

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NICHIA CORPORATION,
Petitioner,

v.

DOCUMENT SECURITY SYSTEMS, INC.,
Patent Owner.

Case IPR2018-00965
Patent 7,919,787 B2

Before SALLY C. MEDLEY, SCOTT C. MOORE, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

MEDLEY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Nichia Corporation (“Petitioner”)¹ filed a Petition for *inter partes* review of claims 1–14 of U.S. Patent No. 7,919,787 B2 (Ex. 1001, “the ’787 patent”). Paper 2 (“Pet.”). Document Security Systems, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 10 (“Prelim. Resp.”). Upon consideration of the Petition, we instituted an *inter partes* review, pursuant to 35 U.S.C. § 314, as to claims 1–14 based on all challenges set forth in the Petition. Paper 15 (“Decision on Institution” or “Dec.”).²

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 21, “PO Resp.”), and Petitioner filed a Reply to Patent Owner’s Response (Paper 24, “Reply”). Patent Owner elected not to file a Sur-Reply to Petitioner’s Reply. Paper 26; Ex. 3001. Neither party filed a request for oral argument, nor did we hold an oral argument. Paper 26; Ex. 3001.

A. *Related Matters*

The parties indicate that the ’787 patent is the subject of several court proceedings. Pet. 1; Paper 3, 2. Application 11/838,301, which issued as the ’787 patent, was filed August 14, 2007, as a continuation-in-part of Application 10/608,605 (“the ’605 application”), filed June 27, 2003, which issued as U.S. Patent No. 7,256,486 B2 (“the ’486 patent”). Ex. 1001, at

¹ Petitioner, Nichia Corporation, identifies Nichia America Corporation as a real party-in-interest. Pet. 1.

² Everlight Electronics Co., Ltd. (“Everlight”) joined as a petitioner to this proceeding. IPR2018-01260, Paper 12. Everlight and Document Security Systems, however, entered into a settlement agreement, and we terminated the proceeding with respect to Everlight. Paper 25.

codes (10), (21), (22), (63). The '486 patent is involved in IPR2018-00333, IPR2018-01166, IPR2018-01205, IPR2018-01220, and IPR2018-01225.

B. The '787 Patent³

The Specification of the '787 patent describes a semiconductor device that includes a light emitting semiconductor die mounted on first and second electrically conductive bonding pads. Ex. 1001, 2:6–8. Figure 7B, reproduced below, shows an embodiment of a semiconductor device with a light emitting diode (LED) die.

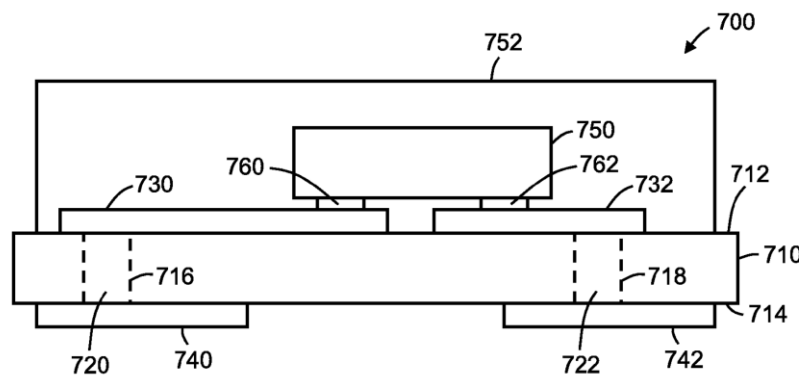


FIG. 7B

Figure 7B, reproduced above, shows a semiconductor device.

³ Petitioner contends, with reasoning and supporting evidence, that the challenged claims of the '787 patent are entitled only to the actual filing date of the '787 patent, and not the filing date of the '605 application. Pet. 4–5 (citing Ex. 1003 ¶¶ 25–34). Patent Owner does not dispute Petitioner's assertions. *See* PO Resp. Arguments not made in the Patent Owner Response are considered waived. Paper 16, 5. We agree with Petitioner's showing, which we adopt, that the challenged claims of the '787 patent are not entitled to priority to the '605 application.

As seen in Figure 7B, semiconductor device 700 includes substrate 710, interconnecting elements 720 and 722, bonding pads 730 and 732, connecting pads 740 and 742, and LED die 750 with bond pads 760 and 762 on the lower major surface of the LED die. *Id.* at 12:7–9, 12:35–39. Bonding pads 730 and 732 are “located on” upper major surface 712 of substrate 710. *Id.* at 12:21–22. Connecting pads 740 and 742 are located on lower major surface 714 of substrate 710. *Id.* at 12:31–32. Bond pads 760 and 762 are located on the bottom major surface of the LED die and connected to the anode and cathode of the LED die. *Id.* at 12:40–42.

C. Illustrative Claim

Petitioner challenges claims 1–14 of the ’787 patent. Claims 1, 7, and 11 are independent claims. Claim 1 is reproduced below.

1. A semiconductor device comprising:
 - a substantially planar substrate having first and second major surfaces, the first and second major surfaces being opposed surfaces; and
 - a light emitting semiconductor die comprising a top major light emitting surface and an oppositely-disposed bottom major surface, the light emitting semiconductor die having an anode and a cathode on the bottom major surface of the light emitting semiconductor die, the anode and the cathode of the light emitting semiconductor die being electrically connected to first and second electrically conductive bonding pads located on the first major surface, the semiconductor light emitting die being mounted on at least the first electrically conductive bonding pad such that one of the anode and the cathode on the bottom major surface of the light emitting semiconductor die is electrically connected to the first electrically conductive bonding pad;
 - first and second electrically conductive connecting pads located on the second major surface;

a first electrically conductive interconnecting element electrically connected to the first electrically conductive bonding pad and the first electrically conductive connecting pad; and

a second electrically conductive interconnecting element electrically connected to the second electrically conductive bonding pad and the second electrically conductive connecting pad,

wherein the bottom major surface of the light emitting semiconductor die is a bottom surface of a substrate of the die, each of the anode and cathode comprises a metallization layer formed on the bottom major surface of the light emitting semiconductor die.

Id. at 14:7–39.

D. Instituted Grounds of Unpatentability

We instituted trial based on all asserted grounds of unpatentability under 35 U.S.C. as follows (Dec. 5, 31):

References	Basis ⁴	Challenged Claims
Lumbard ⁵ and Weeks ⁶	§ 103(a)	1–14
Lumbard and Wirth ⁷	§ 103(a)	1–14
Lumbard and Negley ⁸	§ 103(a)	1–14

⁴ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the ’787 patent has an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of 35 U.S.C. §§ 102 and 103.

⁵ U.S. Patent No. Re. 36,614, issued Mar. 14, 2000 (Ex. 1006, “Lumbard”).

⁶ U.S. Patent No. 6,611,002, filed Feb. 23, 2001, issued Aug. 26, 2003 (Ex. 1007, “Weeks”).

⁷ WO 2005/081319, filed Feb. 18, 2005, issued Sept. 1, 2005 (Ex. 1008, “Wirth”).

⁸ U.S. Patent Application Publication No. 2004/0217360 A1, filed Apr. 6, 2004, published Nov. 4, 2004 (Ex. 1009, “Negley”).

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