

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*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314(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.”). Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the Petition and Preliminary Response, we conclude the information presented shows that there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claims 1–14 of the ’787 patent.

A. *Related Matters*

The parties indicate that the ’787 patent is the subject of several court proceedings. Pet. 1; Paper 3, 2. The ’787 patent also is the subject of Board proceeding IPR2018-01260. Application 11/838,301 was filed August 14, 2007, and issued as the ’787 patent, but claims to be 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”). The ’486 patent is involved in IPR2018-00333, IPR2018-01166, IPR2018-01205, IPR2018-01220, and IPR2018-01225.

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

B. The '787 Patent²

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.

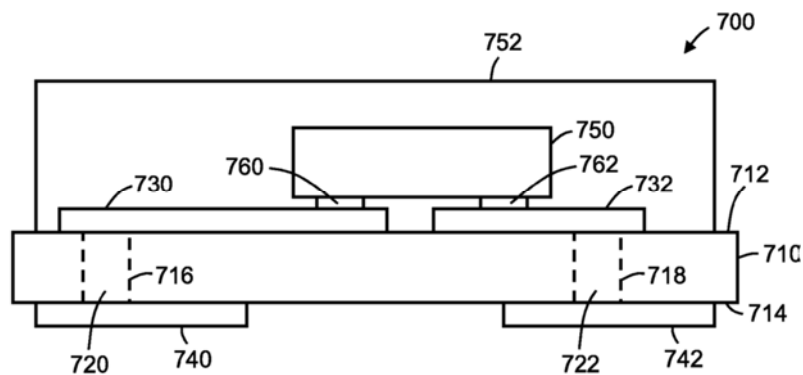


FIG. 7B

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

As seen from the above, semiconductor device 700 includes substrate 710, interconnecting elements 720 and 722, bonding pads 730 and 732, connecting pads 740 and 742, and an 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

² Petitioner contends, with reasoning and supporting evidence, that the '787 patent is entitled only to the benefit of its actual filing date, and not the filing date of the '605 application. Pet. 4–5 (citing Ex. 1003 ¶¶ 25–34). Patent Owner does not, at this time, dispute Petitioner’s assertions. *See* Prelim. Response.

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 Claims

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. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–14 are unpatentable based on the following grounds (Pet. 4):

References	Basis	Challenged Claims
Lumbard ³ and Weeks ⁴	§ 103(a)	1–14
Lumbard and Wirth ⁵	§ 103(a)	1–14
Lumbard and Negley ⁶	§ 103(a)	1–14
Ishidu ⁷ and Weeks	§ 103(a)	1 and 5–7
Ishidu and Wirth	§ 103(a)	1 and 5–7
Ishidu and Negley	§ 103(a)	1 and 5–7
Ogawa ⁸ and Weeks	§ 103(a)	1–14
Ogawa and Wirth	§ 103(a)	1–14
Ogawa and Negley	§ 103(a)	1–14

³ U.S. Patent No. Re. 36,614, issued Mar. 14, 2000 (Ex. 1006, “Lumbard”).

⁴ U.S. Patent No. 6,611,002, filed Feb. 23, 2001, issued Aug. 26, 2003 (Ex. 1007, “Weeks”).

⁵ WO 2005/081319, filed Feb. 18, 2005, issued Sept. 1, 2005 (Ex. 1008, “Wirth”).

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

⁷ U.S. Patent Application Publication No. 2006/0198162 A1, filed Mar. 15, 2004, published Sept. 7, 2006 (Ex. 1010, “Ishidu”).

⁸ U.S. Patent Application Publication No. 2006/0113906 A1, filed Nov. 29, 2005, published June 1, 2006 (Ex. 1011, “Ogawa”).

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