

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SEOUL SEMICONDUCTOR CO., LTD., and
SEOUL SEMICONDUCTOR, INC.,
Petitioner,

v.

DOCUMENT SECURITY SYSTEMS, INC.,
Patent Owner.

Case IPR2018-00522
Patent 7,524,087 B1

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

DOUGAL, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Seoul Semiconductor Co., Ltd. and Seoul Semiconductor, Inc. (“Petitioner”)¹ filed a Petition (Paper 2, “Pet.”) to institute an *inter partes* review of claims 1, 6–8, 15, and 17 (the “challenged claims”) of U.S. Patent 7,524,087 B1 (Ex. 1001, the “’087 patent”). Document Security Systems, Inc. (“Patent Owner”) timely filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review of all challenged claims. Paper 10 (“Dec.”).

Patent Owner filed a Patent Owner’s Response (Paper 20, “PO Resp.”), Petitioner filed a Reply (Paper 21, “Reply”), and Patent Owner filed a Patent Owner’s Sur-Reply (Paper 24, “Sur-Reply”). An oral hearing was held on April 4, 2019, and a copy of the transcript was entered into the record. Paper 32 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the claims on which we instituted trial. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). Having reviewed the arguments of the parties and the supporting evidence, we determine that Petitioner has shown, by a preponderance of the evidence, that the challenged claims of the ’087 patent are unpatentable.

¹ Everlight Electronics Co., Ltd., which had previously been joined as a petitioner (IPR2018-01226, Paper 15), has been terminated as a party. Paper 33.

B. Related Proceedings

The parties indicate that the '087 patent is involved in the following: *Document Security Systems, Inc. v. Seoul Semiconductor Co.*, No. 8:17-cv-00981 (C.D. Cal.); *Document Security Systems, Inc. v. Cree, Inc.*, No. 2:17-cv-04263 (C.D. Cal.); *Document Security Systems, Inc. v. Everlight Electronics Co.*, No. 2:17-cv-04273 (C.D. Cal.); *Document Security Systems, Inc. v. OSRAM GmbH*, No. 2:17-cv-05184 (C.D. Cal.); *Document Security Systems, Inc. v. Lite-On, Inc.*, No. 2:17-cv-06050 (C.D. Cal.); and *Document Security Systems, Inc. v. Nichia Corp.*, No. 2:17-cv-08849 (C.D. Cal.). Pet. 5; Paper 5, 2.

Patent Owner informs us that IPR2018-01165 (instituted December 11, 2018) and IPR2018-01221 (institution denied November 13, 2018) challenge(d) the '087 patent. Paper 9, 2–3. Patent Owner indicates that the following additional pending *inter partes* reviews are related to the present *inter partes* review: IPR2018-00965, IPR2018-00966, and IPR2018-01166. *Id.*

C. The '087 Patent

The '087 patent generally relates to an optical device with a light emitting diode (LED) die, such as for use in a large display panel. Ex. 1001, Abstract, 1:5–8, 59–61. Top and bottom perspective views of an optical device are illustrated in Figures 1 and 2, reproduced below. *Id.* at 1:25–28.

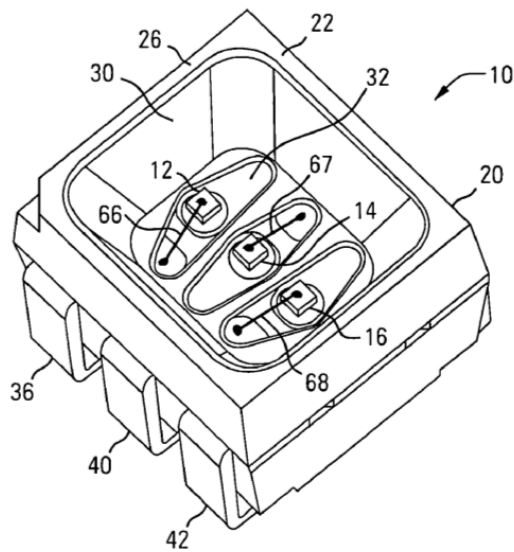


FIG. 1

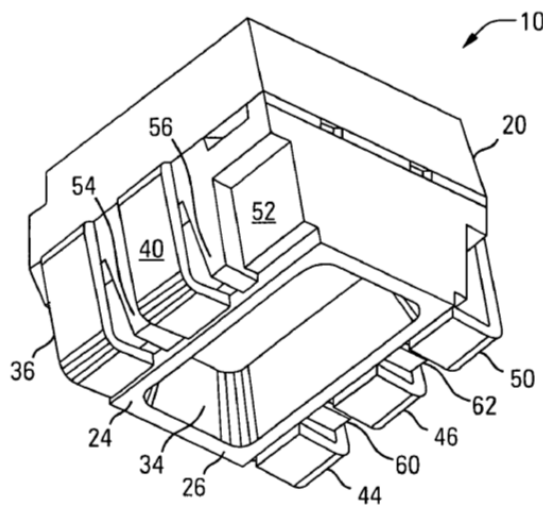


FIG. 2

The top (Fig. 1) and bottom (Fig. 2) views of the optical device 10 show a housing 20 with a top cavity 30 and a bottom cavity 34, with LED dies 12, 14, 16 mounted in the top cavity. *Id.* at 2:5–24. The housing 20 has a top face 22, a bottom face 24, and a peripheral wall 26 extending therebetween. *Id.* at 2:12–17. A lead frame 32 is provided, which can include a number of leads 36, 40, 42, 44, 46, 50. *Id.* at 2:35–37. Each of the leads is

positioned at a lead receiving compartment 52 in the housing 20. *Id.* at 2:38–39, 64–67.

Of the challenged claims, claims 1 and 15 are independent, claims 6–8 depend from claim 1, and claim 17 depends from claim 15. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An optical device comprising:
 - a lead frame with a plurality of leads;
 - a reflector housing formed around the lead frame, the reflector housing having a first end face and a second end face and a peripheral sidewall extending between the first end face and the second end face, the reflector housing having a first pocket with a pocket opening in the first end face and a second pocket with a pocket opening in the second end face;
 - at least one LED die mounted in the first pocket of the reflector housing;
 - a light transmitting encapsulate disposed in the first pocket and encapsulating the at least one LED die;
 - and
 - wherein a plurality of lead receiving compartments are formed in the peripheral sidewall of the reflector housing.

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