8335061	2012-12-18	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
257.	POWER SYSTEM MODULE AND METHOD OF FABRICATING THE SAME	12/722153	2010-03-11	7986531	2011-07-26	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
258.	UNDER-VOLTAGE AND OVER-VOLTAGE DETECTION CIRCUIT AND DRIVING METHOD THEREOF	12/724841	2010-03-16	8410809	2013-04-02	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
259.	POWER FACTOR CORRECTION CIRCUIT WITH INPUT VOLTAGE ESTIMATION AND DRIVING METHOD THEREOF	12/730643	2010-03-24	9088223	2015-07-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
260.	POWER MODULE PACKAGE HAVING EXCELLENT HEAT SINK EMISSION CAPABILITY AND METHOD FOR MANUFACTURING THE SAME	12/730294	2010-03-24	8890310	2014-11-18	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
261.	POWER SEMICONDUCTOR DEVICE	12/763689	2010-04-20	8217487	2012-07-10	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
262.	FREQUENCY MODULATION CONTROLLER, SWITCH MODE POWER SUPPLY INCLUDING THE SAME, AND SWITCHING OPERATION	12/788144	2010-05-26	8339815	2012-12-25	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	FREQUENCY MODULATION METHOD						
263.	LED LIGHT EMITTING DEVICE AND DRIVING METHOD THEREOF	12/791281	2010-06-01	8188674	2012-05-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
264.	HIGH VOLTAGE INTEGRATION CIRCUIT WITH FREEWHEELING DIODE EMBEDDED IN TRANSISTOR	12/795564	2010-06-07	8049306	2011-11-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
265.	INVERTER DEVICE AND DRIVING METHOD THEREOF	12/815193	2010-06-14	8274235	2012-09-25	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
266.	HEAT SINK PACKAGE	12/845299	2010-07-28	8604606	2013-12-10	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
267.	LED LIGHT EMITTING DEVICE	12/850996	2010-08-05	8519642	2013-08-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
268.	SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING THE SAME	12/870913	2010-08-30	8330218	2012-12-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
269.	SWITCH DRIVING CIRCUIT AND DRIVING METHOD THEREOF	12/874415	2010-09-02	8487602	2013-07-16	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
270.	INVERTER AND DRIVING METHOD THEREOF	12/884682	2010-09-17	9030847	2015-05-12	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
271.	POWER FACTOR CORRECTION CIRCUIT WITH OVER-VOLTAGE DETECTION AND DRIVING METHOD THEREOF	12/912329	2010-10-26	8564257	2013-10-22	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
272.	POWER FACTOR CORRECTION CIRCUIT AND DRIVING METHOD THEREOF	12/912481	2010-10-26	8379423	2013-02-19	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
273.	POWER FACTOR CORRECTION CIRCUIT AND DRIVING METHOD THEREOF	12/912181	2010-10-26	8513926	2013-08-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
274.	INTERLOCK CIRCUIT AND INTERLOCK SYSTEM INCLUDING THE SAME	12/941803	2010-11-08	8330490	2012-12-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
275.	SEMICONDUCTOR POWER MODULE PACKAGE WITH TEMPERATURE SENSOR MOUNTED THEREON AND METHOD OF FABRICATING THE SAME	12/962196	2010-12-07	8013431	2011-09-06	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
276.	METHOD OF FABRICATING HIGH-VOLTAGE SEMICONDUCTOR DEVICE	12/985093	2011-01-05	8716085	2014-05-06	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
277.	SWITCH CONTROL DEVICE, POWER SUPPLY DEVICE INCLUDING THE SAME, AND SWITCH CONTROL METHOD	13/027760	2011-02-15	8693216	2014-04-08	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
278.	PREHEATING CONTROL DEVICE, LAMP DRIVING DEVICE INCLUDING THE SAME, AND PREHEATING CONTROL METHOD	13/027755	2011-02-15	8957596	2015-02-17	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
