

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6566466

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST
CONVEYING PARTY DATA	
Name	Execution Date
LUMILEDS LLC	06/30/2017
RECEIVING PARTY DATA	
Name:	DEUTSCHE BANK AG NEW YORK BRANCH, AS COLLATERAL AGENT
Street Address:	60 WALL STREET
City:	NEW YORK
State/Country:	NEW YORK
Postal Code:	10005
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16841144
CORRESPONDENCE DATA	
Fax Number:	(215)568-6499
<i>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.</i>	
Phone:	2155686400
Email:	alopez@vklaw.com
Correspondent Name:	JOSEPH P. BOOS
Address Line 1:	30 S. 17TH STREET, 18TH FLOOR
Address Line 4:	PHILADELPHIA, PENNSYLVANIA 19103
ATTORNEY DOCKET NUMBER:	LUMI-2012P01978US04
NAME OF SUBMITTER:	JOSEPH P. BOOS
SIGNATURE:	/JOSEPH P. BOOS/
DATE SIGNED:	02/23/2021
Total Attachments: 66	
source=assignment - security#page1.tif	
source=assignment - security#page2.tif	
source=assignment - security#page3.tif	
source=assignment - security#page4.tif	
source=assignment - security#page5.tif	
source=assignment - security#page6.tif	

source=assignment - security#page7.tif
source=assignment - security#page8.tif
source=assignment - security#page9.tif
source=assignment - security#page10.tif
source=assignment - security#page11.tif
source=assignment - security#page12.tif
source=assignment - security#page13.tif
source=assignment - security#page14.tif
source=assignment - security#page15.tif
source=assignment - security#page16.tif
source=assignment - security#page17.tif
source=assignment - security#page18.tif
source=assignment - security#page19.tif
source=assignment - security#page20.tif
source=assignment - security#page21.tif
source=assignment - security#page22.tif
source=assignment - security#page23.tif
source=assignment - security#page24.tif
source=assignment - security#page25.tif
source=assignment - security#page26.tif
source=assignment - security#page27.tif
source=assignment - security#page28.tif
source=assignment - security#page29.tif
source=assignment - security#page30.tif
source=assignment - security#page31.tif
source=assignment - security#page32.tif
source=assignment - security#page33.tif
source=assignment - security#page34.tif
source=assignment - security#page35.tif
source=assignment - security#page36.tif
source=assignment - security#page37.tif
source=assignment - security#page38.tif
source=assignment - security#page39.tif
source=assignment - security#page40.tif
source=assignment - security#page41.tif
source=assignment - security#page42.tif
source=assignment - security#page43.tif
source=assignment - security#page44.tif
source=assignment - security#page45.tif
source=assignment - security#page46.tif
source=assignment - security#page47.tif
source=assignment - security#page48.tif
source=assignment - security#page49.tif
source=assignment - security#page50.tif
source=assignment - security#page51.tif
source=assignment - security#page52.tif
source=assignment - security#page53.tif
source=assignment - security#page54.tif

source=assignment - security#page55.tif
source=assignment - security#page56.tif
source=assignment - security#page57.tif
source=assignment - security#page58.tif
source=assignment - security#page59.tif
source=assignment - security#page60.tif
source=assignment - security#page61.tif
source=assignment - security#page62.tif
source=assignment - security#page63.tif
source=assignment - security#page64.tif
source=assignment - security#page65.tif
source=assignment - security#page66.tif

Notice of Grant of Security Interest in Patents

NOTICE OF GRANT OF SECURITY INTEREST IN PATENTS, dated as of June 30, 2017 (this “Notice”), made by LUMILEDS LLC, a Delaware limited liability company (the “Pledgor”), in favor of DEUTSCHE BANK AG NEW YORK BRANCH, as Collateral Agent (as defined below).

Reference is made to the U.S. Collateral Agreement, dated as of June 30, 2017 (as amended, restated, supplemented or otherwise modified from time to time, the “Collateral Agreement”), among each subsidiary of Bright Bidco B.V., a private limited liability company (besloten vennootschap met beperkte aansprakelijkheid) incorporated under the laws of the Netherlands (the “Borrower”) identified therein and Deutsche Bank AG New York Branch, as collateral agent (together with its successors and assigns in such capacity, the “Collateral Agent”) for the Secured Parties (as defined therein). The parties hereto agree as follows:

SECTION 1. Terms. Capitalized terms used in this Notice and not otherwise defined herein have the meanings specified in the Collateral Agreement. The rules of construction specified in Section 1.01(b) of the Collateral Agreement also apply to this Notice.

SECTION 2. Grant of Security Interest. As security for the payment and performance, as applicable, in full of the Secured Obligations, the Pledgor pursuant to the Collateral Agreement did, and hereby does, assign and pledge to the Collateral Agent, its successors and permitted assigns, for the benefit of the Secured Parties, a continuing security interest in all of such Pledgor’s right, title and interest in, to and under any and all of the following assets now owned or at any time hereafter acquired by such Pledgor or in which such Pledgor now has or at any time in the future may acquire any right, title or interest (collectively, but excluding any Excluded Property, the “Patent Collateral”):

all Patents of the United States of America, including those listed on Schedule I;

SECTION 3. Collateral Agreement. The security interests granted to the Collateral Agent herein are granted in furtherance, and not in limitation of, the security interests granted to the Collateral Agent pursuant to the Collateral Agreement. Each Pledgor hereby acknowledges and affirms that the rights and remedies of the Collateral Agent with respect to the Patent Collateral are more fully set forth in the Collateral Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully set forth herein. In the event of any conflict between the terms of this Notice and the Collateral Agreement, the terms of the Collateral Agreement shall govern.

SECTION 4. Counterparts. This Notice may be executed in two or more counterparts, each of which shall constitute an original but all of which

when taken together shall constitute but one contract. Delivery of an executed counterpart to this Notice by facsimile or other electronic transmission shall be as effective as delivery of a manually signed original.

SECTION 5. Governing Law. THIS NOTICE AND ANY CLAIMS, CONTROVERSY, DISPUTE OR CAUSES OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING OUT OF OR RELATING TO THIS NOTICE AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES UNDER THIS NOTICE SHALL BE CONSTRUED IN ACCORDANCE WITH AND GOVERNED BY THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO ANY PRINCIPLE OF CONFLICTS OF LAW THAT COULD REQUIRE THE APPLICATION OF ANY OTHER LAW.

[Signature Pages Follow]

IN WITNESS WHEREOF, the parties hereto have duly executed this
Notice as of the day and year first above written.

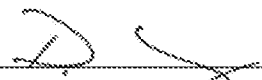
LUMILEDS LLC

By: *Mark Wolsey Adams*
Name: *MARK WOLSEY ADAMS*
Title: *MANAGER*

[Signature Page to Notice of Grant of Security Interest in Patents]

DEUTSCHE BANK AG NEW YORK
BRANCH,
as Collateral Agent,

By: 
Name: Marcus Tarkington
Title: Director

By: 
Name: Dusan Lazarov
Title: Director

[Signature Page to Notice of Grant of Security Interest in Patents]

PATENT
REEL: 055381 FRAME: 0535

Schedule I
to Notice of Grant of Security Interest in Patents

Patents Owned by Lumileds LLC

See Attached

UNITED STATES PATENTS:

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
MHS, OUTER BULB OPEN TO THE AIR	Lumileds LLC	United States of America	08/522646	05 Sep 1995	5,736,811	07 Apr 1998
QUARTZ CAR LAMP, COATING, GLASS FRIT	Lumileds LLC	United States of America	08/554119	06 Nov 1995	5619102	08 Apr 1997
Method for Bonding Compound Semiconductor Wafers to Create an Ohmic Interface	Lumileds LLC	United States of America	08/781223	20 Sep 1996	5661316	26 Aug 1997
Method for Bonding Compound Semiconductor Wafers to Create an Ohmic Interface	Lumileds LLC	United States of America	08/835948	14 Apr 1997	5783477	21 Jul 1998
H-8 LAMP, CAP, LIGHTING SYSTEM	Lumileds LLC	United States of America	08/718792	24 Sep 1996	5839818	24 Nov 1998
Minority Carrier Semiconductor Devices With Improved Reliability	Lumileds LLC	United States of America	09/169218	09 Oct 1998	6794731	21 Sep 2004
Highly Reflective Contacts for Light Emitting Semiconductor Devices	Lumileds LLC	United States of America	08/576251	21 Dec 1995	5917202	29 Jun 1999
Periperal optical element for redirecting light from an LED	Lumileds LLC	United States of America	08/548309	01 Nov 1995	5592578	07 Jan 1997
Transparent Substrate Light Emitting Diodes with Directed Light Output	Lumileds LLC	United States of America	08/962944	24 Oct 1997	5793062	11 Aug 1998
Transparent Substrate Light Emitting Diodes with Directed Light Output	Lumileds LLC	United States of America	09/066089	24 Apr 1998	6015719	18 Jan 2000
High refractive Index package materials and a light emitting device encapsulated with such material	Lumileds LLC	United States of America	08/678276	11 Jul 1996	5777433	07 Jul 1998
Ordered Interface Texturing for a Light Emitting Device	Lumileds LLC	United States of America	08/620518	22 Mar 1996	5779924	14 Jul 1998
Maximizing Electrical Doping While Reducing Material Cracking in III-	Lumileds LLC	United States of America	08/709355	06 Sep 1996	5729029	17 Mar 1998

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
V Nitride Semiconductor Devices						
HPL, UNCAPPED, PLATE MOUNT	Lumileds LLC	United States of America	09/202909	04 May 1998	6140769	31 Oct 2000
Cleaning Semiconductor	Lumileds LLC	United States of America	09/018776	04 Feb 1998	5919715	06 Jul 1999
III-Nitride Semiconductor Light Emitting Device Having a Silver P-Contact	Lumileds LLC	United States of America	09/212150	15 Dec 1998	6194743	27 Feb 2001
III-Nitride Semiconductor Light Emitting Device Having a Silver P-Contact	Lumileds LLC	United States of America	11/104310	11 Apr 2005	7262436	28 Aug 2007
III-Nitride Semiconductor Light Emitting Device Having a Silver P-Contact	Lumileds LLC	United States of America	09/764024	16 Jan 2001	6900472	31 May 2005
Piezoelectric Fields and Increased Efficiency	Lumileds LLC	United States of America	09/717647	21 Nov 2000	6569704	27 May 2003
Piezoelectric Fields and Increased Efficiency	Lumileds LLC	United States of America	09/162708	29 Sep 1998	6229151	08 May 2001
Semiconductor Substrate and Method for Making the Same	Lumileds LLC	United States of America	09/562978	02 Nov 1998	6537513	25 Mar 2003
III-Phosphide and III-Arsenide Flip Chip Light Emitting Devices	Lumileds LLC	United States of America	08/868009	03 Jun 1997	6229160	08 May 2001
III-Phosphide and III-Arsenide Flip Chip Light Emitting Devices	Lumileds LLC	United States of America	09/732326	06 Dec 2000	6570190	27 May 2003
III-Phosphide and III-Arsenide Flip Chip Light Emitting Devices	Lumileds LLC	United States of America	10/095552	11 Mar 2002	6784463	31 Aug 2004
III-Phosphide and III-Arsenide Flip Chip Light Emitting Devices	Lumileds LLC	United States of America	10/867936	14 Jun 2004	6946309	20 Sep 2005
III-Phosphide and III-Arsenide Flip Chip Light Emitting Devices	Lumileds LLC	United States of America	11/230722	19 Sep 2005	7268371	11 Sep 2007
III-Phosphide and III-Arsenide Flip Chip Light Emitting Devices	Lumileds LLC	United States of America	09/732459	06 Dec 2000	6323063	27 Nov 2001

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
ELECTRIC LAMP WITH METALLIC MIRROR COATING	Lumileds LLC	United States of America	09/271198	17 Mar 1999	6270237	07 Aug 2001
EPITAXIAL ALUMINIUM-GALLIUM NITRIDE SEMICONDUCTOR SUBSTRATE	Lumileds LLC	United States of America	09/856724	24 Nov 1999	6534791	18 Mar 2003
A Light Emitting Device Having a Finely-Patterned Reflective Contact	Lumileds LLC	United States of America	09/151554	11 Sep 1998	6291839	18 Sep 2001
A Light Emitting Device Having a Finely-Patterned Reflective Contact	Lumileds LLC	United States of America	09/483293	14 Jan 2000	6258618	10 Jul 2001
Improved Electrode Structures for Light Emitting Devices	Lumileds LLC	United States of America	09/196928	20 Nov 1998	6307218	23 Oct 2001
A Method of Strain Engineering and Impurity Controlled III-V Nitride Semiconductor Films and Optoele	Lumileds LLC	United States of America	09/092478	05 Jun 1998	6194742	27 Feb 2001
A Method of Strain Engineering and Impurity Controlled III-V Nitride Semiconductor Films and Optoele	Lumileds LLC	United States of America	09/655752	06 Sep 2000	6274399	14 Aug 2001
AlGaInP Light Emitting Devices with Thin Active Layers	Lumileds LLC	United States of America	10/011521	05 Nov 2001	7087941	08 Aug 2006
High Stability Encapsulation and Packaging for Light Emitting Diodes In the Green, Blue and Near UV	Lumileds LLC	United States of America	09/187357	06 Nov 1998	6204523	20 Mar 2001
Multiple Encapsulation of Phosphor-LED Devices	Lumileds LLC	United States of America	09/144744	01 Sep 1998	5959316	28 Sep 1999
GaN LEDs with improved output coupling efficiency	Lumileds LLC	United States of America	09/026465	19 Feb 1998	6091085	18 Jul 2000
Quantum Dot white and colored light emitting diodes	Lumileds LLC	United States of America	09/167795	07 Oct 1998	6501091	31 Dec 2002
Quantum Dot white and colored light emitting diodes	Lumileds LLC	United States of America	11/787152	13 Apr 2007	7692373	06 Apr 2010

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Quantum Dot white and colored light emitting diodes	Lumileds LLC	United States of America	10/877698	25 Jun 2004	7264527	04 Sep 2007
Quantum Dot white and colored light emitting diodes	Lumileds LLC	United States of America	10/329596	26 Dec 2002	6890777	10 May 2005
Quantum Dot white and colored light emitting diodes	Lumileds LLC	United States of America	10/329909	26 Dec 2002	6914265	05 Jul 2005
Quantum Dot white and colored light emitting diodes	Lumileds LLC	United States of America	09/350956	09 Jul 1999	6803719	12 Oct 2004
Quantum Dot white and colored light emitting diodes	Lumileds LLC	United States of America	12/700711	04 Feb 2010	8053972	08 Nov 2011
Light Emitting Diode Assembly Having Integrated Electrostatic Discharge Protection	Lumileds LLC	United States of America	09/141389	27 Aug 1998	5914501	22 Jun 1999
Surface Mountable LED Package	Lumileds LLC	United States of America	09/187547	05 Nov 1998	6274924	14 Aug 2001
AUTOMOTIVE INCANDESCENT LAMP	Lumileds LLC	United States of America	09/670130	26 Sep 2000	6439739	27 Aug 2002
CAPPED LIGHT SOURCE SOCKETED ELECTRICAL LAMP	Lumileds LLC	United States of America	09/583029	30 May 2000	6409372	25 Jun 2002
CDM MOTORCAR HEADLAMP	Lumileds LLC	United States of America	09/561614	27 Apr 2000	6404129	11 Jun 2002
LED THAT PRODUCES WHITE LIGHT BY PERFORMING PHOSPHOR CONV.	Lumileds LLC	United States of America	09/941452	28 Aug 2001	6501102	31 Dec 2002
MULTILAYER OHMIC CONTACTS FOR SEMICONDUCTOR DEVICES	Lumileds LLC	United States of America	09/469652	22 Dec 1999	6992334	31 Jan 2006
LED WITH NITRIDE	Lumileds LLC	United States of America	09/469657	22 Dec 1999	6486499	26 Nov 2002
LED WITH NITRIDE	Lumileds LLC	United States of America	10/112175	29 Mar 2002	6521914	18 Feb 2003
LED WITH NITRIDE	Lumileds LLC	United States of America	09/859154	15 May 2001	6885035	26 Apr 2005

