



- (51) International Patent Classification:  
*F21S 2/00* (2006.01) *F21Y 101/02* (2006.01)
- (21) International Application Number:  
PCT/US2012/051344
- (22) International Filing Date:  
17 August 2012 (17.08.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
13/224,850 2 September 2011 (02.09.2011) US
- (71) Applicant (for all designated States except US): **CREE, INC.** [US/US]; 4600 Silicon Drive, Durham, NC 27703 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **EDMOND, John, A.** [US/US]; 1517 Colvard Farms Road, Durham, NC 27713 (US). **KONG, Hua-Shuang** [US/US]; 705 Evanvale Court, Cary, NC 27518 (US). **DONOFRIO, Matthew** [US/US]; 8120 North Creek Run, Raleigh, NC 27613 (US).
- (74) Agent: **WILSON, Jeffrey, L.**; Jenkins, Wilson, Taylor & Hunt, P.A., Suite 1200, University Tower, 3100 Tower Boulevard, Durham, NC 27707 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: LIGHT EMITTING DEVICES, SYSTEMS, AND METHODS

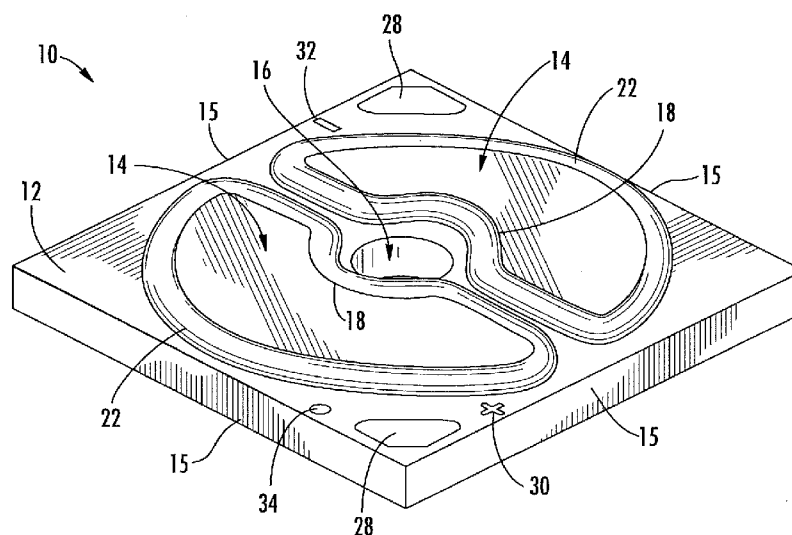


FIG. 1

(57) Abstract: Light emitting devices, systems, and methods are disclosed. In one embodiment a light emitting device can include an emission area having one or more light emitting diodes (LEDs) mounted over an irregularly shaped mounting area. The light emitting device can further include a retention material disposed about the emission area. The retention material can also be irregularly shaped, and can be dispensed. Light emitting device can include more than one emission area per device.

**Published:****(88) Date of publication of the international search report:**

10 May 2013

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2012/051344****A. CLASSIFICATION OF SUBJECT MATTER****F21S 2/00(2006.01)i, F21Y 101/02(2006.01)n**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

F21S 2/00; F21V 29/00; G09F 9/33; F21V 17/00; F21V 1/00; H01L 33/00; F21Y 101/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; keywords: light emitting device, retention, attachment, irregularly, mount

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011-0128730 A1 (HUA JUNG CHIU) 02 June 2011 See paragraphs [0016]–[0022]; and figures 1–3.	1–8, 14–16, 20–25, 27, 28, 37, 38, 51–58, 62, 63, 67, 68
Y		9–13, 17–19, 26, 29–36, 41, 42, 59–61, 64–66
X	JP 07-038940 Y2 (STANLEY ELECTRIC CO., LTD.) 06 September 1995	39, 40, 43–50
Y	See paragraphs [0009]–[0014]; and figures 1–3.	9–13, 17–19, 26, 29–36, 41, 42, 59–61, 64–66
A	JP 2007-335371 A (HARISON TOSHIBA LIGHTING CO., LTD.) 27 December 2007 See paragraphs [0013], [0014]; and figures 1, 2.	1–68
A	KR 10-2011-0004632 A (HANSUNG ELCOMTEC CO., LTD.) 14 January 2011 See paragraphs [0039]–[0047]; and figure 5.	1–68
A	EP 2327930 A1 (ALLIANCE OPTOTEK CO., LTD.) 01 June 2011 See paragraphs [0008]–[0018]; and figure 3.	1–68

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

28 FEBRUARY 2013 (28.02.2013)

Date of mailing of the international search report

**28 FEBRUARY 2013 (28.02.2013)**

Name and mailing address of the ISA/KR



Facsimile No. 82-42-472-7140

Authorized officer

KIM, Do Weon

Telephone No. 82-42-481-5560



**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2012/051344**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2011-0128730 A1	02.06.2011	CN 201884983 U US 07993025 B2	29.06.2011 09.08.2011
JP 07-038940 Y2	06.09.1995	H0 584979 U JP 5084979 U	16.11.1993 16.11.1993
JP 2007-335371 A	27.12.2007	None	
KR 10-2011-0004632 A	14.01.2011	None	
EP 2327930 A1	01.06.2011	JP 03163564 U	29.09.2010