279.	CONTROL DEVICE, LED LIGHT EMITTING DEVICE INCLUDING THE SAME, AND CONTROL METHOD	13/028628	2011-02-16	8633660	2014-01-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
280.	SWITCH DRIVING CIRCUIT AND SWITCH DRIVING METHOD	13/031878	2011-02-22	8737101	2014-05-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
281.	POWER FACTOR CORRECTION CIRCUIT AND DRIVING METHOD THEREOF	13/044307	2011-03-09	8618747	2013-12-31	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
282.	SWITCH CONTROL DEVICE, MULTI-CHANNEL CONVERTER	13/047019	2011-03-14	8817502	2014-08-26	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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	INCLUDING THE SAME, AND SWITCH CONTROLLING METHOD						
283.	PULSE WIDTH FILTER	13/080471	2011-04-05	8598911	2013-12-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
284.	POWER CONVERTING APPARATUS AND METHOD OF SENSING OUTPUT CURRENT THEREOF	13/106717	2011-05-12	8519776	2013-08-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
285.	DRIVING APPARATUS AND DRIVING METHOD OF LED DEVICE	13/106708	2011-05-12	8531113	2013-09-10	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
286.	SWITCH CONTROL DEVICE, POWER SUPPLY DEVICE COMPRISING THE SAME AND SWITCH CONTROL METHOD	13/111779	2011-05-19	8634211	2014-01-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
287.	THERMAL SHUTDOWN UNIT, SWITCH CONTROLLER INCLUDING THE SAME, AND CONTROL METHOD OF THERMAL SHUTDOWN PROTECTION OPERATION	13/184187	2011-07-15	9001475	2015-04-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
288.	FIELD TRANSISTORS FOR ELECTROSTATIC DISCHARGE PROTECTION AND METHODS FOR FABRICATING THE SAME	13/183761	2011-07-15	8329548	2012-12-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
289.	SWITCH CONTROL DEVICE WITH ZERO-CROSS POINT ESTIMATION BY EDGE DETECTION, POWER SUPPLY DEVICE COMPRISING THE SAME, AND SWITCH CONTROL METHOD	13/187741	2011-07-21	9000744	2015-04-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	WITH ZERO-CROSS POINT ESTIMATION BY EDGE DETECTION						
290.	SWITCH CONTROL DEVICE	13/188727	2011-07-22	8648644	2014-02-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
291.	LED EMITTING DEVICE AND DRIVING METHOD THEREOF	13/191174	2011-07-26	8729822	2014-05-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
292.	HOLD-UP TIME EXTENDING CIRCUIT AND CONVERTER INCLUDING THE SAME	13/196575	2011-08-02	8824171	2014-09-02	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
293.	DUTY ADJUSTER CIRCUIT AND CONVERTER INCLUDING THE SAME	13/214653	2011-08-22	8792255	2014-07-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
294.	LED EMITTING DEVICE	13/225953	2011-09-06	8760082	2014-06-24	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
295.	APPARATUS FOR CONTROLLING BLEED SWITCH, POWER SUPPLY, AND METHOD FOR DRIVING POWER SUPPLY	13/238944	2011-09-21	8803434	2014-08-12	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
296.	APPARATUS AND METHOD FOR DISCHARGING CAPACITOR OF INPUT FILTER OF POWER SUPPLY, AND POWER SUPPLY INCLUDING THE APPARATUS	13/238565	2011-09-21	8710806	2014-04-29	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
297.	POWER SUPPLY AND APPARATUS AND METHOD FOR CONTROLLING LINK VOLTAGE CONTROL SWITCH	13/239762	2011-09-22	9520771	2016-12-13	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
298.	APPARATUS AND METHOD FOR DETECTING OPEN-CIRCUITED LIGHT EMITTING DIODE	13/239776	2011-09-22	8736192	2014-05-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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	CHANNELS						
299.	DUTY BALANCING OSCILLATOR	13/239802	2011-09-22	8593835	2013-11-26	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