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LED WITH NITRIDE	Lumileds LLC	United States of America	10/071507	07 Feb 2002	6844571	18 Jan 2005
LED WITH NITRIDE	Lumileds LLC	United States of America	10/158360	29 May 2002	6903376	07 Jun 2005
SEMICOND.DEVICES WITH SELECTIVELY DOPED III-V NITRIDE LAYERS	Lumileds LLC	United States of America	09/442590	17 Nov 1999	6441393	27 Aug 2002
TRI-COLOR WHITE LIGHT LED LAMPS	Lumileds LLC	United States of America	09/405947	27 Sep 1999	6686691	03 Feb 2004
METHOD OF MAKING LED	Lumileds LLC	United States of America	09/470450	22 Dec 1999	6514782	04 Feb 2003
COATING TO CHANGE COLOUR APPEARANCE OR COLOUR TEMPERATURE	Lumileds LLC	United States of America	09/671127	27 Sep 2000	6570302	27 May 2003
THIN FILM PHOSPHER-CONVERTED LIGHT EMITTING DIODE DEVICE	Lumileds LLC	United States of America	09/405938	27 Sep 1999	6696703	24 Feb 2004
THIN FILM PHOSPHER-CONVERTED LIGHT EMITTING DIODE DEVICE	Lumileds LLC	United States of America	10/785745	23 Feb 2004	7183577	27 Feb 2007
LED WITH SUBSTRATE THAT PERFORMS PHOSPHOR CONVERSION	Lumileds LLC	United States of America	09/407231	27 Sep 1999	6630691	07 Oct 2003
SOLGEL MATRIX AND PIGMENTS FOR COLOURED AUTOMOTIVE LAMPS	Lumileds LLC	United States of America	09/656987	07 Sep 2000	6819049	16 Nov 2004
INxALyGazN Optical Emitters fabricated via Substrate Removal	Lumileds LLC	United States of America	10/631001	29 Jul 2003	6800500	05 Oct 2004
INxALyGazN Optical Emitters fabricated via Substrate Removal	Lumileds LLC	United States of America	11/330209	10 Jan 2006	7491565	17 Feb 2009
NON-INCANDESCENT LIGHTBULB PACKAGE USING LIGHT EMITTING DIODES	Lumileds LLC	United States of America	09/390006	03 Sep 1999	6504301	07 Jan 2003

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Green Phosphor Converted Light Emitting Diode	Lumileds LLC	United States of America	09/239572	29 Jan 1999	6273589	14 Aug 2001
Green Phosphor Converted Light Emitting Diode	Lumileds LLC	United States of America	09/887954	22 Jun 2001	6682207	27 Jan 2004
Diffusion Barrier for Increased Mirror Reflectivity in Reflective Solderable Contacts on High Power	Lumileds LLC	United States of America	09/317647	24 May 1999	6222207	24 Apr 2001
Diffusion Barrier for Increased Mirror Reflectivity in Reflective Solderable Contacts on High Power	Lumileds LLC	United States of America	09/778174	06 Feb 2001	6593160	15 Jul 2003
AlGaInN-Based LED Having Thick Epitaxial Layer for Improved Light Extraction	Lumileds LLC	United States of America	09/328870	08 Jun 1999	6133589	17 Oct 2000
AlGaInN-Based LED Having Thick Epitaxial Layer for Improved Light Extraction	Lumileds LLC	United States of America	09/617324	17 Jul 2000	6649440	18 Nov 2003
Light Emitting Devices Having Wafer Bonded Aluminum Gallium Indium Nitride Structures and Mirror Sta	Lumileds LLC	United States of America	09/245435	05 Feb 1999	6320206	20 Nov 2001
Light Emitting Devices Having Wafer Bonded Aluminum Gallium Indium Nitride Structures and Mirror Sta	Lumileds LLC	United States of America	09/923711	06 Aug 2001	6420199	16 Jul 2002
Thickness Tailoring of Wafer Bonded Aluminum Indium Gallium Nitride Structures by Laser Melting	Lumileds LLC	United States of America	09/245448	05 Feb 1999	6280523	28 Aug 2001
Method of Forming Transparent Contacts to a P-Type GaN Layer	Lumileds LLC	United States of America	09/327948	08 Jun 1999	6287947	11 Sep 2001
Advanced Semiconductor Devices Fabricated with Passivated High Aluminum Content III-V Materials	Lumileds LLC	United States of America	09/231411	14 Jan 1999	6201264	13 Mar 2001
Advanced Semiconductor Devices Fabricated with Passivated High Aluminum Content III-V Materials	Lumileds LLC	United States of America	09/293277	16 Apr 1999	6048748	11 Mar 2000

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Red-Deficiency Compensating Phosphor Light Emitting Device	Lumileds LLC	United States of America	09/252207	18 Feb 1999	6351069	26 Feb 2002
SEMICONDUCTOR LEDS WITH COATED PHOSPHOR	Lumileds LLC	United States of America	09/978995	16 Oct 2001	7202598	10 Apr 2007
H4 WITH BLUE COLLAR	Lumileds LLC	United States of America	09/860310	18 May 2001	6798138	28 Sep 2004
LIGHT-EMITTING DEVICE AND PRODUCTION THEREOF	Lumileds LLC	United States of America	09/879548	11 Jun 2001	6642618	04 Nov 2003
STENCILING PHOSPHOR LAYERS ON LIGHT EMITTING DIODES	Lumileds LLC	United States of America	09/688053	13 Oct 2000	6650044	18 Nov 2003
STENCILING PHOSPHOR LAYERS ON LIGHT EMITTING DIODES	Lumileds LLC	United States of America	10/703040	06 Nov 2003	7049159	23 May 2006
CONCENTRICALLY LEADED POWER SEMICONDUCTOR DEVICE PACKAGE	Lumileds LLC	United States of America	09/498311	04 Feb 2000	6492725	10 Dec 2002
LED EMITTING WHITE LIGHT	Lumileds LLC	United States of America	09/556770	24 Apr 2000	6603258	05 Aug 2003
AMBER AND RED SILVERVISION AUTOMOTIVE LAMP	Lumileds LLC	United States of America	09/880208	13 Jun 2001	6639342	28 Oct 2003
LED WITH WAFER BONDED HETEROSTRUCTURES	Lumileds LLC	United States of America	09/707495	06 Nov 2000	6525335	25 Feb 2003
SEPARATION METHOD FOR GA-N LED'S	Lumileds LLC	United States of America	09/741972	20 Dec 2000	6518079	11 Feb 2003
LED WITH LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	09/660317	12 Sep 2000	7053419	30 May 2006
LED WITH LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	10/938237	10 Sep 2004	7279345	09 Oct 2007
LED WITH LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	11/868903	08 Oct 2007	8049234	01 Nov 2011
LED WITH LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	12/710554	23 Feb 2010	8415694	09 Apr 2013

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LED WITH LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	13/252398	04 Oct 2011	8628985	14 Jan 2014
LED WITH LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	14/136171	20 Dec 2013		
COLOR MIXING CAVITIES FOR LED POWERED LCD BACKLIGHT	Lumileds LLC	United States of America	09/846421	01 May 2001	6536914	25 Mar 2003
Improved P-Contact for GaN-Based Semiconductors Utilizing a Reverse-Biased Tunnel Junction	Lumileds LLC	United States of America	09/586406	02 Jun 2000	6526082	25 Feb 2003
Light Emitting Semiconductor Method and Device	Lumileds LLC	United States of America	09/652194	31 Aug 2000	6946685	20 Sep 2005
HIGH PRESSURE DISCHARGE LAMP FOR AUTOMOTIVE	Lumileds LLC	United States of America	10/276786	21 Mar 2002	6861807	01 Mar 2005
LED WITH HIGH EFFICIENCY	Lumileds LLC	United States of America	09/880204	12 Jun 2001	7064355	20 Jun 2006
FORMATION OF OHMIC CONTACTS IN III-NITRIDE LIGHT EMITTING DE	Lumileds LLC	United States of America	09/755935	05 Jan 2001	6657300	02 Dec 2003
FORMATION OF OHMIC CONTACTS IN III-NITRIDE LIGHT EMITTING DE	Lumileds LLC	United States of America	10/721440	24 Nov 2003	6914272	05 Jul 2005
FORMATION OF OHMIC CONTACTS IN III-NITRIDE LIGHT EMITTING DE	Lumileds LLC	United States of America	11/095854	30 Mar 2005	7345323	18 Mar 2008
INCREASED BRIGHTNESS III NITRIDE LED	Lumileds LLC	United States of America	09/797770	01 Mar 2001	6576932	10 Jun 2003
A1 GAIN N FLIP-CHIP LED'S	Lumileds LLC	United States of America	09/821684	29 Mar 2001	6573537	03 Jun 2003
MONOLITHIC SERIES/PARALLEL LED ARRAYS	Lumileds LLC	United States of America	09/823824	29 Mar 2001	6547249	15 Apr 2003
INDIUM GALLIUM NITRIDE LED'S	Lumileds LLC	United States of America	09/823732	29 Mar 2001	6489636	03 Dec 2002
INDIUM GALLIUM NITRIDE LED'S	Lumileds LLC	United States of America	09/823823	29 Mar 2001	6635904	21 Oct 2003

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
OPTICAL ELEMENT WITH LED	Lumileds LLC	United States of America	09/8238 41	30 Mar 2001	698761 3	17 Jan 2006
Phosphor converted light emitting diode	Lumileds LLC	United States of America	09/8273 82	04 Apr 2001	641701 9	09 Jul 2002
FLIP-CHIP LED WITH DIELECTRIC COATING	Lumileds LLC	United States of America	09/8528 57	09 May 2001	663068 9	07 Oct 2003
FLIP-CHIP LED WITH DIELECTRIC COATING	Lumileds LLC	United States of America	10/4611 73	12 Jun 2003	689119 7	10 May 2005
FLIP-CHIP LED WITH REFRACTIVE UNDERFILL	Lumileds LLC	United States of America	09/8588 33	15 May 2001	645587 8	24 Sep 2002
ELECTRIC LAMP, LAMP VESSEL PROVIDED WITH A LIGHT-ABSORBING C	Lumileds LLC	United States of America	11/3746 70	13 Mar 2006	774090 0	22 Jun 2010
ELECTRIC LAMP, LAMP VESSEL PROVIDED WITH A LIGHT-ABSORBING C	Lumileds LLC	United States of America	10/4890 67	13 Sep 2002	704593 7	16 May 2006
SIDE EMITTING LED	Lumileds LLC	United States of America	09/8490 42	04 May 2001	659899 8	29 Jul 2003
LED LENS	Lumileds LLC	United States of America	09/8490 84	04 May 2001	660728 6	19 Aug 2003
MULTI CHIP LED ASSEMBLY	Lumileds LLC	United States of America	DELET E RECOR D	15 May 2001	688503 5	26 Apr 2005
III-NITRIDE LED WITH LOW DRIVING VOLTAGE	Lumileds LLC	United States of America	09/8703 30	29 May 2001	663069 2	07 Oct 2003
PHOSPHOR-CONVERTED LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	09/8795 47	11 Jun 2001	664265 2	04 Nov 2003
ELECTROPHORESIS FOR PHOSPHOR COATED LED	Lumileds LLC	United States of America	09/8796 27	11 Jun 2001	657648 8	10 Jun 2003
ELECTROPHORESIS FOR PHOSPHOR COATED LED	Lumileds LLC	United States of America	09/8796 27	11 Jun 2001	657648 8	10 Jun 2003
REDUCING VARIATIONS IN RADIATIONS IN LED	Lumileds LLC	United States of America	09/9040 15	11 Jul 2001	656314 2	13 May 2003

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LED WITH REDUCED CONTAMINATION	Lumileds LLC	United States of America	09/9384 07	23 Aug 2001	687897 3	12 Apr 2005
HIGH FLUX LED ARRAY	Lumileds LLC	United States of America	09/9745 63	09 Oct 2001	649835 5	24 Dec 2002
IN-GA NITRIDE LED	Lumileds LLC	United States of America	10/0333 49	02 Nov 2001	683356 4	21 Dec 2004
NITRIDE SEMICONDUCTOR DEVICE WITH REDUCED POLARIZATION FIELD	Lumileds LLC	United States of America	09/9921 92	13 Nov 2001	684947 2	01 Feb 2005
NUCLEATION LAYER IN LED	Lumileds LLC	United States of America	09/9938 62	13 Nov 2001	668332 7	27 Jan 2004
BASE FOR AUTOMOTIVE HEADLIGHT BULBS	Lumileds LLC	United States of America	10/5005 19	12 Dec 2002	709734 3	29 Aug 2006
4700 K MPXL BY ND/CE OUTER BULB AND ADAPTED FILL	Lumileds LLC	United States of America	10/5270 07	29 Aug 2003	764272 2	05 Jan 2010
TRICOLOR WHITE LED LAMP	Lumileds LLC	United States of America	10/5084 55	21 Mar 2003	764270 8	05 Jan 2010
INCREASE OF ARC DIFFUSITY OF HID-LAMPS	Lumileds LLC	United States of America	10/5244 06	03 Aug 2003	775057 1	06 Jul 2010
LED WITH EU-DOPED SR-SION - PHOSPHOR	Lumileds LLC	United States of America	10/5310 34	07 Oct 2003	706102 4	13 Jun 2006
HIGH PRESSURE DISCHARGE LAMP, MULTICOLOUR	Lumileds LLC	United States of America	10/5021 84	02 Dec 2003	718371 2	27 Feb 2007
ILLUMINATION SYTEM COMPRISING A RADIATION SOURCE	Lumileds LLC	United States of America	10/5382 03	04 Dec 2003	754430 9	09 Jun 2009
METHOD OF MANUFACTURING NANOWIRES WITH INTERNAL JUNCTION	Lumileds LLC	United States of America	10/5095 64	26 Mar 2003	719253 3	20 Mar 2007
QUANTUM WELLS IN LED	Lumileds LLC	United States of America	10/158,3 60	29 May 2002	US690 3376	06 Jul 2005
NEW SALT MIX FOR (HG-FREE) AUTOMOTIVE CDM	Lumileds LLC	United States of America	10/5211 35	17 Jun 2003	719011 8	13 Mar 2007

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
HG-FREE CDM AUTOMOTIVE	Lumileds LLC	United States of America	10/5262 00	18 Aug 2003	721805 2	15 May 2007
PHOTORESIST PATTERNS ON LED	Lumileds LLC	United States of America	10/1048 83	22 Mar 2002	675618 6	29 Jun 2004
RED-DEFICIENCY COMPENSATING LED	Lumileds LLC	United States of America	10/0833 14	25 Feb 2002	668056 9	20 Jan 2004
IMPROVED LED EFFICIENCY USING PHOTONIC CRYSTAL	Lumileds LLC	United States of America	10/0595 88	28 Jan 2002	727971 8	09 Oct 2007
IMPROVED LED EFFICIENCY USING PHOTONIC CRYSTAL	Lumileds LLC	United States of America	11/8688 54	08 Oct 2007	764210 8	05 Jan 2010
CONTACTING SCHEME FOR LED CHIPS	Lumileds LLC	United States of America	10/1723 11	13 Jun 2002	682859 6	07 Dec 2004
CONTACTING SCHEME FOR LED CHIPS	Lumileds LLC	United States of America	10/9612 39	07 Oct 2004	709506 1	22 Aug 2006
CONTACTING SCHEME FOR LED CHIPS	Lumileds LLC	United States of America	11/4647 94	15 Aug 2006	765230 4	26 Jan 2010
NITRIDE FILM ON SUBSTRATE	Lumileds LLC	United States of America	10/3173 09	11 Dec 2002	690006 7	31 May 2005
LED'S UTILIZING NANO-PARTICLES	Lumileds LLC	United States of America	10/1655 71	07 Jun 2002	687031 1	22 Mar 2005
LED'S UTILIZING NANO-PARTICLES	Lumileds LLC	United States of America	11/0335 94	11 Jan 2005	708349 0	01 Aug 2006
SIDE EMITTING LED AND LENS	Lumileds LLC	United States of America	10/1796 00	24 Jun 2002	667962 1	20 Jan 2004
NITRIDE LED WITH P- LAYER	Lumileds LLC	United States of America	10/2094 68	30 Jul 2002	683595 7	28 Dec 2004
LED WITH TUNNEL JUNCTIONS	Lumileds LLC	United States of America	10/2615 34	30 Sep 2002	682299 1	23 Nov 2004
PHOSPHOR CONVERTED LED	Lumileds LLC	United States of America	10/2721 50	14 Oct 2002	671735 3	06 Apr 2004
BRIGHT LED EMITTER	Lumileds LLC	United States of America	10/2837 37	29 Oct 2002	673094 0	04 May 2004