300.	DRIVER AND HIGH VOLTAGE DRIVE CIRCUIT INCLUDING THE SAME	13/247065	2011-09-28	8519747	2013-08-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
301.	POWER DEVICE PACKAGE COMPRISING METAL TAB DIE ATTACH PADDLE (DAP) AND METHOD OF FABRICATING THE PACKAGE	13/278664	2011-10-21	8945992	2015-02-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
302.	CURRENT VECTOR CONTROLLED DEADTIME FOR MULTILEVEL INVERTERS	13/286430	2011-11-01	8942019	2015-01-27	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
303.	SWITCH CONTROLLER AND CONVERTER INCLUDING THE SAME FOR PREVENTION OF DAMAGE	13/293378	2011-11-10	8947893	2015-02-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
304.	SWITCH CONTROL CIRCUIT, CONVERTER USING THE SAME, AND SWITCH CONTROLLING METHOD	13/313816	2011-12-07	8823339	2014-09-02	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
305.	SEMICONDUCTOR DEVICE INCLUDING POWER-ON RESET CIRCUIT	13/324843	2011-12-13	8547144	2013-10-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
306.	ADAPTIVE OVERVOLTAGE PROTECTION CIRCUIT AND METHOD, AND POWER SYSTEM INCLUDING THE SAME	13/324825	2011-12-13	9240679	2016-01-19	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
307.	SEMICONDUCTOR PACKAGE AND METHOD OF FABRICATING THE	13/342372	2012-01-03	8860196	2014-10-14	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	SAME						
308.	SWITCH CONTROL CIRCUIT, SWITCH CONTROLLING METHOD, AND POWER SUPPLY DEVICE USING THE SWITCH CONTROL CIRCUIT	13/342404	2012-01-03	8873206	2014-10-28	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
309.	LED EMITTING DEVICE AND DRIVING METHOD THEREOF	13/354115	2012-01-19	8816607	2014-08-26	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
310.	SWITCH CONTROLLER AND CONVERTER INCLUDING THE SAME	13/364026	2012-02-01	8824182	2014-09-02	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
311.	CLOCK SIGNAL GENERATING CIRCUIT AND POWER SUPPLY INCLUDING THE SAME	13/399085	2012-02-17	8610480	2013-12-17	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
312.	SWITCHING MODE POWER SUPPLY AND DRIVING METHOD	13/410228	2012-03-01	RE44228	2013-05-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
313.	SWITCH CONTROLLER, SWITCH CONTROL METHOD, CONVERTER USING THE SAME, AND DRIVING METHOD THEREOF	13/438777	2012-04-03	8670252	2014-03-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
314.	OVERVOLTAGE REPETITION PREVENTION CIRCUIT, METHOD THEREOF, AND POWER FACTOR COMPENSATION CIRCUIT USING THE SAME	13/440787	2012-04-05	8937462	2015-01-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
315.	POWER SEMICONDUCTOR DEVICE AND METHODS FOR FABRICATING THE SAME	13/443371	2012-04-10	8674402	2014-03-18	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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316.	ACTIVE DAMPER AND DRIVING METHOD THEREOF	13/473908	2012-05-17	8816592	2014-08-26	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
317.	POWER SUPPLY DEVICE AND DRIVING METHOD THEREOF	13/475730	2012-05-18	8514591	2013-08-20	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
318.	FEEDBACK CIRCUIT AND POWER SUPPLY DEVICE INCLUDING THE SAME	13/475696	2012-05-18	9001533	2015-04-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
319.	INPUT CURRENT REGULATOR, DRIVING METHOD THEREOF, AND DISABLE CIRCUIT THEREOF	13/477869	2012-05-22	9,468,048	2016-10-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
320.	DIMMING ANGLE SENSING CIRCUIT AND DRIVING METHOD THEREOF	13/479780	2012-05-24	8841850	2014-09-23	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
321.	POLY SILICON RESISTOR, REFERENCE VOLTAGE CIRCUIT COMPRISING THE SAME, AND MANUFACTURING METHOD OF POLY SILICON RESISTOR	13/559218	2012-07-26	8558608	2013-10-15	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
322.	LED EMITTING DEVICE AND DRIVING METHOD THEREOF	13/570628	2012-08-09	8912724	2014-12-16	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
323.	SWITCH CONTROL CIRCUIT, POWER FACTOR CORRECTOR INCLUDING THE SAME, AND DRIVING METHOD OF THE POWER FACTOR CORRECTOR	13/584408	2012-08-13	9001541	2015-04-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
324.	PROTECTION CIRCUIT, RESONANT CONVERTER INCLUDING THE PROTECTION CIRCUIT, AND	13/676938	2012-11-14	8482886	2013-07-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	



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	PROTECTING METHOD OF THE RESONANT CONVERTER						
325.	SWITCH CONTROLLER, SWITCH CONTROL METHOD, AND POWER SUPPLY DEVICE COMPRISING THE SWITCH CONTROLLER	13/677834	2012-11-15	8933674	2015-01-13	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
326.	SWITCH CONTROL METHOD, SWITCH CONTROLLER, AND CONVERTER COMPRISING THE SWITCH CONTROLLER	13/677799	2012-11-15	9312774	2016-04-12	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
327.	SWITCH CONTROLLER, SWITCH CONTROL METHOD, AND POWER SUPPLY DEVICE COMPRISING THE SWITCH CONTROLLER	13/744886	2013-01-18	9325255	2016-04-26	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
328.	HIGH VOLTAGE SEMICONDUCTOR DEVICE INCLUDING FIELD SHAPING LAYER AND METHOD OF FABRICATING THE SAME	13/772741	2013-02-21	8557674	2013-10-15	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
329.	LED EMITTING DEVICE AND DRIVING METHOD THEREOF	13/845932	2013-03-18	9101032	2015-08-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
330.	SWITCH CONTROLLER, SWITCH CONTROL METHOD, AND POWER SUPPLY DEVICE COMPRISING THE SWITCH CONTROLLER	13/886412	2013-05-03	9035681	2015-05-19	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
331.	PIEZOELECTRIC CIRCUIT,	13/888688	2013-05-07	9397284	2016-07-19	SEMICONDUCTOR COMPONENTS	

No.	Title	App No.	App. Date	Reg. No.	Reg. Date	Applicants	Comments
	PIEZOELECTRIC DRIVING CIRCUIT FOR THE PIEZOELECTRIC CIRCUIT, AND PIEZOELECTRIC DRIVING METHOD					INDUSTRIES, LLC	
332.	SWITCH CONTROL CIRCUIT, COUPLED INDUCTOR BOOST CONVERTER INCLUDING THE SAME, AND DRIVING METHOD OF THE COUPLED INDUCTOR BOOST CONVERTER	13/889704	2013-05-08	9374002	2016-06-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
333.	POWER SUPPLY DEVICE	13/920448	2013-06-18	9590509	2017-03-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
334.	SHORT SENSING CIRCUIT, SHORT SENSING METHOD AND POWER SUPPLY DEVICE COMPRISING THE SHORT SENSING CIRCUIT	13/921474	2013-06-19	9184653	2015-11-10	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
335.	LEVEL SHIFT POWER SEMICONDUCTOR DEVICE	13/928186	2013-06-26	9257502	2016-02-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
336.	PIEZOELECTRIC DRIVING CIRCUIT AND PIEZOELECTRIC DRIVING METHOD	13/962485	2013-08-08	9331604	2016-05-03	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
337.	PIEZOELECTRIC DRIVING CIRCUIT AND DRIVING METHOD THEREOF	13/964042	2013-08-10	9099940	2015-08-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
338.	SWITCH CONTROL DEVICE, POWER SUPPLY DEVICE COMPRISING THE SAME, AND DRIVING METHOD OF POWER SUPPLY DEVICE UTILIZING TURN-ON PERIOD HALF-ON TIME POINT DETECTION	13/965485	2013-08-13	9362843	2016-06-07	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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339.	SEMICONDUCTOR DEVICE INCLUDING POWER-ON RESET CIRCUIT	14/039296	2013-09-27	8797071	2014-08-05	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
340.	SWITCH CONTROL CIRCUIT AND POWER SUPPLY DEVICE INCLUDING THE SAME	14/063282	2013-10-25	8878593	2014-11-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