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
BRIGHT LED EMITTER	Lumileds LLC	United States of America	10/669789	23 Sep 2003	6969946	29 Nov 2005
LED WITH ENHANCED OPTICAL SCATTERING	Lumileds LLC	United States of America	10/317956	11 Dec 2002	7071494	04 Jul 2006
LED WITH COMPACT ACTIVE REGIONS	Lumileds LLC	United States of America	10/632720	31 Jul 2003	6900474	31 May 2005
LED WITH COMPACT ACTIVE REGIONS	Lumileds LLC	United States of America	11/139325	27 May 2005	7719018	18 May 2010
LED COMPRISING A GREEN-EMITTING PHOSPHOR	Lumileds LLC	United States of America	10/549231	05 Mar 2004	7573189	11 Aug 2009
METAL SHIELDS FOR PLASTIC SOCKET OF LAMP	Lumileds LLC	United States of America	10/568016	04 Aug 2004	7559685	14 Jul 2009
XENSTART LAMP; POSITIONING OF METAL SHIELDING ON THE STARTER	Lumileds LLC	United States of America	10/578074	27 Oct 2004	7618290	17 Nov 2009
ACCURATE ALLIGNMENT OF LED ASSEMBLY	Lumileds LLC	United States of America	10/346535	16 Jan 2003	7170151	30 Jan 2007
ACCURATE ALLIGNMENT OF LED ASSEMBLY	Lumileds LLC	United States of America	11/626280	23 Jan 2007	7795051	14 Sep 2010
HIGH POWERED LED	Lumileds LLC	United States of America	10/369714	19 Feb 2003	6977396	20 Dec 2005
HIGH POWERED LED	Lumileds LLC	United States of America	11/311961	19 Dec 2005	7351599	01 Apr 2008
HETEROSTRUCTURES FOR III-NITRIDE LEDS	Lumileds LLC	United States of America	10/465775	18 Jun 2003	6995389	07 Feb 2006
MOUNT FOR LED	Lumileds LLC	United States of America	10/632719	31 Jul 2003	6876008	05 Apr 2005
RESONANT CAVITY LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	10/652798	28 Aug 2003	7019330	28 Mar 2006
LED WITH IMPROVED LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	10/633054	31 Jul 2003	7009213	07 Mar 2006
LED WITH IMPROVED LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	11/328964	09 Jan 2006	7276737	02 Oct 2007

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
PACKAGE FOR LED	Lumileds LLC	United States of America	10/652348	29 Aug 2003	7482638	27 Jan 2009
PACKAGE FOR LED	Lumileds LLC	United States of America	12/359166	23 Jan 2009	7759144	20 Jul 2010
REFLECTOR WITH LED MOUNT	Lumileds LLC	United States of America	10/678279	03 Oct 2003	6995402	07 Feb 2006
PHOTONIC CRYSTAL LED	Lumileds LLC	United States of America	10/691026	21 Oct 2003	7012279	14 Mar 2006
PHOTONIC CRYSTAL LED	Lumileds LLC	United States of America	11/373639	09 Mar 2006	7294862	13 Nov 2007
LED PACKAGE ASSEMBLY	Lumileds LLC	United States of America	10/741931	19 Dec 2003	7321161	22 Jan 2008
METHOD OF PACKAGING A LED	Lumileds LLC	United States of America	10/737433	15 Dec 2003	7087465	08 Aug 2006
Semiconductor Light Emitting Devices	Lumileds LLC	United States of America	10/633058	01 Aug 2003	6847057	25 Jan 2005
Mechanically robust TH-free Tungsten electrodes for Xenon...	Lumileds LLC	United States of America	11/568037	15 Apr 2005	8087966	03 Jan 2012
SOLDER AND APPLICATION THEREOF	Lumileds LLC	United States of America	13/626943	11 May 2005	9095933	04 Aug 2015
SOLDER AND APPLICATION THEREOF	Lumileds LLC	United States of America	14/749703	25 Jun 2015		
SOLDER AND APPLICATION THEREOF	Lumileds LLC	United States of America	11/569609	11 May 2005	8298680	30 Oct 2012
ILLUMINATION SYSTEM COMP.A RADIATION SOURCE A. A FLUORESCENT	Lumileds LLC	United States of America	11/569182	23 May 2005	7700002	20 Apr 2010
LED WITH IMPROVED LIGHT EMITTANCE PROFILE	Lumileds LLC	United States of America	11/570345	10 Jun 2005	7969089	28 Jun 2011
LED WITH IMPROVED LIGHT EMITTANCE PROFILE	Lumileds LLC	United States of America	11/570897	21 Jun 2005	7750357	06 Jul 2010
TIO2 COVERED MO FOIL, TH-FREE ELECTRODE FOR XE HID	Lumileds LLC	United States of America	11/571757	01 Jul 2005	7733026	08 Jun 2010

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LUMINESCENT CERAMIC FOR A LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	10/861172	03 Jun 2004	7361938	22 Apr 2008
LUMINESCENT CERAMIC FOR A LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	12/034588	20 Feb 2008		
LUMINESCENT CERAMIC FOR A LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	13/309887	02 Dec 2011		
CLAMPING PLATE FOR CAR LAMPS AND OTHER FORM	Lumileds LLC	United States of America	11/573001	28 Jul 2005	7658535	09 Feb 2010
CERAMIC SUBSTRATE WITH ESD PROTECTION FOR LED	Lumileds LLC	United States of America	10/787657	25 Feb 2004	7279724	09 Oct 2007
CERAMIC SUBSTRATE WITH ESD PROTECTION FOR LED	Lumileds LLC	United States of America	11/848055	30 Aug 2007	7768754	03 Aug 2010
Amount of salt filling of Xenon HID for improved maintenance	Lumileds LLC	United States of America	11/574414	31 Aug 2005		
Light-transmitting substrate provided with a light-absorbing	Lumileds LLC	United States of America	11/575080	12 Sep 2005	7804249	28 Sep 2010
LED module: combination of half-parabola and collimators	Lumileds LLC	United States of America	11/575330	12 Sep 2005	7513642	07 Apr 2009
ILLUMINATION SYSTEM WITH ALIGNED LEDS	Lumileds LLC	United States of America	10/789834	27 Feb 2004	7212344	01 May 2007
Lamp base with improved thermal conductivity	Lumileds LLC	United States of America	10/596219	23 Sep 2005	7745982	29 Jun 2010
BRIGHTNESS ENHANCEMENT OF LED USING SELECTIVE...	Lumileds LLC	United States of America	11/575702	22 Sep 2005	7631991	15 Dec 2009
ELECTRODE WITH REDUCED TEMPERATURE IN SEALING FOR AUTOMOTIVE	Lumileds LLC	United States of America	11/577436	06 Oct 2005	7982377	19 Jul 2011
ILLUMINATOR AND METHOD FOR PRODUCING SUCH ILLUMINATOR	Lumileds LLC	United States of America	11/719240	14 Nov 2005	8541797	24 Sep 2013

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
COMPOSITE LED MODULES	Lumileds LLC	United States of America	11/719300	15 Nov 2005	8017955	13 Sep 2011
WAVELENGTH CONVERTED LEDS COMPRISING TWO DIFFERENT LAYERS	Lumileds LLC	United States of America	10/785616	23 Feb 2004	7250715	31 Jul 2007
LED WITH CURRENT SPREADING LAYERS	Lumileds LLC	United States of America	10/766277	27 Jan 2004	7026653	11 Apr 2006
III-NITRIDE LED WITH REDUCED POLARISATION FIELDS	Lumileds LLC	United States of America	10/769260	30 Jan 2004	7115908	03 Oct 2006
III-NITRIDE LEDS WITH IMPROVED HIGH-CURRENT EFFICIENCY	Lumileds LLC	United States of America	10/769590	30 Jan 2004	6943381	13 Sep 2005
LUMILEDS	Lumileds LLC	United States of America	10/785620	23 Feb 2004	7038370	02 May 2006
PHOTONIC CRYSTAL LED	Lumileds LLC	United States of America	12/259120	19 Mar 2004	7675084	09 Mar 2010
PHOTONIC CRYSTAL LED	Lumileds LLC	United States of America	11/373636	09 Mar 2006	7442965	28 Oct 2008
LED WITH IN-PLANE LE-LAYER	Lumileds LLC	United States of America	10/829141	21 Apr 2004	7285799	23 Oct 2007
STRAIN-CONTROLLED III-NITRIDE LED	Lumileds LLC	United States of America	10/830202	21 Apr 2004	6989555	24 Jan 2006
LED CHIP WITH INTEGRATED FAST SWITCHING DIODE	Lumileds LLC	United States of America	10/855277	26 May 2004	7064353	20 Jun 2006
SEMICONDUCTOR LIGHT EMITTING DEVICE INCLUDING PHOTONIC BAND GAP MATERIAL AND LUMINESCENT MATERIAL	Lumileds LLC	United States of America	10/855292	26 May 2004	6956247	18 Oct 2005
RESONANT CAVITY III-NITRIDE LIGHT EMITTING DEVICES FABRICATED BY GROWTH SUBSTRATE REMOVAL	Lumileds LLC	United States of America	10/861745	03 Jun 2004	6956246	18 Oct 2005

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
SEMICONDUCTOR LIGHT EMITTING DEVICE WITH PRE-FABRICATED WAVELENGTH CONVERTING ELEMENT	Lumileds LLC	United States of America	10/863980	09 Jun 2004	7553683	30 Jun 2009
SEMICONDUCTOR LIGHT EMITTING DEVICE WITH PRE-FABRICATED WAVELENGTH CONVERTING ELEMENT	Lumileds LLC	United States of America	12/403926	13 Mar 2009	8748921	10 Jun 2014
Package for semiconductor light emitting device	Lumileds LLC	United States of America	10/911443	03 Aug 2004	7201495	10 Apr 2007
PHOTONIC CRYSTAL LIGHT EMITTING DEVICE WITH MULTIPLE LATTICES	Lumileds LLC	United States of America	10/911468	04 Aug 2004	7442964	28 Oct 2008
GROWTH OF III-NITRIDE LIGHT EMITTING DEVICES ON TEXTURED SUBSTRATES	Lumileds LLC	United States of America	10/950000	23 Sep 2004	7633097	15 Dec 2009
OVERMOLDED LENS OVER LED DIE	Lumileds LLC	United States of America	11/069418	28 Feb 2005	7344902	18 Mar 2008
CONTACT AND OMNIDIRECTIONAL REFLECTIVE MIRROR FOR FLIP CHIPPED LIGHT EMITTING DEVICES	Lumileds LLC	United States of America	10/960391	06 Oct 2004	7274040	25 Sep 2007
SEMICONDUCTOR LIGHT EMITTING DEVICES WITH GRADED COMPOSITION LIGHT EMITTING LAYERS	Lumileds LLC	United States of America	10/977867	29 Oct 2004	7122839	17 Oct 2006
Package-Integrated Thin Film LED	Lumileds LLC	United States of America	10/977294	28 Oct 2004	7256483	14 Aug 2007
Package-Integrated Thin Film LED	Lumileds LLC	United States of America	11/421350	31 May 2006	7488621	10 Feb 2009
Package-Integrated Thin Film LED	Lumileds LLC	United States of America	12/368213	31 May 2006	7875533	25 Jan 2011

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Package-Integrated Thin Film LED	Lumileds LLC	United States of America	12/969709	16 Dec 2010	8455913	04 Jun 2013
Bonding an Optical Element to a Light Emitting Device	Lumileds LLC	United States of America	10/987241	12 Nov 2004	7419839	02 Sep 2008
Bonding an Optical Element to a Light Emitting Device	Lumileds LLC	United States of America	11/444592	31 May 2006	7462502	09 Dec 2008
Bonding an Optical Element to a Light Emitting Device	Lumileds LLC	United States of America	12/686209	12 Jan 2010	8067254	29 Nov 2011
Bonding an Optical Element to a Light Emitting Device	Lumileds LLC	United States of America	13/288291	03 Nov 2011	8748912	10 Jun 2014
Bonding an Optical Element to a Light Emitting Device	Lumileds LLC	United States of America	13/936850	08 Jul 2013	8846423	30 Sep 2014
Bonding an Optical Element to a Light Emitting Device	Lumileds LLC	United States of America	13/936850	08 Jul 2013	8846423	30 Sep 2014
OVERMOLDED LENS OVER LED DIE	Lumileds LLC	United States of America	10/990208	15 Nov 2004	7452737	18 Nov 2008
OVERMOLDED LENS OVER LED DIE	Lumileds LLC	United States of America	11/093961	29 Mar 2005	7352011	01 Apr 2008
OVERMOLDED LENS OVER LED DIE	Lumileds LLC	United States of America	12/049239	14 Mar 2008	9081167	14 Jul 2015
Phosphor converted light emitting device	Lumileds LLC	United States of America	11/008863	10 Dec 2004	7671529	02 Mar 2010
Unconn. cond. coating to lower ignition voltage of XE HID	Lumileds LLC	United States of America	11/722809	22 Dec 2005		
Add. impedances for damping NS RISE of HV Pulse of D1 & D3	Lumileds LLC	United States of America	11/814683	16 Jan 2006	7746005	29 Jun 2010
ONE-DIRECTIONAL ONE-TOUCH LED MODULE	Lumileds LLC	United States of America	11/815106	24 Jan 2006	7712948	11 May 2010
ILLUMINATION SYSTEM COMP. GREEN CLC	Lumileds LLC	United States of America	11/816262	10 Feb 2006	7901592	08 Mar 2011
ILLUM.SYSTEM COMP.RADIATION SOURCE A.LUMINESCENT MATERIAL	Lumileds LLC	United States of America	11/816702	10 Feb 2006	8545722	01 Oct 2013

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
POLYCRYSTALLINE PHOSPHOR CERAMICS FOR LEDS	Lumileds LLC	United States of America	12/971605	17 Dec 2010	8496852	30 Jul 2013
POLYCRYSTALLINE PHOSPHOR CERAMICS FOR LEDS	Lumileds LLC	United States of America	11/908134	10 Mar 2006	7879258	01 Feb 2011
Blue LED with Structured Luminescent Ceramics	Lumileds LLC	United States of America	11/915320	09 May 2006	7800123	21 Sep 2010
Outer bulb asymmetric to inner one for automotive Xe HID	Lumileds LLC	United States of America	11/914969	17 May 2006	7893623	22 Feb 2011
Light Source comprising a Ce ³⁺ and a Pr ³⁺ activated Luminescent Material	Lumileds LLC	United States of America	11/916100	22 May 2006	7753553	13 Jul 2010
Hole in pinch for defined filling of outer tube of (Hg-free) Xe HID	Lumileds LLC	United States of America	12/097944	13 Dec 2006	8262428	11 Sep 2012
SiAlON phosphor and LED using the same	Lumileds LLC	United States of America	11/993476	28 Jun 2006	7981321	19 Jul 2011
Luminescent Plate White pcLED with Uniform Emission	Lumileds LLC	United States of America	11/995385	04 Jul 2006	7952270	31 May 2011
RGB-laser projection system based on a luminescent screen	Lumileds LLC	United States of America	12/089085	26 Sep 2006	8147067	03 Apr 2012
MID integrated optics for LED Light-source	Lumileds LLC	United States of America	12/093607	09 Nov 2006	7798691	21 Sep 2010
Automotive LED lighting module with direct connection to heat sink and reference elements	Lumileds LLC	United States of America	12/067845	12 Sep 2006	7806575	05 Oct 2010
Selective color filters for the automotive LED front lighting modules	Lumileds LLC	United States of America	12/096924	04 Dec 2006	8523413	03 Sep 2013
Phosphor platelets with structures for generating light with colour independent from pump wavelength	Lumileds LLC	United States of America	12/064100	14 Aug 2006	7642707	05 Jan 2010
Positioning additional alignment elements together with LED sub-mounts on substrate	Lumileds LLC	United States of America	12/092753	03 Nov 2006	8398448	19 Mar 2013
Auxiliary commutation circuit for automotive Xenon lamps	Lumileds LLC	United States of America	12/158290	06 Dec 2006	7990069	02 Aug 2011

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Red and amber emitting luminescent ceramics for pcLEDs	Lumileds LLC	United States of America	12/092745	27 Oct 2006	8159126	17 Apr 2012
High efficient LASER-based color lamp	Lumileds LLC	United States of America	12/097137	06 Dec 2006	8229257	24 Jul 2012
Reverse Polarization Light Emitting Region for Semiconductor Light Emitting Device	Lumileds LLC	United States of America	11/226185	13 Sep 2005	7221000	22 May 2007
"Wavelength-Converted Semiconductor Light Emitting Device"	Lumileds LLC	United States of America	11/080801	14 Mar 2005	7341878	11 Mar 2008
"Wavelength-Converted Semiconductor Light Emitting Device"	Lumileds LLC	United States of America	12/723720	15 Mar 2010	8445929	21 May 2013
"Wavelength-Converted Semiconductor Light Emitting Device"	Lumileds LLC	United States of America	13/045824	11 Mar 2011	8748923	10 Jun 2014
"Polarization-Reversed III-Nitride Light Emitting Device"	Lumileds LLC	United States of America	11/080022	14 Mar 2005	7804100	28 Sep 2010
WIDE EMITTING LENS FOR LED USEFUL FOR BACKLIGHTING	Lumileds LLC	United States of America	11/093961	29 Mar 2005	7352011	01 Apr 2008
"Illumination system comprising a radiation source and a fluorescent material"	Lumileds LLC	United States of America	11/371883	08 Mar 2006	7938983	10 May 2011
"Illumination system comprising a radiation source and a fluorescent material"	Lumileds LLC	United States of America	12/963844	09 Dec 2010	8038905	18 Oct 2011
AllInGaP LED Having Reduced Temperature Dependence	Lumileds LLC	United States of America	11/100080	05 Apr 2005	7244630	17 Jul 2007
AllInGaP LED Having Reduced Temperature Dependence	Lumileds LLC	United States of America	11/672003	06 Feb 2007	7544525	09 Jun 2009
AllInGaP LED Having Reduced Temperature Dependence	Lumileds LLC	United States of America	12/433106	30 Apr 2009	7863631	04 Jan 2011
"RGB Thermal Isolation Substrate"	Lumileds LLC	United States of America	11/118898	29 Apr 2005	7952112	31 May 2011
"Method of removing the growth substrate of a semiconductor light emitting device"	Lumileds LLC	United States of America	11/149679	09 Jun 2005	7754507	13 Jul 2010

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
GROWN PHOTONIC CRYSTALS IN SEMICONDUCTOR LIGHT EMITTING DEVICES	Lumileds LLC	United States of America	11/156105	17 Jun 2005	8163575	24 Apr 2012
GROWN PHOTONIC CRYSTALS IN SEMICONDUCTOR LIGHT EMITTING DEVICES	Lumileds LLC	United States of America	13/404369	24 Feb 2012	9000450	07 Apr 2015
III-Nitride light emitting device with double heterostructure light emitting region	Lumileds LLC	United States of America	11/682276	05 Mar 2007	7880186	01 Feb 2011
III-Nitride light emitting device with double heterostructure light emitting region	Lumileds LLC	United States of America	12/495464	05 Mar 2007	8847252	30 Sep 2014
III-Nitride light emitting device with double heterostructure light emitting region	Lumileds LLC	United States of America	14/501167	30 Sep 2014		
Color Converted Light Emitting Diode	Lumileds LLC	United States of America	11/212280	26 Aug 2005	7847302	07 Dec 2010
Multiple Die LED and Lens Optical System	Lumileds LLC	United States of America	11/201465	10 Aug 2005	8163580	24 Apr 2012
Multiple Die LED and Lens Optical System	Lumileds LLC	United States of America	13/425635	21 Mar 2012	8729571	20 May 2014
Interconnects for Semiconductor Light Emitting Devices	Lumileds LLC	United States of America	11/226151	13 Sep 2005	7348212	25 Mar 2008
Interconnects for Semiconductor Light Emitting Devices	Lumileds LLC	United States of America	11/611775	15 Dec 2006	7736945	15 Jun 2010
SEMICONDUCTOR LIGHT EMITTING DEVICE WITH LATERAL CURRENT INJECTION IN THE LIGHT EMITTING REGION	Lumileds LLC	United States of America	11/226184	13 Sep 2005	7535031	19 May 2009
SEMICONDUCTOR LIGHT EMITTING DEVICE WITH LATERAL CURRENT INJECTION IN THE LIGHT EMITTING REGION	Lumileds LLC	United States of America	12/421048	13 Sep 2005	8026117	27 Sep 2011

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
SUBSTRATE FOR GROWING III-V LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	11/237164	27 Sep 2005	8334155	18 Dec 2012
SUBSTRATE FOR GROWING III-V LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	12/887853	22 Sep 2010	8288186	16 Oct 2012
LAMINATING ENCAPSULANT FILM CONTAINING PHOSPHOR OVER LEDES	Lumileds LLC	United States of America	11/261122	28 Oct 2005	7344952	18 Mar 2008
LAMINATING ENCAPSULANT FILM CONTAINING PHOSPHOR OVER LEDES	Lumileds LLC	United States of America	12/050132	17 Mar 2008	8736036	27 May 2014
LAMINATING ENCAPSULANT FILM CONTAINING PHOSPHOR OVER LEDES	Lumileds LLC	United States of America	13/419520	14 Mar 2012	8450147	28 May 2013
LUMINESCENT CERAMIC ELEMENT FOR A LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	11/290299	29 Nov 2005	7514721	07 Apr 2009
LUMINESCENT CERAMIC ELEMENT FOR A LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	12/390564	29 Nov 2005	8278674	02 Oct 2012
LIGHT-EMITTING DEVICE	Lumileds LLC	United States of America	11/313120	19 Dec 2005	7375379	20 May 2008
LED based lightsource with tunable pre-setting of color point	Lumileds LLC	United States of America	12/281161	29 Aug 2008	7994530	09 Aug 2011
HiPerClick cap	Lumileds LLC	United States of America	12/282181	06 Mar 2007	7887224	15 Feb 2011
Warm White pcLED with Lumiraminc and Red Phosphor	Lumileds LLC	United States of America	12/298061	10 Apr 2007	8035287	11 Oct 2011
LED based headlight with lateral colour separation for enhanced performance	Lumileds LLC	United States of America	12/298960	25 Apr 2007	7758221	20 Jul 2010
Small hole in H4/HS1 baffle for better daytime visibility of motorbikes	Lumileds LLC	United States of America	12/440592	10 Sep 2007	8203257	19 Jun 2012
Resistor in the solution with Common Mode filter for XenStart Lamps	Lumileds LLC	United States of America	12/278449	26 Jan 2007	8063580	22 Nov 2011

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Colour-stable phosphor converted LEDs	Lumileds LLC	United States of America	12/298966	26 Apr 2007	8138671	20 Mar 2012
Coating as Active Antenna for Lowering Ignition Voltage of HID Lamps	Lumileds LLC	United States of America	12/307774	28 Jun 2007	7884549	08 Feb 2011
LED with Microporous Luminescent Ceramics	Lumileds LLC	United States of America	12/293099	13 Mar 2007	8829779	09 Sep 2014
Electrode with surface morphology to alter stress distribution in pinch	Lumileds LLC	United States of America	12/440470	07 Sep 2007		
Self-alignment and mechanical referencing for LED collimator positioning	Lumileds LLC	United States of America	12/373234	12 Jul 2007	8086082	27 Dec 2011
Lumiramic integrated in collimator for LED Light-source module.	Lumileds LLC	United States of America	12/302607	06 Jun 2007	8251538	28 Aug 2012
Light source with spacially ordered, spherical ceramic color converter structure	Lumileds LLC	United States of America	12/305380	11 Jun 2007	8120247	21 Feb 2012
Bonding of inorganic optical devices with tension relaxation at elevated temperatures	Lumileds LLC	United States of America	12/439295	18 Sep 2007	8044421	25 Oct 2011
DBD activator	Lumileds LLC	United States of America	12/307770	28 Jun 2007	8674591	18 Mar 2014
Low threshold voltage vehicle BCM outage detection interface circuit	Lumileds LLC	United States of America	13/359881	27 Jan 2012	8786312	22 Jul 2014
Low threshold voltage vehicle BCM outage detection interface circuit	Lumileds LLC	United States of America	12/377608	15 Aug 2007	8125244	28 Feb 2012
Solution for AFS in LED frontlighting system	Lumileds LLC	United States of America	12/441588	17 Sep 2007	8944650	03 Feb 2015
TULIP((HV)QFN) for multi LED packages	Lumileds LLC	United States of America	12/519431	14 Dec 2007	8664683	04 Mar 2014
Tilted sides Lumiramic block to increase lumenoutput	Lumileds LLC	United States of America	12/519439	14 Dec 2007	8410500	02 Apr 2013
All Lumiramic Warm White LED	Lumileds LLC	United States of America	12/517284	30 Nov 2007	8247828	21 Aug 2012

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Durable and easy to apply opaque coating composition for lamps	Lumileds LLC	United States of America	12/513516	06 Nov 2007	8040065	18 Oct 2011
Semiconductor Light Emitting Device with Integrated Electronic Components	Lumileds LLC	United States of America	11/408841	21 Apr 2006	7994514	09 Aug 2011
Semiconductor Light Emitting Device with Integrated Electronic Components	Lumileds LLC	United States of America	13/078036	01 Apr 2011	8450760	28 May 2013
Process For Preparing A Semiconductor Light Emitting Device For Mountain	Lumileds LLC	United States of America	11/383522	16 May 2006	8062925	22 Nov 2011
Reflective Electrode for a Semiconductor Light Emitting Apparatus	Lumileds LLC	United States of America	11/420337	25 May 2006	7501295	10 Mar 2009
Reflective Electrode for a Semiconductor Light Emitting Apparatus	Lumileds LLC	United States of America	12/361568	25 May 2006	7612384	03 Nov 2009
Semiconductor Light Emitting Device Including Porous Layer	Lumileds LLC	United States of America	11/423413	09 Jun 2006	8174025	08 May 2012
Backlight using high-powered corner LED	Lumileds LLC	United States of America	12/171228	25 Aug 2006	8061884	22 Nov 2011
Process for Preparing a Semiconductor Structure for Mounting	Lumileds LLC	United States of America	11/536118	28 Sep 2006	9111950	18 Aug 2015
Light Emitting Device Including Arrayed Emitters Defined by a Photonic Crystal	Lumileds LLC	United States of America	11/537940	02 Oct 2006	7697584	13 Apr 2010
Electrical Contacts For A Semiconductor Light Emitting Apparatus	Lumileds LLC	United States of America	11/550488	18 Oct 2006	7842963	30 Nov 2010
Phosphor Converted Light Emitting Device	Lumileds LLC	United States of America	11/623068	13 Jan 2007	7446343	04 Nov 2008
WHITE LED FOR BACKLIGHT WITH PHOSPHOR PLATES	Lumileds LLC	United States of America	11/378812	17 Mar 2006	7682850	23 Mar 2010
Color Controlby Alteration of Wavelength Converting Element	Lumileds LLC	United States of America	12/277230	24 Nov 2008	7902566	08 Mar 2011
Color Controlby Alteration of Wavelength Converting Element	Lumileds LLC	United States of America	13/015789	28 Jan 2011	8202742	19 Jun 2012

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Color Control by Alteration of Wavelength Converting Element	Lumileds LLC	United States of America	13/487292	04 Jun 2012	8486725	16 Jul 2013
LOW PROFILE SIDE EMITTING LED	Lumileds LLC	United States of America	11/423419	09 Jun 2006	7626210	01 Dec 2009
LOW PROFILE SIDE EMITTING LED	Lumileds LLC	United States of America	11/954712	12 Dec 2007	8080828	20 Dec 2011
Light Emitting Device Including Luminescent Ceramic and Light Scattering Material	Lumileds LLC	United States of America	11/561859	20 Nov 2006	7521862	21 Apr 2009
III Nitride Light Emitting Device Grown on Templates To Reduce Strain	Lumileds LLC	United States of America	11/615834	22 Dec 2006	7547908	16 Jun 2009
Tunable Whitepoint Light Source Using a Wavelength Converting Element	Lumileds LLC	United States of America	11/611351	15 Dec 2006	7902560	08 Mar 2011
Led Assembly Having Maximum Metal Support For Laser Lift Off Of Growth Substrate	Lumileds LLC	United States of America	11/611775	15 Dec 2006	7736945	15 Jun 2010
Led Assembly Having Maximum Metal Support For Laser Lift Off Of Growth Substrate	Lumileds LLC	United States of America	12/767845	27 Apr 2010	8384118	26 Feb 2013
III-Nitride Light Emitting Devices Grown on Templates to Reduce Strain	Lumileds LLC	United States of America	11/615808	22 Dec 2006	7951693	31 May 2011
III-Nitride Light Emitting Devices Grown on Templates to Reduce Strain	Lumileds LLC	United States of America	11/615826	22 Dec 2006	7534638	19 May 2009
Light Emitting Device Including a Filter	Lumileds LLC	United States of America	11/615291	22 Dec 2006	8704254	22 Apr 2014
III-Nitride Light Emitting Device with Reduced Strain Light Emitting Layer	Lumileds LLC	United States of America	11/615479	22 Dec 2006	7663148	16 Feb 2010
Semiconductor Light Emitting Device Configured to emit Multiple Wavelengths of Light	Lumileds LLC	United States of America	12/830885	06 Jul 2010		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Lighting Device Package	Lumileds LLC	United States of America	11/980991	31 Oct 2007	7631986	15 Dec 2009
Process for Preparing a Semiconductor Structure for Mounting	Lumileds LLC	United States of America	14/826473	14 Aug 2015		
Electronic driver for a single LED the anode of which is on ground potential	Lumileds LLC	United States of America	12/527910	22 Feb 2008	8749158	10 Jun 2014
Thermal Bulb Design for a 25W Automotive HID Lamp Allowing much Lower System Cost	Lumileds LLC	United States of America	14/026505	13 Sep 2013	RE45342	20 Jan 2015
Thermal Bulb Design for a 25W Automotive HID Lamp Allowing much Lower System Cost	Lumileds LLC	United States of America	12/530537	07 Mar 2008	8030847	04 Oct 2011
Luminescent nitridosilicate composite ceramic for solid state lighting	Lumileds LLC	United States of America	12/525085	31 Jan 2008		
Multifunctional automotive rear light by (single)-LED/reflector/light-guide combination	Lumileds LLC	United States of America	12/600495	15 May 2008	8944651	02 Feb 2015
Alignment sleeve with socket-side bushes for improved shock and vibration resistance	Lumileds LLC	United States of America	12/594832	08 Apr 2008		
Red emitting luminescent material	Lumileds LLC	United States of America	13/442117	09 Apr 2012	8409472	02 Apr 2013
Red emitting luminescent material	Lumileds LLC	United States of America	12/525083	31 Jan 2008	8153025	10 Apr 2012
Metal clamping plate integrating sleeve, bushes, and references to reflector for Xe HID	Lumileds LLC	United States of America	12/530542	07 Mar 2008	9033564	19 May 2015
Warm white Lumiramic LED for general illumination	Lumileds LLC	United States of America	13/917673	14 Jun 2013	8796916	05 Aug 2014
Warm white Lumiramic LED for general illumination	Lumileds LLC	United States of America	14/320988	01 Jul 2014	9024520	05 May 2015
Warm white Lumiramic LED for general illumination	Lumileds LLC	United States of America	14/699362	29 Apr 2015		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Warm white Lumiramic LED for general illumination	Lumileds LLC	United States of America	12/595660	15 Apr 2008	8465166	18 Jun 2013
Optimized overall discharge and outer bulb fill of Hg- and Th-free Xe HID	Lumileds LLC	United States of America	12/678532	19 Sep 2008	8436539	07 May 2013
Metal ring on plastic to prevent creep behavior	Lumileds LLC	United States of America	12/601854	30 May 2008	9097404	04 Aug 2015
AMBER AND RED EMITTING NITRIDOSILICATE COMPOSITE CERAMIC WITH ENHANCED OPTICAL PROPERTIES	Lumileds LLC	United States of America	12/682258	25 Sep 2008	8680547	25 Mar 2014
Photonic crystal led with discrete areas of different (quasi) crystal layouts.	Lumileds LLC	United States of America	12/747541	12 Dec 2008	8536600	17 Sep 2013
High temperature LED package with separated optical and alignment parts	Lumileds LLC	United States of America	12/678321	16 Sep 2008		
Polarized light emitting LED	Lumileds LLC	United States of America	12/738312	20 Oct 2008	8399898	19 Mar 2013
LED package with high luminance	Lumileds LLC	United States of America	12/678322	16 Sep 2008	9,263,651	16 Feb 2016
Side emitter LED using a top reflector with hybrid functionality	Lumileds LLC	United States of America	12/746773	03 Dec 2008	8283686	09 Oct 2012
SATURATED GREEN EMITTING SIALON MATERIAL FOR PHOSPHOR CONVERTED LEDS	Lumileds LLC	United States of America	12/745701	27 Nov 2008	8546845	01 Oct 2013
A more integrable and robust structure for LED substrate lift-off	Lumileds LLC	United States of America	11/876404	22 Oct 2007	7687810	30 Mar 2010
High-performance AlInGaP thin-film flip-chip LED	Lumileds LLC	United States of America	13/423625	19 Mar 2012	8679869	25 Mar 2014
AlInGaP etch stop light emitting device	Lumileds LLC	United States of America	11/957031	14 Dec 2007	8692286	08 Apr 2014
AlInGaP etch stop light emitting device	Lumileds LLC	United States of America	14/200203	07 Mar 2014		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LEDs with dual light extraction features for higher light extraction efficiency	Lumileds LLC	United States of America	11/960180	19 Dec 2007	7985979	26 Jul 2011
LEDs with dual light extraction features for higher light extraction efficiency	Lumileds LLC	United States of America	13/161541	19 Dec 2007	8242521	14 Aug 2012
LEDs with dual light extraction features for higher light extraction efficiency	Lumileds LLC	United States of America	13/540913	03 Jul 2012	9,142,726	22 Sep 2015
LEDs with dual light extraction features for higher light extraction efficiency	Lumileds LLC	United States of America	14/837,339	01 Jul 2015		
LED with Porous Diffusing Reflector	Lumileds LLC	United States of America	11/692132	27 Mar 2007	7601989	13 Oct 2009
Efficient red LED phosphor based on Ce(III) sensitisation	Lumileds LLC	United States of America	12/747544	15 Dec 2008	8441026	14 May 2013
Temperature checking LED	Lumileds LLC	United States of America	12/747170	10 Dec 2008	8743921	03 Jun 2014
Side emitter LED using a top reflector with hybrid functionality	Lumileds LLC	United States of America	12/746775	05 Dec 2008	8471281	25 Jun 2013
Illumination Device with a Wavelength Converting Element Held by a Support Structure Having an Apert	Lumileds LLC	United States of America	11/754210	25 May 2007	7700967	20 Apr 2010
Thin Luminaire for General Lighting Applications	Lumileds LLC	United States of America	11/758952	06 Jun 2007	7494246	24 Feb 2009
Mount for a Semiconductor Light Emitting Device	Lumileds LLC	United States of America	11/760521	08 Jun 2007	7791096	07 Sep 2010
Mount for a Semiconductor Light Emitting Device	Lumileds LLC	United States of America	12/850213	04 Aug 2010	8039866	18 Oct 2011
Thin Flash or Video Recording Light Using Low Profile Side Emitting LED	Lumileds LLC	United States of America	11/763311	14 Jun 2007	9046634	02 Jun 2015
Solderless Integrated Package Connector and Heat Sink for LED	Lumileds LLC	United States of America	11/765291	19 Jun 2007	7638814	29 Dec 2009

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Substrate removal during LED formation	Lumileds LLC	United States of America	11/775059	09 Jul 2007	7867793	11 Jan 2011
Silicone Resin for Protecting a Light Transmitting Surface of an Optoelectronic Device	Lumileds LLC	United States of America	11/937425	08 Nov 2007	8017246	13 Sep 2011
Light Emitting Diode for Mounting to a Heat Sink	Lumileds LLC	United States of America	11/956270	13 Dec 2007	7625104	01 Dec 2009
Optical Element Coupled to Low Profile Side Emitting LED	Lumileds LLC	United States of America	11/840129	16 Aug 2007	7652301	26 Jan 2010
Controlled porosity in sintered ceramic phosphors to achieve optimal over angle performance of LEDs.	Lumileds LLC	United States of America	12/811832	09 Jan 2009	8728835	20 May 2014
Improved construction of high voltage transformer for HID ignition modules	Lumileds LLC	United States of America	12/867890	13 Feb 2009	8193891	05 Jun 2012
Progressive LED bending light with single horizontal collimators and common vertical collimator	Lumileds LLC	United States of America	12/988532	20 Apr 2009	8585261	19 Nov 2013
Thin-Film Flip-Chip LED suitable for driving from mains voltage	Lumileds LLC	United States of America	12/266162	06 Nov 2008	8062916	22 Nov 2011
Thin-Film Flip-Chip LED suitable for driving from mains voltage	Lumileds LLC	United States of America	13/269669	10 Oct 2011	8450754	28 May 2013
WB type of cap with guiding and keying system	Lumileds LLC	United States of America	12/867281	18 Feb 2009	8226440	24 Jul 2012
StarFish low profile emission TIR lens concept for top emitter	Lumileds LLC	United States of America	12/248968	10 Oct 2008	7837370	23 Nov 2010
LED configurations with controlled angular (color) non-uniformity for improved system performance	Lumileds LLC	United States of America	12/236527	24 Sep 2008	8129735	06 Mar 2012
Package Free InGaN Thin Film Flip Chip with Inorganic Bonded Phosphor/Window Layer	Lumileds LLC	United States of America	12/178902	24 Jul 2008		
Cheaper Xe HID base with less outgassing by upper 2-part metal ring and lower HV isolation	Lumileds LLC	United States of America	12/988538	20 Apr 2009	8415868	09 Apr 2013

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
labyrinth						
Underfill Process for Flip Chip LEDs	Lumileds LLC	United States of America	13/115475	17 Mar 2008	8273587	25 Sep 2012
High Efficiency Autom. Xe HID by no ZnI2, NaI/ScI3 = 1, increased Xe	Lumileds LLC	United States of America	12/936541	07 Apr 2009	8410698	02 Apr 2013
H7 Redesign	Lumileds LLC	United States of America	12/918839	24 Feb 2009	8313348	20 Nov 2012
Lumiramic LED device without blue leakage	Lumileds LLC	United States of America	12/999706	24 Jun 2009	8338846	25 Dec 2012
Integrated one-touch locking system for Gen 4 of Automotive Xenon HID	Lumileds LLC	United States of America	12/988005	15 Oct 2010	9,243,766	26 Jan 2016
Reduced Vf AlInGaP LED	Lumileds LLC	United States of America	12/139999	16 Jun 2008	8507929	13 Jul 2013
Automotive headlights with multiple functionality by remote laser addressing	Lumileds LLC	United States of America	13/059300	17 Aug 2009	8256941	04 Sep 2012
High efficiency aut. HID at 25W with small cylindrical bulb	Lumileds LLC	United States of America	13/062274	07 Sep 2009	8598789	03 Dec 2013
Gas discharge bulb (xenon bulb) with multicolored beam pattern by partial coatings	Lumileds LLC	United States of America	13/003584	08 Jul 2009	8278825	02 Oct 2012
Hal. Bulb with Increased Beam Performance by longer and smaller diam. filament at lowered position	Lumileds LLC	United States of America	13/002084	01 Jul 2009	8471447	25 Jun 2013
Single cavity aut. Front-Fog and DRL lamp by spec. distr. lights in 2 half dome complex shape refl.	Lumileds LLC	United States of America	13/119270	28 Aug 2009		
Side coatings for Lumiramic phosphor converted LEDs and method of controlled deposition	Lumileds LLC	United States of America	13/120299	21 Sep 2009	8957428	17 Feb 2015
LED with overmolded bi-directional optics for waveguide incoupling	Lumileds LLC	United States of America	12/265131	05 Nov 2008	7994529	09 Aug 2011

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Mosaic LED fabrication on patterned engineered substrates	Lumileds LLC	United States of America	12/236853	24 Sep 2008	9,117,944	25 Aug 2015
Whitepoint compensated LEDs for LCD Displays	Lumileds LLC	United States of America	12/212991	18 Sep 2008	7858409	28 Dec 2010
Control algorithm for run-up of automotive Xenon HID	Lumileds LLC	United States of America	13/126256	03 Nov 2009		
Micro-collimator integrated with structural elements of LED headlamp	Lumileds LLC	United States of America	13/060711	31 Aug 2009	8454216	04 Jun 2013
LED-array simple driving electronics	Lumileds LLC	United States of America	13/124911	13 Oct 2009		
Automotive halogen lamp with colour temperature of 3600K in the region of glare for front lighting	Lumileds LLC	United States of America	13/127742	09 Nov 2009	8602616	10 Dec 2013
Laser-based automotive light source	Lumileds LLC	United States of America	13/130230	11 Nov 2009	8690406	08 Apr 2014
LED with Particles in Encapsulant for Increased Light Extraction and Non-Yellow Off-State Color	Lumileds LLC	United States of America	11/849930	04 Sep 2007	7791093	07 Sep 2010
White Lumiramic LED with Uniform Emission	Lumileds LLC	United States of America	14/618406	10 Feb 2015		
White Lumiramic LED with Uniform Emission	Lumileds LLC	United States of America	13/131384	27 Nov 2009	8957439	17 Feb 2015
Sealings for HV isolation reducing igniter size of aut. Xe HID by shorter isolation labyrinth	Lumileds LLC	United States of America	12/992098	08 May 2009	83504475	08 Jan 2013
Light Source Including A Wavelength-Converted Semiconductor Light Emitting Device and a Filter	Lumileds LLC	United States of America	12/201428	29 Aug 2008	7888691	15 Feb 2011
Light Source Including A Wavelength-Converted Semiconductor Light Emitting Device and a Filter	Lumileds LLC	United States of America	12/985394	06 Jan 2011	8114692	14 Feb 2012
Method of forming relaxed layers of semiconductor materials	Lumileds LLC	United States of America	12/563953	21 Sep 2009	8486771	16 Jul 2013

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
and substrates						
ELECTRICALLY PUMPED SEMICONDUCTOR ZIGZAG EXTENDED CAVITY...	Lumileds LLC	United States of America	12/371497	13 Feb 2009	7801195	21 Sep 2010
ELECTRICALLY PUMPED SEMICONDUCTOR ZIGZAG EXTENDED CAVITY...	Lumileds LLC	United States of America	12/849452	03 Aug 2010	7991034	02 Aug 2011
LED headlamp with micro collimator tilting around pivot axis parallel to edge of LED source	Lumileds LLC	United States of America	13/142867	22 Dec 2009	8764259	01 Jul 2014
Compliant Structure For Large Area Flip-Chip Bonding	Lumileds LLC	United States of America	12/397367	04 Mar 2009	8202741	19 Jun 2012
Compliant Structure For Large Area Flip-Chip Bonding	Lumileds LLC	United States of America	13/470784	14 May 2012	9076944	07 Jul 2015
III-Nitride Light Emitting Device Including Porous Semiconductor Layer	Lumileds LLC	United States of America	11/950211	04 Dec 2007	7928448	19 Apr 2011
III-Nitride Light Emitting Device Including Porous Semiconductor Layer	Lumileds LLC	United States of America	13/084679	12 Apr 2011		
High Tc and efficient Aut. HID by Gd/Tb halide	Lumileds LLC	United States of America	14/688036	16 Apr 2015		
High Tc and efficient Aut. HID by Gd/Tb halide	Lumileds LLC	United States of America	13/202832	17 Feb 2010	9018838	28 Apr 2015
Thin Film Flip Chip with Simplified Process Flow and Improved Reliability	Lumileds LLC	United States of America	12/397392	04 Mar 2009	7875984	25 Jan 2011
Thin Film Flip Chip with Simplified Process Flow and Improved Reliability	Lumileds LLC	United States of America	12/897866	05 Oct 2010	8053905	19 Oct 2011
Modified spectra for cell phone flash LED	Lumileds LLC	United States of America	12/359374	26 Jan 2009	7995911	09 Aug 2011
BGaInN containing activer regions of LEDs, LDs and wide-bandgap photovoltaics and photodetectors	Lumileds LLC	United States of America	12/397417	04 Mar 2009	8106403	31 Jan 2012

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Backlight configuration for ultra-wide, reduced shadowing transfer function using domed LED	Lumileds LLC	United States of America	12/417673	03 Apr 2009	8212263	03 Jul 2012
Reflective remote phosphor configuration for lighting applications	Lumileds LLC	United States of America	12/432521	29 Apr 2009	8104907	31 Jan 2012
EXTENSION OF CONTACT PADS TO THE DIE EDGE WITH ELECTRICAL ISOLATION	Lumileds LLC	United States of America	12/436442	06 May 2009	7977132	12 Jul 2011
New improved efficiency LED configuration for attachment to waveguide with dichroic coating	Lumileds LLC	United States of America	12/503915	16 Jul 2009		
LIGHTING DEVICE WITH LIGHT SOURCES POSITIONED NEAR THE BOTTOM SURFACE OF A WAVEGUIDE	Lumileds LLC	United States of America	15/016,019	04 Feb 2016		
Method of Controlling Edge Emission in Package-Free LED Die	Lumileds LLC	United States of America	12/577623	12 Oct 2009	8236582	07 Aug 2012
Shaped TiO2 in silicone side molding for improved optical system performance and manufacturing cost	Lumileds LLC	United States of America	12/508238	23 Jul 2009	8097894	17 Jan 2012
Low optical loss, low Vf p-contact on p-GaN	Lumileds LLC	United States of America	13/448700	17 Apr 2012		
Compliant bonding surface created with metallised semiconductor micro-bumps	Lumileds LLC	United States of America	12/487314	18 Jun 2009	8089091	03 Jan 2012
Compliant bonding surface created with metallised semiconductor micro-bumps	Lumileds LLC	United States of America	13/311606	06 Dec 2011	8188508	29 May 2012
Compliant bonding surface created with metallised semiconductor micro-bumps	Lumileds LLC	United States of America	13/461874	02 May 2012	8314443	20 Nov 2012
High efficiency white LEDs with vicinity phosphor geometry and reflective submount	Lumileds LLC	United States of America	12/481021	09 Jun 2009	8168998	01 May 2012

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
High efficiency white LEDs with vicinity phosphor geometry and reflective submount	Lumileds LLC	United States of America	13/433424	29 Mar 2012	8536608	17 Sep 2013
Reduced Color Over Angle Angular Variation LEDs	Lumileds LLC	United States of America	12/507493	22 Jul 2009	8803171	12 Aug 2014
Thin Lumiramic on substrate	Lumileds LLC	United States of America	14/224,120	25 Mar 2014		
Thin Lumiramic on substrate	Lumileds LLC	United States of America	13/320803	17 May 2010	8721098	13 May 2014
Planar Thin-Film Flip-Chip LED	Lumileds LLC	United States of America	12/477222	03 Jun 2009	7732231	08 Jun 2010
Planar Thin-Film Flip-Chip LED	Lumileds LLC	United States of America	12/766221	23 Apr 2010	7989824	02 Aug 2011
High index high dispersion optical bond for the bonding of ceramic optical components to LEDs	Lumileds LLC	United States of America	13/384609	09 Aug 2010	8936997	20 Jan 2015
Optical structure for inner surface of remote phosphor component	Lumileds LLC	United States of America	13/375673	27 May 2010	8690395	08 Apr 2014
Self-Aligned Reflector Guard Sheet for Flip Chip LEDs	Lumileds LLC	United States of America	12/506632	21 Jul 2009	8076682	13 Dec 2011
Self-Aligned Reflector Guard Sheet for Flip Chip LEDs	Lumileds LLC	United States of America	13/288062	21 Jul 2009	8257989	04 Sep 2012
Reflective substrate for phosphor converted LEDs.	Lumileds LLC	United States of America	12/503951	16 Jul 2009	8431423	30 Apr 2013
Simplified Zener Diode Protection Network for LEDs Connected in Series	Lumileds LLC	United States of America	12/556054	09 Sep 2009	8400064	19 Mar 2013
High Performance and Low Cost Multi-chip LED Package	Lumileds LLC	United States of America	12/561617	17 Sep 2009		
High Performance and Low Cost Multi-chip LED Package	Lumileds LLC	United States of America	1B2010/053772	20 Aug 2010		
Method of controlling pit formation in InGaN layer	Lumileds LLC	United States of America	12/495258	30 Jun 2009	8183577	22 May 2012

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Method of controlling pit formation in InGaN layer	Lumileds LLC	United States of America	13/448453	17 Apr 2012	9012250	21 Apr 2015
GaAsP p-contact layer for AllnGaP light emitting device	Lumileds LLC	United States of America	12/494988	30 Jun 2009	8017958	13 Sep 2011
GaAsP p-contact layer for AllnGaP light emitting device	Lumileds LLC	United States of America	13/204750	08 Aug 2011	8816368	26 Aug 2014
Pulse before or after commutation for 25W aut. Xe HID allowing improved burner design	Lumileds LLC	United States of America	13/500666	27 Sep 2010		
Phosphor Overmold Filled With Composite Particles	Lumileds LLC	United States of America	12/624156	23 Nov 2009	8203161	19 Jun 2012
III-V LIGHT EMITTING DEVICE WITH THIN N-TYPE REGION	Lumileds LLC	United States of America	12/624268	23 Nov 2009	8581229	12 Nov 2013
III-V LIGHT EMITTING DEVICE WITH THIN N-TYPE REGION	Lumileds LLC	United States of America	14/049282	09 Oct 2013	8878160	04 Nov 2014
High intensity light sources with tailor-made 2-D color point distribution	Lumileds LLC	United States of America	13/395448	20 Apr 2010	8672523	18 Mar 2014
SILICONE BASED REFLECTIVE UNDERFILL AND THERMAL COUPLER FOR FLIP CHIP LED	Lumileds LLC	United States of America	12/613924	06 Nov 2009	8471280	25 Jun 2013
Shorter 'light-center length' in Aut. Xe HID by clamping below references	Lumileds LLC	United States of America	13/314434	08 Sep 2010	8692465	08 Apr 2014
Narrow red emitting luminescent material with garnet structure	Lumileds LLC	United States of America	13/511159	10 Dec 2010	9,133,390	15 Sep 2015
Smoother laser manufactured hairbrush electrodes reducing cracks in automotive HID	Lumileds LLC	United States of America	13/516301	10 Dec 2010		
Light extraction features embedded into an engineered substrate	Lumileds LLC	United States of America	12/688209	15 Jan 2010	8203153	19 Jun 2012
Light extraction features embedded into an engineered substrate	Lumileds LLC	United States of America	13/459279	30 Apr 2012	8334543	18 Dec 2012
Micro-patterning for engineered substrates for strain relaxation	Lumileds LLC	United States of America	12/688382	15 Jan 2010	8105852	31 Jan 2012

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Low Cost In-Plane Carrier Including Capability for Overmolding Top & Bottom contact Die on Substrate	Lumileds LLC	United States of America	12/731501	25 Mar 2010	8319247	27 Nov 2012
Low Cost In-Plane Carrier Including Capability for Overmolding Top & Bottom contact Die on Substrate	Lumileds LLC	United States of America	12/909004	21 Oct 2010	8486761	16 Jul 2013
Low Cost In-Plane Carrier Including Capability for Overmolding Top & Bottom contact Die on Substrate	Lumileds LLC	United States of America	13/669506	06 Nov 2012	8987771	24 Mar 2015
Low Cost In-Plane Carrier Including Capability for Overmolding Top & Bottom contact Die on Substrate	Lumileds LLC	United States of America	13/930312	21 Oct 2010	9035327	19 May 2015
LED bi-functional headlamp by crossing collimated beams immediately behind collimators	Lumileds LLC	United States of America	13/635798	21 Mar 2011		
LIGHT EMITTING DEVICE WITH MOLDED WAVELENGTH CONVERTING LAYER	Lumileds LLC	United States of America	12/706149	16 Feb 2010	8771577	08 Jul 2014
LIGHT EMITTING DEVICE WITH MOLDED WAVELENGTH CONVERTING LAYER	Lumileds LLC	United States of America	14/295370	04 Jun 2014		
Proximity collimators with spacer for efficiently imaging multi-junction LEDs	Lumileds LLC	United States of America	12/767513	26 Apr 2010	8269235	18 Sep 2012
COLLIMATOR	Lumileds LLC	United States of America	13/581757	24 Feb 2011	9121563	01 Sep 2015
METHOD OF DRIVING AN ARC-DISCHARGE LAMP	Lumileds LLC	United States of America	13642993	21 Apr 2011	9107276	11 Aug 2015
LED FRONT LIGHTING ARRANGEMENT	Lumileds LLC	United States of America	13/641772	12 Apr 2011	9,273,843	01 Mar 2016

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
More compact automotive HID headlamp by HV insulation by labyrinth or insulating material	Lumileds LLC	United States of America	13/522345	19 Jan 2011	8729802	20 May 2014
Proj. LED array with collimator exits or beam limiters shaped on the proj. lens focal plane	Lumileds LLC	United States of America	13/638142	23 Mar 2011	8899782	02 Dec 2014
Lighting Assembly for Vehicle	Lumileds LLC	United States of America	13/635483	11 Mar 2011		
Fully relaxed, epitaxial InGaN templates via relaxed AlInGaN interlayer	Lumileds LLC	United States of America	12/783197	19 May 2010	8692261	08 Apr 2014
Fully relaxed, epitaxial InGaN templates via relaxed AlInGaN interlayer	Lumileds LLC	United States of America	14/178983	12 Feb 2014	8945975	03 Feb 2015
Lift-off layer for improved InGaNOS donor wafers	Lumileds LLC	United States of America	12/783354	19 May 2010	8536022	17 Sep 2013
PASSIVATION FOR A SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	12/795272	07 Jun 2010	8471282	25 Jun 2013
PASSIVATION FOR A SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	13/904299	29 May 2013		
WAVELENGTH CONVERTED LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	13/824014	23 Sep 2011		
LUMINESCENT CONVERTER	Lumileds LLC	United States of America	13/637909	24 Mar 2011		
LED WAFER WITH LAMINATED PHOSPHOR LAYER	Lumileds LLC	United States of America	12/771809	30 Apr 2010	8232117	31 Jul 2012
EMBOSSED LAMINATE FILM FOR LIGHT EMITTING DEVICES	Lumileds LLC	United States of America	13/879639	20 Oct 2011		
III-NITRIDE LAYER GROWN ON A SUBSTRATE	Lumileds LLC	United States of America	13/882803	25 Oct 2011		
Square Lens	Lumileds LLC	United States of America	12/775593	07 May 2010	8431942	30 Apr 2013

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Daytime Running Light smart connection to position light	Lumileds LLC	United States of America	13/6959 97	26 Apr 2011	871074 4	29 Apr 2014
Using clinchframe technology for general optics functions and aesthetical design	Lumileds LLC	United States of America	13/8090 14	04 Jul 2011		
New Pinstripe Design for R-Type Xenon Bulbs - Part 1: Vertical Pinstripe	Lumileds LLC	United States of America	13/6992 29	18 May 2011	905897 0	16 Jun 2015
Vertical Thin-film LED incorporating buried reflective mirrors aligned with top contact	Lumileds LLC	United States of America	12/7705 50	29 Apr 2010	815404 2	10 Apr 2012
Vertical Thin-film LED incorporating buried reflective mirrors aligned with top contact	Lumileds LLC	United States of America	13/3487 36	12 Jan 2012	841565 6	09 Apr 2013
SHUNTING LAYER ARRANGEMENT FOR LEDS	Lumileds LLC	United States of America	13/8125 87	25 Jul 2011	897565 8	10 Mar 2015
GAS-DISCHARGE LAMP	Lumileds LLC	United States of America	13/6988 53	19 May 2011		
Method of forming a composite substrate.	Lumileds LLC	United States of America	13/8775 49	26 Oct 2011		
III-NITRIDE LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	13/8827 44	27 Oct 2011		
HIGHLY REFLECTIVE COATING ON LED SUBMOUNT	Lumileds LLC	United States of America	13/8787 82	07 Oct 2011	904033 2	26 May 2015
LIGHT EMITTING DEVICE WITH IMPROVED EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	14/948,0 42	20 Nov 2015		
III-nitride light-emitting diodes with low-strain active regions and high extraction efficiency	Lumileds LLC	United States of America	13/8825 11	01 Nov 2011	9,209.3 59	08 Dec 2015
LAMP WITH GRADED ABSORPTION COATING	Lumileds LLC	United States of America	13/8187 08	24 Aug 2011		
LIGHT EMITTING DEVICE WITH REDUCED EPI STRESS	Lumileds LLC	United States of America	14/7985 34	14 Jul 2015		
LIGHT EMITTING DEVICE WITH REDUCED EPI STRESS	Lumileds LLC	United States of America	13/8788 37	07 Oct 2011	909363 0	28 Jul 2015

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Solid state light emitting devices based on crystallographically relaxed structures	Lumileds LLC	United States of America	14/629581	24 Feb 2015		
Solid state light emitting devices based on crystallographically relaxed structures	Lumileds LLC	United States of America	13/879824	20 Oct 2011	8969890	03 Mar 2015
Method for tile level proximity PEC without a tie bar	Lumileds LLC	United States of America	13/877913	10 Oct 2011	8912049	16 Dec 2014
METHOD AND APPARATUS FOR TESTING LUMINESCENT FILMS	Lumileds LLC	United States of America	14/704007	05 May 2015		
METHOD AND APPARATUS FOR TESTING LUMINESCENT FILMS	Lumileds LLC	United States of America	13/885774	19 Dec 2011	9029806	12 May 2015
A LIGHTING SYSTEM	Lumileds LLC	United States of America	13/821276	02 Sep 2011	8981647	17 Mar 2015
ISLANDED CARRIER FOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/921,938	23 Oct 2015		
ISLANDED CARRIER FOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	13/878432	14 Nov 2011	9172018	27 Oct 2015
ILLUMINATION SYSTEM WITH LIGHT SOURCE, RADIATION CONVERTING ELEMENT AND FILTER	Lumileds LLC	United States of America	13/993086	12 Dec 2011	8779448	15 Jul 2014
RED EMITTING LUMINESCENT MATERIALS	Lumileds LLC	United States of America	13/988852	28 Nov 2011	9,257,607	09 Feb 2016
LED LIGHTING DEVICE WITH IMPROVED LIGHT DISTRIBUTION	Lumileds LLC	United States of America	14/941,449	13 Nov 2015		
LIGHT EMITTING DEVICE CHIP SCALE PACKAGE	Lumileds LLC	United States of America	13/997673	29 Dec 2011	8951817	10 Feb 2015
LOW COST ENCAPSULATED LIGHT EMITTING DEVICE.	Lumileds LLC	United States of America	13/993733	29 Dec 2011	8907364	09 Dec 2014
A METHOD OF DRIVING A GAS-DISCHARGE LAMP	Lumileds LLC	United States of America	14/003172	05 Mar 2012	9,161,423	13 Oct 2015

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Illumination device	Lumileds LLC	United States of America	13/995998	16 Jan 2012	9,157,605	13 Oct 2015
LED assembly comprising a light scattering layer	Lumileds LLC	United States of America	13/976479	24 Jan 2012	9209359	08 Dec 2015
METHOD FOR PROVIDING A REFLECTIVE COATING TO A SUBSTRATE FOR A LIGHT-EMITTING DEVICE	Lumileds LLC	United States of America	14/002202	09 Mar 2012		
LED HAVING VERTICAL CONTACTS REDISTRIBUTED FOR FLIP CHIP MOUNTING	Lumileds LLC	United States of America	14/994,106	12 Jan 2016		
LED HAVING VERTICAL CONTACTS REDISTRIBUTED FOR FLIP CHIP MOUNTING	Lumileds LLC	United States of America	14/001878	28 Feb 2012	9,246,061	26 Jan 2016
DISCHARGE LAMP WITH HIGH COLOR TEMPERATURE	Lumileds LLC	United States of America	14/113772	19 Apr 2012		10 Dec 2015
METHOD OF ATTACHING A LIGHT EMITTING DEVICE TO A SUPPORT SUBSTRATE	Lumileds LLC	United States of America	14/869,625	29 Sep 2015		
METHOD OF ATTACHING A LIGHT EMITTING DEVICE TO A SUPPORT SUBSTRATE	Lumileds LLC	United States of America	14/118564	21 May 2012	9,153,758	06 Oct 2015
P-N SEPARATION METAL FILL FOR FLIP CHIP LEDS	Lumileds LLC	United States of America	14/977,565	21 Dec 2015		
P-N separation metal fill for TFFC LED devices	Lumileds LLC	United States of America	14/112279	25 Apr 2012	9,219,209	22 Dec 2015
LED LIGHTING DEVICE WITH LOWER HEAT DISSIPATING STRUCTURE	Lumileds LLC	United States of America	14/114239	23 Apr 2012		
Method of processing a semiconductor structure	Lumileds LLC	United States of America	14/238477	21 Aug 2012		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Diode lighting arrangement	Lumileds LLC	United States of America	14/119621	30 May 2012		
METHOD OF BONDING A SUBSTRATE TO A SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/131686	30 Jul 2012		
LED LIGHTING DEVICE WITH UPPER HEAT DISSIPATING STRUCTURE	Lumileds LLC	United States of America	14/114250	23 Apr 2012	9182085	10 Nov 2015
Pre-rotated overmolded bidirectional spreading lens for stretched leadframe architecture	Lumileds LLC	United States of America	14/387868	27 Mar 2013		
Molded lenses forming LED Packages	Lumileds LLC	United States of America	14/374549	15 Jan 2013		
Semiconductor light emitting device lamp that emits light at large angles	Lumileds LLC	United States of America	14/366294	03 Jan 2013	9,136,448	15 Sep 2015
WAVELENGTH CONVERTED LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/997,713	18 Jan 2016		
WAVELENGTH CONVERTED LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/375461	07 Feb 2013	9,257,617	09 Feb 2016
IMPROVED P-CONTACT WITH MORE UNIFORM INJECTION AND LOWER OPTICAL LOSS	Lumileds LLC	United States of America	14/355619	29 Oct 2012		
Low warpage wafer bonding through use of slotted Si substrates	Lumileds LLC	United States of America	14/352698	05 Oct 2012		
SURFACE TREATMENT OF A SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/880,242	11 Oct 2015		
SURFACE TREATMENT OF A SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/347252	01 Oct 2012	9,159,876	13 Oct 2015
LED MIXING CHAMBER WITH REFLECTIVE WALLS	Lumileds LLC	United States of America	14/996,192	14 Jan 2016		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
FORMED IN SLOTS						
LED MIXING CHAMBER WITH REFLECTIVE WALLS FORMED IN SLOTS	Lumileds LLC	United States of America	14/237448	14 Aug 2012	9,246,072	26 Jan 2016
DISCHARGE LAMP	Lumileds LLC	United States of America	14/348082	14 Sep 2012	9093256	28 Jul 2015
Light emitting device with nanostructured phosphor	Lumileds LLC	United States of America	14/398764	02 May 2013		
LIGHT SOURCE WITH QUANTUM DOTS	Lumileds LLC	United States of America	14/351898	19 Oct 2012		
METHOD OF BONDING A SEMICONDUCTOR DEVICE TO A SUPPORT SUBSTRATE	Lumileds LLC	United States of America	14/131207	10 Jul 2012		
Integration of GaN LEDs with GaN transistors on Si substrates for AC LEDs or High-voltage LEDs	Lumileds LLC	United States of America	14/378113	28 Feb 2013	9054232	09 Jun 2015
LED REAR LAMP, IN PARTICULAR FOR A BICYCLE	Lumileds LLC	United States of America	14/355846	25 Oct 2012	9156511	13 Oct 2015
A LIGHT EMITTING MODULE, A LAMP, A LUMINAIRE AND A DISPLAY DEVICE	Lumileds LLC	United States of America	14/002467	05 Mar 2012	9082946	14 Jul 2015
HIGH-PRESSURE GAS DISCHARGE LAMP	Lumileds LLC	United States of America	14/360320	26 Nov 2012	9,159,546	13 Oct 2015
LIGHT EMITTING DEVICE GROWN ON A SILICON SUBSTRATE	Lumileds LLC	United States of America	14/384173	18 Mar 2013		
IMPROVED SPOT MODE OPERATION FOR A DISCHARGE LAMP	Lumileds LLC	United States of America	14/360326	15 Nov 2012	9,161,424	13 Oct 2015
SEMICONDUCTOR LIGHT EMITTING DEVICE WITH THICK METAL LAYERS	Lumileds LLC	United States of America	14/864,862	25 Sep 2015		
SEMICONDUCTOR LIGHT EMITTING DEVICE WITH THICK METAL LAYERS	Lumileds LLC	United States of America	14/360965	30 Nov 2012	9172001	27 Oct 2015

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Mn-activated hexafluorosilicates for LED applications	Lumileds LLC	United States of America	14/007982	06 Dec 2012		
SEMICONDUCTOR LIGHT EMITTING DEVICE WITH THICK METAL LAYERS	Lumileds LLC	United States of America	14/362144	04 Dec 2012		
Method of separating a wafer of semiconductor devices	Lumileds LLC	United States of America	14/399323	08 May 2013		
Sealed semiconductor light emitting device.	Lumileds LLC	United States of America	14/387591	22 Mar 2013		
OPTICAL CAVITY INCLUDING A LIGHT EMITTING DEVICE AND WAVELENGTH CONVERTING MATERIAL	Lumileds LLC	United States of America	14/388877	30 Mar 2013		
Light emitting device with wavelength converting side coat	Lumileds LLC	United States of America	14/388979	26 Mar 2013		
CONTROLLED LED LIGHT OUTPUT BY SELECTIVE AREA ROUGHENING	Lumileds LLC	United States of America	14/363354	03 Jan 2013		
A light emitting module, a lamp, a luminaire and a display device	Lumileds LLC	United States of America	14/232916	23 Mar 2012		
Light emitting device including light emitting layer with both nitrogen and phosphorus.	Lumileds LLC	United States of America	14/411926	24 Jun 2013		
Phosphor in water glass for LEDs	Lumileds LLC	United States of America	14/362411	05 Dec 2012		
PRODUCING LIGHT EMITTING DEVICES AT VARIABLE FLUX LEVELS	Lumileds LLC	United States of America	14/373707	29 Jan 2013		
LED Thin-Film Device partial Singulation Prior to Substrate Thinning or Removal	Lumileds LLC	United States of America	14/389780	29 Mar 2013		
SINGULATION OF LIGHT EMITTING DEVICES BEFORE AND AFTER APPLICATION OF PHOSPHOROUS	Lumileds LLC	United States of America	14/384720	08 Mar 2013		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
FULL SPECTRUM LIGHT EMITTING ARRANGEMENT	Lumileds LLC	United States of America	14/390422	03 Apr 2013		
Coated narrow red-emitting fluorosilicates for semiconductor LEDs	Lumileds LLC	United States of America	14/376451	13 Feb 2013		
NOVEL MATERIALS AND METHODS FOR DISPERSING NANO PARTICLES IN MATRICES WITH HIGH QUANTUM YIELDS AND STABILITY	Lumileds LLC	United States of America	14/373497	25 Jan 2013		
DETECTION SYSTEM USING PHOTO-SENSORS	Lumileds LLC	United States of America	14/430929	12 Sep 2013		
LED LAMP UNIT, IN PARTICULAR FOR AUTOMOTIVE LAMPS	Lumileds LLC	United States of America	14/405299	03 Jun 2013		
Discharge lamp with contact paths within the base.	Lumileds LLC	United States of America	14/396817	09 Apr 2013		
GROUND CONNECTION TO A LAMP HOUSING	Lumileds LLC	United States of America	14/396878	15 Apr 2013	9123498	01 Sep 2015
Lamp with electrical components embedded in an insulation compound	Lumileds LLC	United States of America	14/397331	12 Apr 2013		
A light conversion assembly, a lamp and a luminaire	Lumileds LLC	United States of America	14/391737	09 Apr 2013		
Controllable high luminance illumination with moving light-sources	Lumileds LLC	United States of America	14/383648	26 Feb 2013		
SURFACE MOUNTABLE SEMICONDUCTOR DEVICE	Lumileds LLC	United States of America	14/402212	07 May 2013		
PHOSPHOR IN INORGANIC BINDER FOR LED APPLICATIONS	Lumileds LLC	United States of America	14/385594	20 Mar 2013		
PHOSPHOR IN INORGANIC BINDER FOR LED APPLICATIONS	Lumileds LLC	United States of America	14/385510	29 Mar 2013		
Illumination device	Lumileds LLC	United States of America	14/853419	14 Sep 2015		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Highly stable QDs-composites for solid state lighting and the method of making them through initiator-free Polymerization	Lumileds LLC	United States of America	14/419579	18 Jul 2013		
METHOD AND APPARATUS FOR STRENGTHENING AN LED PACKAGE	Lumileds LLC	United States of America	14/418094	12 Jul 2013		
METHOD AND APPARATUS FOR CREATING A W-MESA STREET	Lumileds LLC	United States of America	14/390862	05 Apr 2013		
Wavelength converted light emitting device.	Lumileds LLC	United States of America	14/439368	25 Oct 2013		
OPTICAL COMPOSITION	Lumileds LLC	United States of America	14/405194	10 Jun 2013		
METHOD OF SOLDERING AN ELECTRONIC COMPONENT WITH A HIGH LATERAL ACCURACY	Lumileds LLC	United States of America	14/414918	17 Jul 2013	9198302	24 Nov 2015
SILICONE PRODUCT, A LIGHTING UNIT COMPRISING THE SILICONE PRODUCT AND METHOD OF MANUFACTURING A SILICONE PRODUCT	Lumileds LLC	United States of America	14/413240	10 Jul 2013		
CHIP SCALE LIGHT EMITTING DEVICE WITH METAL PILLARS IN A MOLDING COMPOUND FORMED AT WAFER LEVEL	Lumileds LLC	United States of America	14/405532	04 Jun 2013		
Improved light extraction using feature size and shape control in LED surface roughening.	Lumileds LLC	United States of America	14/402362	22 May 2013		
LED WITH CERAMIC GREEN PHOSPHOR AND PROTECTED RED PHOSPHOR LAYER	Lumileds LLC	United States of America	14/414719	12 Jul 2013		
CHIP SCALE LIGHT EMITTING DEVICE PACKAGE WITH DOME	Lumileds LLC	United States of America	14/892,193	05 May 2014		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LED PACKAGE AND MANUFACTURING METHOD	Lumileds LLC	United States of America	14/419539	02 Aug 2013		
METHOD AND APPARATUS FOR CREATING A POROUS REFLECTIVE CONTACT	Lumileds LLC	United States of America	14/763879	10 Mar 2014		
STRIP, FITER WITH THE STRIP, METHOD AND APPARATUS FOR PRODUCING THE STRIP	Lumileds LLC	United States of America	14/439100	23 Oct 2013		
Matrix Leadframe for LED Packaging	Lumileds LLC	United States of America	14/416074	16 Jul 2013		
LIGHT EMITTING DEVICE INCLUDING SHAPED SUBSTRATE	Lumileds LLC	United States of America	14/427320	05 Sep 2013		
LASER DE-BOND OF CARRIER WAFER FROM DEVICE WAFER	Lumileds LLC	United States of America	14/423162	12 Aug 2013		
LED CIRCUIT	Lumileds LLC	United States of America	14/419583	26 Jul 2013		
PDMS-based ligands for quantum dots in silicones	Lumileds LLC	United States of America	14/438286	23 Oct 2013		
LED-BASED DEVICE WITH WIDE COLOR GAMUT	Lumileds LLC	United States of America	14/439253	22 Oct 2013		
REDUCING OR ELIMINATING NANOPIPE DEFECTS IN III-NITRIDE STRUCTURES	Lumileds LLC	United States of America	14/413233	03 Jul 2013		
PHOSPHOR SEPARATED FROM LED BY TRANSPARENT SPACER	Lumileds LLC	United States of America	14/412026	25 Jun 2013		
Wavelength converting element comprising ceramic capsule	Lumileds LLC	United States of America	14/432217	25 Sep 2013		
SHAPED LED FOR ENHANCED LIGHT EXTRACTION EFFICIENCY	Lumileds LLC	United States of America	14/653005	17 Dec 2013		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
A PHOSPHOR CONVERTED LIGHT EMITTING DIODE, A LAMP AND A LUMINAIRE	Lumileds LLC	United States of America	14/4199 51	06 Aug 2013		
Light emitting device including a filter and a protective layer	Lumileds LLC	United States of America	14/4404 79	25 Oct 2013		
LIGHT CONVERSION MATERIALS BASED ON LUMINESCENT METAL ATOMIC NANOCCLUSERS	Lumileds LLC	United States of America	14/6496 55	29 Nov 2013		
II-VI BASED LIGHT EMITTING SEMICONDUCTOR DEVICE	Lumileds LLC	United States of America	14/4090 31	28 Jun 2013		
LED WITH PATTERNED SURFACE FEATURES BASED ON EMISSION FIELD PATTERNS	Lumileds LLC	United States of America	14/900,1 43	12 Jun 2014		
LED WITH SHAPED GROWTH SUBSTRATE FOR SIDE EMISSION	Lumileds LLC	United States of America	14/6558 63	06 Jan 2014		
LIGHT EMITTING DEVICE WITH AN OPTICAL ELEMENT AND A REFLECTOR	Lumileds LLC	United States of America	14/891,3 32	15 May 2014		
Side interconnect for light emitting device	Lumileds LLC	United States of America	14/786,5 22	10 Apr 2014		
SHAPED PHOSPHOR TO REDUCE REPEATED REFLECTIONS	Lumileds LLC	United States of America	14/912,2 11	12 Aug 2014		
Light emitting structure and mount	Lumileds LLC	United States of America	14/7642 02	05 Mar 2014		
CONTROL OF P-CONTACT RESISTANCE IN A SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/7620 23	15 Jan 2014		
LIGHTING ASSEMBLY AND METHOD FOR MANUFACTURING A LIGHTING ASSEMBLY	Lumileds LLC	United States of America	14/7622 54	16 Jan 2014		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
PDMS-BASED LIGANDS FOR QUANTUM DOTS IN SILICONES	Lumileds LLC	United States of America	14/437318	24 Sep 2013		
LED MODULE WITH HERMETIC SEAL OF WAVELENGTH CONVERSION MATERIAL	Lumileds LLC	United States of America	14/762576	10 Feb 2014		
Reducing solder PAD topology differences by planarization.	Lumileds LLC	United States of America	14/392,345	05 Jun 2014		
LED H4 RETROFIT LAMP UNIT	Lumileds LLC	United States of America	14/901,061	18 Jun 2014		
WAVELENGTH CONVERTED SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/903,727	03 Jul 2014		
LED WITH HIGH THERMAL CONDUCTIVITY PARTICLES IN PHOSPHOR CONVERSION LAYER	Lumileds LLC	United States of America	14/782,774	02 Apr 2014		
Light emitting diode laminated with a phosphor sheet and manufacturing method thereof	Lumileds LLC	United States of America	14/896,371	22 May 2014		
A light emitting device and method for manufacturing a light emitting device	Lumileds LLC	United States of America	14/762568	31 Jan 2014		
AUTOMOTIVE FRONT LIGHTING LAMP WITH BAFFLE	Lumileds LLC	United States of America	14/889,600	06 May 2014		
DOUBLE-FILAMENT INCANDESCENT LAMP FOR AUTOMOTIVE VEHICLE FROM LIGHTING	Lumileds LLC	United States of America	14/891,316	30 Apr 2014		
ENCAPSULATING LED LENS WITH BOTTOM REFLECTORS	Lumileds LLC	United States of America	14/763873	06 Mar 2014		
A LIGHT EMITTING DIE COMPONENT FORMED BY MULTILAYER	Lumileds LLC	United States of America	14/762826	27 Jan 2014		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
STRUCTURES						
METHOD OF SEPARATING LIGHT EMITTING DEVICES FORMED ON A SUBSTRATE WAFER	Lumileds LLC	United States of America	14/906,539	02 Jul 2014		
ENCAPSULATED QUANTUM DOTS IN POROUS PARTICLES	Lumileds LLC	United States of America	14/763886	19 Mar 2014		
HERMETICALLY SEALED ILLUMINATION DEVICE WITH LUMINESCENT MATERIAL	Lumileds LLC	United States of America	14/764216	26 Mar 2014		
A COATED LUMINESCENT PARTICLE, A LUMINESCENT CONVERTER ELEMENT, A LIGHT SOURCE, A LUMINAIRE AND A METHOD OF MANUFACTURING A COATED LUMINESCENT PARTICLE	Lumileds LLC	United States of America	14/763861	25 Feb 2014		
LED WITH SCATTERING FEATURES IN SUBSTRATE	Lumileds LLC	United States of America	14/891,344	05 May 2014		
LED WITH STRESS-BUFFER LAYER UNDER METALLIZATION LAYER	Lumileds LLC	United States of America	14/902,001	23 Jun 2014		
New phosphors, such as new narrow-band red emitting phosphors, for solid state lighting	Lumileds LLC	United States of America	14/401368	09 May 2013		
Highly reflective flip-chip LED die.	Lumileds LLC	United States of America	14/905,959	02 Jul 2014		
DICING A WAFER OF LIGHT EMITTING DEVICES	Lumileds LLC	United States of America	14/905,865	07 Jul 2014		
LED USING LUMINESCENT SAPPHIRE AS DOWN-	Lumileds LLC	United States of America	14/761115	02 Jan 2014		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
CONVERTER						
A LIGHT EMITTING DIODE COMPONENT	Lumileds LLC	United States of America	14/786,947	17 Apr 2014		
FLIP-CHIP SIDE EMITTING LED	Lumileds LLC	United States of America	14/906,533	09 Jul 2014		
PC LED WITH OPTICAL ELEMENT AND WITHOUT SUBSTRATE CARRIER	Lumileds LLC	United States of America	14/906,256	17 Jul 2014		
LED dome with an inner high index pillar	Lumileds LLC	United States of America	14/907,513	02 Jul 2014		
SOLID STATE ILLUMINATION DEVICE HAVING PLASMONIC ANTENNA ARRAY FOR ANISOTROPIC EMISSION	Lumileds LLC	United States of America	14/909,904	23 Jul 2014		
TOP EMITTING SEMICONDUCTOR LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	14/783,780	31 Mar 2014		
Thermal function of headlight sealing cap.	Lumileds LLC	United States of America	14/907,894	09 Jul 2014		
BONDING LED DIE TO LEAD FRAME STRIPS	Lumileds LLC	United States of America	14/901,705	18 Jun 2014		
INTEGRATED LAMP SYSTEM	Lumileds LLC	United States of America	14/901,675	20 Jun 2014		
ENHANCED EMISSION FROM PLASMONIC COUPLED EMITTERS FOR SOLID STATE LIGHTING	Lumileds LLC	United States of America	14/909,864	22 Jul 2014		
UNIVERSAL DAYTIME RUNNING LAMP FOR AUTOMOTIVE VEHICLES	Lumileds LLC	United States of America	14/910,194	30 Jul 2014		
ELECTRICAL GAS-DISCHARGE LAMP WITH DISCHARGE-COUPLED ACTIVE	Lumileds LLC	United States of America	14/914,771	29 Aug 2014		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
ANTENNA						
LAMP AND HEADLIGHTING ARRANGEMENT FOR OBTAINING A COLOR APPEARANCE IN AN AUTOMOTIVE HEADLIGHT	Lumileds LLC	United States of America	14/901,660	26 Jun 2014		
Light source with tunable emission spectrum	Lumileds LLC	United States of America	62/058162	01 Oct 2014		
Optically Active Materials and Structures for Controlling the Emission Patterns of LEDs	Lumileds LLC	United States of America	14/516610	17 Oct 2014		
Packaged wavelength converted light emitting device	Lumileds LLC	United States of America	62/016708	25 Jun 2014		
Double Mirror Trench Structure for improved light extraction in LEDs	Lumileds LLC	United States of America	62/076013	06 Nov 2014		
Design of Sapphire Collector for mechanical damage reduction in die level Laser Lift-Off process by improving Sapphire collection efficiency	Lumileds LLC	United States of America	62/038988	19 Aug 2014		
Manufacture of quantum dot-enabled solid-state light emitters	Lumileds LLC	United States of America	13/045375	10 Oct 2011	8530883	10 Sep 2013
Alloy stud bump interconnects for semiconductor Light Emitting Devices	Lumileds LLC	United States of America	62/035535	11 Aug 2014		
Quantum Dots in enclosed environment	Lumileds LLC	United States of America	62/057334	30 Sep 2014		
LED package with integrated features for gas or liquid cooling	Lumileds LLC	United States of America	62/097623	30 Dec 2014		
Vapor-Phase Curing Catalysis and Passivation of Siloxane resins in LED applications	Lumileds LLC	United States of America	62/293,741	10 Feb 2016		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Wavelength converted semiconductor light emitting device	Lumileds LLC	United States of America	62/088834	08 Dec 2014		
Sapphire Collector for reducing mechanical damage during die level Laser Lift-Off process (II)	Lumileds LLC	United States of America	62/160814	13 May 2015		
High Luminance pcLED	Lumileds LLC	United States of America	62/117497	18 Feb 2015		
Lens with Elongated Radiation Pattern	Lumileds LLC	United States of America	62/169053	01 Jun 2015		
4-sided chip-scale-package LED	Lumileds LLC	United States of America	62/053951	23 Sep 2014		
Multi-layered dielectric reflectors for high efficiency, high reliability LED packages	Lumileds LLC	United States of America	62/050481	15 Sep 2014		
Light emitting device on a mount with a reflective layer	Lumileds LLC	United States of America	14/853102	14 Sep 2015		
High reflective current spreading layers	Lumileds LLC	United States of America	62/147622	15 Apr 2015		
Double-side heat sinking arrangement for HB-LEDs	Lumileds LLC	United States of America	62/139820	30 Mar 2015		
Wavelength converted light emitting device with textured substrate	Lumileds LLC	United States of America	62/243,470	19 Oct 2015		
Controlling Off-State Appearance of a Light Emitting Device	Lumileds LLC	United States of America	62/238,664	07 Oct 2015		
Flip-Chip SMT LEDs with Variable Number of Emitting Surfaces	Lumileds LLC	United States of America	62/238,666	07 Oct 2015		
Die Bond Pad Design to Enable Different Electric Configurations	Lumileds LLC	United States of America	62/258,385	20 Nov 2015		
LED phosphors with improved linearity	Lumileds LLC	United States of America	62/188009	02 Jul 2015		
Phosphors for Solid State Lighting devices	Lumileds LLC	United States of America	62/100194	06 Jan 2015		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
WAVELENGTH CONVERTED LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	62/182090	19 Jun 2015		
CONTACT ETCHING AND METALLIZATION FOR IMPROVED LED DEVICE PERFORMANCE AND RELIABILITY	Lumileds LLC	United States of America	62/258,318	20 Nov 2015		
Surface emitter with light-emitting area equal to the LED top surface	Lumileds LLC	United States of America	62/233,301	25 Sep 2015		
Using a Pt free silicone as Lumiramic tape frame to prevent acrylic residues	Lumileds LLC	United States of America	62/129282	06 Mar 2015		
Integration Methods for High RI Lumiramic Attach Glue	Lumileds LLC	United States of America	62/172834	09 Jun 2015		
FLIP CHIP LED WITH SIDE REFLECTORS AND PHOSPHOR	Lumileds LLC	United States of America	62/272,416	29 Dec 2015		
Controlling Off-State Appearance of a Light Emitting Device	Lumileds LLC	United States of America	62/196,178	23 Jul 2015		
Light Emitting Device with a Side Reflector	Lumileds LLC	United States of America	62/200,490	03 Aug 2015		
Adaptive Light Source	Lumileds LLC	United States of America	62/253,580	10 Nov 2015		
DRIVER FOR AN ADAPTIVE LIGHT SOURCE	Lumileds LLC	United States of America	62/280,918	20 Jan 2016		
LED METAL PAD CONFIGURATION FOR OPTIMIZED THERMAL RESISTANCE, SOLDER RELIABILITY, AND SMT PROCESSING YIELDS	Lumileds LLC	United States of America	62/262,311	02 Dec 2015		
SOLDER PAD	Lumileds LLC	United States of America	29/550,880	07 Jan 2016		
SOLDER PAD	Lumileds LLC	United States of America	29/550,884	07 Jan 2016		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
SOLDER PAD	Lumileds LLC	United States of America	29/550,887	07 Jan 2016		
SOLDER PAD	Lumileds LLC	United States of America	29/550,889	06 Jan 2016		
Device including a light guide and one or more light emitting diodes	Lumileds LLC	United States of America	62/298,355	22 Feb 2016		
LED	Lumileds LLC	United States of America	29/298,700	11 Dec 2007	D599,919	08 Sep 2009
LAMP HOLDER FOR AUTOMOBILE	Lumileds LLC	United States of America	29/331493	27 Jan 2009	D598147	11 Aug 2009
LED PACKAGE	Lumileds LLC	United States of America	29/247,940	20 Jul 2006	D578,226	07 Oct 2008
LED PACKAGE	Lumileds LLC	United States of America	29/250204	06 Nov 2006	D598,871	25 Aug 2009
LED PACKAGE	Lumileds LLC	United States of America	29/281,100	14 Jun 2007	D571,738	14 Jun 2008
LED PACKAGE	Lumileds LLC	United States of America	29/340831	27 Jul 2009	D615505	11 May 2010
LED PACKAGE	Lumileds LLC	United States of America	29/346246	29 Oct 2009	D658317	24 Apr 2012
AUTOMOTIVE AIR PURIFIER	Lumileds LLC	United States of America	29/378819	10 Nov 2010	D657036	03 Apr 2012
AUTOMOTIVE AIR PURIFIER	Lumileds LLC	United States of America	29/397959	25 Jul 2011	D665485	14 Aug 2012
AUTOMOTIVE AIR PURIFIER	Lumileds LLC	United States of America	29/397960	25 Jul 2011	D674069	08 Jan 2013
PORTABLE LAMP	Lumileds LLC	United States of America	29/410086	04 Jan 2012	D684283	11 Jun 2013
INSPECTION LAMP	Lumileds LLC	United States of America	29/410088	04 Jan 2012	D694446	26 Nov 2013
INSPECTION LAMP	Lumileds LLC	United States of America	29/410089	04 Jan 2012	D691310	08 Oct 2013

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
DOCKING STATION FOR INSPECTION LAMP	Lumileds LLC	United States of America	29/410090	04 Jan 2012	D707881	24 Jun 2014
HOLDER FOR INSPECTION LAMP	Lumileds LLC	United States of America	29/410091	04 Jan 2012	D683068	21 May 2013
LED MODULE	Lumileds LLC	United States of America	29/402757	27 Sep 2011	D667145	11 Sep 2012
LED MODULE	Lumileds LLC	United States of America	29/402758	27 Sep 2011	D683481	28 May 2013
LED MODULE	Lumileds LLC	United States of America	29/402759	27 Sep 2011	D683482	28 May 2013
LED CLAMP	Lumileds LLC	United States of America	29/406404	14 Nov 2011	D672226	11 Dec 2012
LED CLAMP	Lumileds LLC	United States of America	29/406407	14 Nov 2011	D673842	08 Jan 2013
LED CLAMP	Lumileds LLC	United States of America	29/406408	14 Nov 2011	D673843	08 Jan 2013
LED CLAMP	Lumileds LLC	United States of America	29/406409	14 Nov 2011	D673844	08 Jan 2013
LED CLAMP	Lumileds LLC	United States of America	29/406410	14 Nov 2011	D673845	08 Jan 2013
LED CLAMP	Lumileds LLC	United States of America	29/406411	14 Nov 2011	D681437	07 May 2013
LED TRUCK LIGHT	Lumileds LLC	United States of America	29/428950	06 Aug 2012	D701982	01 Apr 2014
PORTABLE LAMP	Lumileds LLC	United States of America	29/447440	04 Mar 2013	D721841	27 Jan 2015
LED LIGHT	Lumileds LLC	United States of America	29/447442	04 Mar 2013	D711572	19 Aug 2014
LED DAYTIME RUNNING LIGHT	Lumileds LLC	United States of America	29/447443	04 Mar 2013	D722186	03 Feb 2015
LED MODULE FOR AUTOMOTIVE LIGHTING	Lumileds LLC	United States of America	29/452906	23 Apr 2013	D726346	07 Apr 2015

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LED MODULE FOR AUTOMOTIVE LIGHTING	Lumileds LLC	United States of America	29/452908	23 Apr 2013	D726347	07 Apr 2015
LED BULB FOR VEHICLES	Lumileds LLC	United States of America	29/460208	09 Jul 2013	D719690	16 Dec 2014
TRUCKLIGHT	Lumileds LLC	United States of America	29/467453	19 Sep 2013		
LED LAMP FOR MOTORCYCLE	Lumileds LLC	United States of America	29/488732	23 Apr 2014	D740983	13 Oct 2015
LED BULB FOR VEHICLE	Lumileds LLC	United States of America	29/488733	23 Apr 2014	D738006	01 Sep 2015
LED BULB FOR VEHICLE	Lumileds LLC	United States of America	29/488734	23 Apr 2014	D738007	01 Sep 2015
AUTOMOTIVE DRIVING RECORDER	Lumileds LLC	United States of America	29/488735	23 Apr 2014		
LED BULB FOR VEHICLE	Lumileds LLC	United States of America	29/491304	20 May 2014	D740984	13 Oct 2015
LED BULB FOR VEHICLE	Lumileds LLC	United States of America	29/496277	11 Jul 2014		
AUTOMOTIVE AIR PURIFIER	Lumileds LLC	United States of America	29534275	28 Jul 2015		
SOLDER PAD	Lumileds LLC	United States of America	29/550,880	07 Jan 2016		
SOLDER PAD	Lumileds LLC	United States of America	29/550,884	07 Jan 2016		
SOLDER PAD	Lumileds LLC	United States of America	29/550,887	07 Jan 2016		
SOLDER PAD	Lumileds LLC	United States of America	29/550,889	07 Jan 2016		
AUTOMOTIVE AIR PURIFIER	Lumileds LLC	United States of America		25 Feb 2011		
LED RETROFIT BULB	Lumileds LLC	United States of America		15 Jul 2015	D771845	

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LED RETROFIT BULB	Lumileds LLC	United States of America		15 Jul 2015		
AUTOMOTIVE AIR PURIFIER	Lumileds LLC	United States of America		9 Sep 2015		
AUTOMOTIVE DRIVING VIDEO RECORDER	Lumileds LLC	United States of America		21 Dec 2015		
CIGARETTE LIGHTER	Lumileds LLC	United States of America		21 Dec 2015		
LED H4 HEADLIGHT	Lumileds LLC	United States of America		4 Nov 2015		
DISPLAY DEVICE OF TPMS (TYRE PRESSURE MONITORING SYSTEM)	Lumileds LLC	United States of America	35/502,9 07	3 Nov 2016		
AIR PURIFIER FOR VEHICLE	Lumileds LLC	United States of America	29/5856 82	28 Nov 2016		
Light Emitting Devices with Optical Elements and Bonding Layers	Lumileds LLC	United States of America	15/443,9 02	27 Feb 2017		
LED PACKAGE AND METHOD FOR MANUFACTURING THE LED PACKAGE	Lumileds LLC	United States of America	15/418,5 38	27 Jan 2017		
VERTICAL LIGHT EMITTING DIODES	Lumileds LLC	United States of America	14/068,6 73	03 Mar 2008	917811 9	3 Nov 2015
VERTICAL LIGHT EMITTING DIODES	Lumileds LLC	United States of America	12/529,0 98	03 Mar 2008	859284 2	26 Nov 2013
VERTICAL LED WITH CONDUCTIVE VIAS	Lumileds LLC	United States of America	12/669,6 79	18 July 2008	821227 3	3 July 2012
ELECTRICALLY ISOLATED VERTICAL LIGHT EMITTING DIODE STRUCTURE	Lumileds LLC	United States of America	12/677,6 47	14 Sept 2008	830997 9	13 Nov 2012
LED WITH ENHANCED LIGHT EXTRACTION	Lumileds LLC	United States of America	12/742,2 47	10 Nov 2008	894674 1	03 Feb 2015
ULTRA HIGH THERMAL PERFORMANCE PACKAGING FOR OPTOELECTRONICS	Lumileds LLC	United States of America	12/742,2 46	10 Nov 2008	832463 3	04 Dec 2012

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
DEVICES						
LIGHT EMITTING MODULE WITH OPTICALLY-TRANSPARENT THERMALLY-CONDUCTIVE ELEMENT	Lumileds LLC	United States of America	12/864875	28 Jan 2009	8324647	04 Dec 2012
METHOD OF FORMING A COMPOSITE SUBSTRATE	Lumileds LLC	United States of America	15/482,350	26 Oct 2011		
SUBSTRATE WITH REFLECTIVE COATING INCLUDING SILICATE OR ALKYL SILICATE NETWORK	Lumileds LLC	United States of America	15/586,120	03 May 2017		
Low warpage wafer bonding through use of slotted substrates	Lumileds LLC	United States of America	15/438,592	21 Feb 2017		
Light emitting device with nanostructured phosphor	Lumileds LLC	United States of America	15/441,176	23 Feb 2017		
LIGHT SOURCE WITH QUANTUM DOTS	Lumileds LLC	United States of America	15/392,286	28 Dec 2016		
CHIP SCALE LIGHT EMITTING DEVICE PACKAGE WITH DOME	Lumileds LLC	United States of America	15/434,969	16 Feb 2017		
LED-BASED DEVICE WITH WIDE COLOR GAMUT	Lumileds LLC	United States of America	15/423,495	02 Feb 2017		
LED WITH STRESS-BUFFER LAYER UNDER METALLIZATION LAYER	Lumileds LLC	United States of America	15/581,204	28 Apr 2017		
SHALLOW REFLECTOR CUP FOR PHOSPHOR-CONVERTED LED FILLED WITH ENCAPSULANT	Lumileds LLC	United States of America	15/495,425	24 Apr 2017		
LED DISPOSED IN A BODY INCLUDING A SOCKET	Lumileds LLC	United States of America	15/512,304	15 Sept 2015		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
Light source with tunable emission spectrum	Lumileds LLC	United States of America	15/513,509	29 Sept 2015		
CONTACT	Lumileds LLC	United States of America	15/524,206	05 Nov 2015		
SAPPHIRE COLLECTOR FOR REDUCING MECHANICAL DAMAGE DURING DIE LEVEL LASER LIFT-OFF	Lumileds LLC	United States of America	15/504,796	29 July 2015		
VEHICLE LIGHTING MODULE	Lumileds LLC	United States of America	15/324,994	14 July 2015		
RETROFIT LAMP FOR AUTOMOTIVE HEADLIGHTS	Lumileds LLC	United States of America	15/324,900	03 July 2015		
Light source	Lumileds LLC	United States of America	15/506,663	26 Aug 2015		
LIGHT EMITTING DIODES AND REFLECTOR	Lumileds LLC	United States of America	15/326,484	18 July 2015		
SILOXANE LIGANDS TO BE USED FOR DISPERSING QUANTUM DOTS IN SILICONE HOSTS TO OBTAIN COLOR CONVERTERS FOR LED LIGHTING	Lumileds LLC	United States of America	15/327,610	21 July 2015		
Silica coated Quantum Dots with improved Quantum Efficiency	Lumileds LLC	United States of America	15/328,751	24 July 2015		
LED DEVICE WITH FLEXIBLE THERMAL INTERFACE	Lumileds LLC	United States of America	15/501,052	27 July 2015		
Lighting system	Lumileds LLC	United States of America	15/510,616	09 Sept 2015		
Phosphor with hybrid coating and method of production	Lumileds LLC	United States of America	15/510,651	10 Sept 2015		
QUANTUM DOTS IN ENCLOSED ENVIRONMENT	Lumileds LLC	United States of America	15/512,434	16 Sept 2015		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
MOLDED PACKAGE AND METHOD OF MANUFACTURE	Lumileds LLC	United States of America	15/517,725	07 Oct 2015		
LED LIGHT SOURCE FOR AUTOMOTIVE APPLICATION	Lumileds LLC	United States of America	15/325,693	17 July 2015		
A light emitting device	Lumileds LLC	United States of America	15/506,684	27 Aug 2015		
LIGHTING DEVICE WITH CERAMIC GARNET	Lumileds LLC	United States of America	15/525,848	04 Nov 2015		
PHOSPHOR CONVERTED LED WITH TEMPERATURE STABLE FLUX AND SATURATED RED COLOR POINT	Lumileds LLC	United States of America	15/521,438	28 Oct 2015		
LAMP WITH HEAT-SHIELDING ELEMENT	Lumileds LLC	United States of America	15/523,633	30 Oct 2015		
DIRECTIONAL LIGHT EMITTING ARRANGEMENT AND A METHOD OF PRODUCING THE SAME	Lumileds LLC	United States of America	15/520,782	20 Oct 2015		
LED PHOSPHOR COMPRISING BOW-TIE SHAPED A2N6 BUILDING BLOCKS	Lumileds LLC	United States of America	15/526,519	05 Nov 2015		
LUMINANCE PATTERN SHAPING USING A BACK-EMITTING LED AND A REFLECTIVE SUBSTRATE	Lumileds LLC	United States of America	15/510,999	22 Sept 2015		
COLLIMATING ON-DIE OPTIC	Lumileds LLC	United States of America		09 May 2017		
ADAPTIVE LIGHT SOURCE	Lumileds LLC	United States of America	15/591,040	09 May 2017		
WAVELENGTH CONVERTING MATERIAL FOR A LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	15/582,042	28 Apr 2017		
LED FLASH RING SURROUNDING CAMERA LENS	Lumileds LLC	United States of America	15/496,892	25 Apr 2017		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
METHOD OF FORMING A P-TYPE LAYER FOR A LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	15/592,658	11 May 2017		
LUMINAIRE	Lumileds LLC	United States of America	15/437,872	21 Feb 2017		
MULTI-PAD, MULTI-JUNCTION LED PACKAGE	Lumileds LLC	United States of America	15/584,546	02 May 2017		
PRINTED CIRCUIT BOARD FOR INTEGRATED LED DRIVER	Lumileds LLC	United States of America	15/587,567	05 May 2017		
WHITE-APPEARING SEMICONDUCTOR LIGHT-EMITTING DEVICES HAVING A TEMPERATURE SENSITIVE LOW-INDEX PARTICLE LAYER	Lumileds LLC	United States of America		02 May 2017		03 May 2017
LED module with high near field contrast ratio	Lumileds LLC	United States of America	62/434,680	15 Dec 2016		
LED ARRAY MODULE	Lumileds LLC	United States of America	62/437,454	21 Dec 2016		
FUNCTION	Lumileds LLC	United States of America	62/431,122	07 Dec 2016		
LIGHT GUIDE WITH PATTERNED INK	Lumileds LLC	United States of America	62/432,488	09 Dec 2016		
PRECISE ALIGNMENT TECHNIQUE FOR PCB HAVING LEDS MOUNTED ON IT	Lumileds LLC	United States of America	62/437,593	21 Dec 2016		
Phosphor Conversion Package for automotive headlights and other lighting products using a laser light source	Lumileds LLC	United States of America		04 Apr 2017		
LIGHT EMITTING DEVICE PACKAGE	Lumileds LLC	United States of America	15/613,951	05 June 2017		
METHOD OF FORMING A WAVELENGTH CONVERTED LIGHT EMITTING DEVICE	Lumileds LLC	United States of America	15/607,180	26 May 2017		

Patent Title	Owner	Country	App. No.	Filing date	Patent No.	Grant date
LED PACKAGE WITH INTEGRATED FEATURES FOR GAS OR LIQUID COOLING	Lumileds LLC	United States of America	15/538,048	30 Dec 2015		
DIMMING LED CIRCUIT AUGMENTING DC/DC CONTROLLER INTEGRATED CIRCUIT	Lumileds LLC	United States of America	15/606,388	26 May 2017		
LED LIGHTING DEVICE WITH REMOTE PHOSPHOR IN-COUPLING STRUCTURE FOR IN-COUPLING LIGHT FROM LIGHT EMITTING DIODES	Lumileds LLC	United States of America	62/468,096	07 March 2017		