341.	BIDIRECTIONAL INTERFACE CIRCUIT AND BATTERY MANAGEMENT SYSTEM INCLUDING THE SAME	14/074182	2013-11-07	9306244	2016-04-05	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
342.	UNDERVOLTAGE LOCKOUT CIRCUIT, SWITCH CONTROL CIRCUIT AND POWER SUPPLY DEVICE COMPRISING THE UNDERVOLTAGE LOCKOUT CIRCUIT	14/088607	2013-11-25	9350161	2016-05-24	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
343.	CLOCK SIGNAL GENERATING CIRCUIT AND POWER SUPPLY INCLUDING THE SAME	14/089063	2013-11-25	8841960	2014-09-23	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
344.	LOAD/CHARGER DETECTION CIRCUIT, BATTERY MANAGEMENT SYSTEM COMPRISING THE SAME AND DRIVING METHOD THEREOF	14/136260	2013-12-20	9627906	2017-04-18	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
345.	POWER SEMI-CONDUCTOR DEVICE AND METHODS FOR FABRICATING THE SAME	14/165187	2014-01-27	9070713	2015-06-30	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
346.	JACK DETECTOR AND JACK DETECTING METHOD	14/174394	2014-02-06	9602941	2017-03-21	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
347.	VOLTAGE MEASURING	14/189495	2014-02-25	9553462	2017-01-24	SEMICONDUCTOR COMPONENTS	

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	APPARATUS AND BATTERY MANAGEMENT SYSTEM INCLUDING THE SAME					INDUSTRIES, LLC	
348.	VOLTAGE MEASURING APPARATUS AND BATTERY MANAGEMENT SYSTEM INCLUDING THE SAME	14/189212	2014-02-25	9645201	2017-05-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
349.	SWITCH CONTROL CIRCUIT, SWITCH CONTROL METHOD AND POWER SUPPLY DEVICE USING THE SAME	14/211635	2014-03-14	9461548	2016-10-04	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
350.	POWER MODULE HAVING STACKED FLIP-CHIP AND METHOD FOR FABRICATING THE POWER MODULE	14/289399	2014-05-28	9130065	2015-09-08	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
351.	POWER SUPPLY APPARATUS AND DRIVING METHOD THEREOF	14/293155	2014-06-02	9504104	2016-11-22	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
352.	GATE DRIVER, SWITCH CONTROL CIRCUIT AND POWER SUPPLY DEVICE COMPRISING THE GATE DRIVER CIRCUIT	14/301970	2014-06-11	9350341	2016-05-24	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
353.	CONDUCTION DETECTING CIRCUIT, RECTIFYING SWITCH CONTROLLING CIRCUIT INCLUDING THE CONDUCTION DETECTING CIRCUIT AND POWER SUPPLY FOR THE RECTIFYING SWITCH CONTROLLING	14/303911	2014-06-13	9350258	2016-05-24	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	

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	CIRCUIT TO BE APPLIED						
354.	PRIMARY SIDE REGULATOR	14/446273	2014-07-29	9401652	2016-07-26	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
355.	POWER SUPPLY APPARATUS AND DRIVING METHOD THEREOF	14/520410	2014-10-22	9350257	2016-05-24	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
356.	INPUT CURRENT CONTROL METHOD, SWITCH CONTROL CIRCUIT AND POWER SUPPLY INCLUDING THE SWITCH CONTROL CIRCUIT	14/546624	2014-11-18	9467137	2016-10-11	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
357.	SWITCH CONTROL CIRCUIT AND RESONANT CONVERTER INCLUDING THE SAME	14/614605	2015-02-05	9627988	2017-04-18	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
358.	SWITCH CONTROL CIRCUIT AND RESONANT CONVERTER INCLUDING THE SAME	14/619403	2015-02-11	9647528	2017-05-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
359.	POWER SUPPLY DEVICE CAPABLE OF VARYING SWITCHING FREQUENCY ACCORDING TO LOAD CONDITION	14/668852	2015-03-25	9502983	2016-11-22	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
360.	LOAD DETECTING METHOD AND POWER SUPPLY DEVICE WHERE THE METHOD IS APPLIED	14/678504	2015-04-03	9482724	2016-11-01	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	
361.	POWER SUPPLY DEVICE	14/853525	2015-09-14	9647564	2017-05-09	SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC	