

(54) **SEMICONDUCTOR CHIP MOUNTING SUBSTRATE, ELECTROOPTICAL DEVICE, LIQUID-CRYSTAL DEVICE, ELECTROLUMINESCENT DEVICE, AND ELECTRONIC EQUIPMENT**

JP 08-095075 A 4/1996  
JP 09-304787 11/1997  
JP 11-052405 2/1999  
JP 2000-275666 10/2000  
JP 2000-284261 A 10/2000  
JP 2000-284261 10/2000

(75) Inventors: **Takatomo Toda**, Toyoshina-machi (JP);  
**Naoki Makino**, Matsumato (JP)

**OTHER PUBLICATIONS**

(73) Assignee: **Seiko Epson Corporation (JP)**

Communication from Japanese Patent Office re counterpart application.

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 160 days.

Communication from Korean Patent Office re counterpart application.

(21) Appl. No.: **09/999,207**

(22) Filed: **Nov. 30, 2001**

(65) **Prior Publication Data**

US 2002/0088984 A1 Jul. 11, 2002

(30) **Foreign Application Priority Data**

Nov. 30, 2000 (JP) ..... 2000-365715  
Oct. 15, 2001 (JP) ..... 2001-317142

(51) **Int. Cl.**<sup>7</sup> ..... **H01L 31/0203**; G09G 3/36;  
G03H 1/04

(52) **U.S. Cl.** ..... **257/434**; 345/98; 359/58

(58) **Field of Search** ..... 257/432, 434,  
257/446; 349/122, 151, 152; 354/98; 359/58

(56) **References Cited**

**FOREIGN PATENT DOCUMENTS**

JP 04-93826 8/1992

*Primary Examiner*—Amir Zarabian

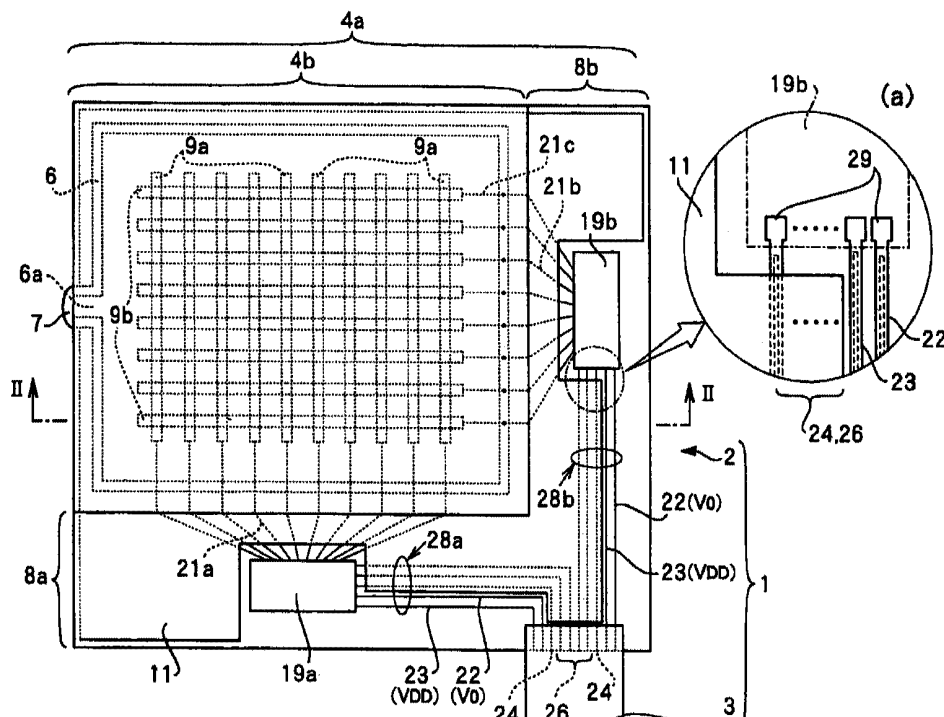
*Assistant Examiner*—Kiesha Rose

(74) *Attorney, Agent, or Firm*—Harness, Dickey & Pierce, P.L.C.

(57) **ABSTRACT**

Disclosed is a semiconductor chip mounting substrate **4a** bearing semiconductor chips **19a** and **19b** thereof. The first substrate **4a** includes a power source line **22** for supplying a supply voltage potential to the semiconductor chips **19a** and **19b**, a ground line **23** for supplying a ground voltage potential to the semiconductor chips **19a** and **19b**, output lines **21a** and **21b** to which an output signal is supplied from the semiconductor chips **19a** and **19b**, and an insulator layer **11** for covering the output lines **21a** and **21b**. The insulator layer **11** is formed so that no insulator layer is arranged in the area between the power source line **22** and the ground line **23**.

**10 Claims, 21 Drawing Sheets**





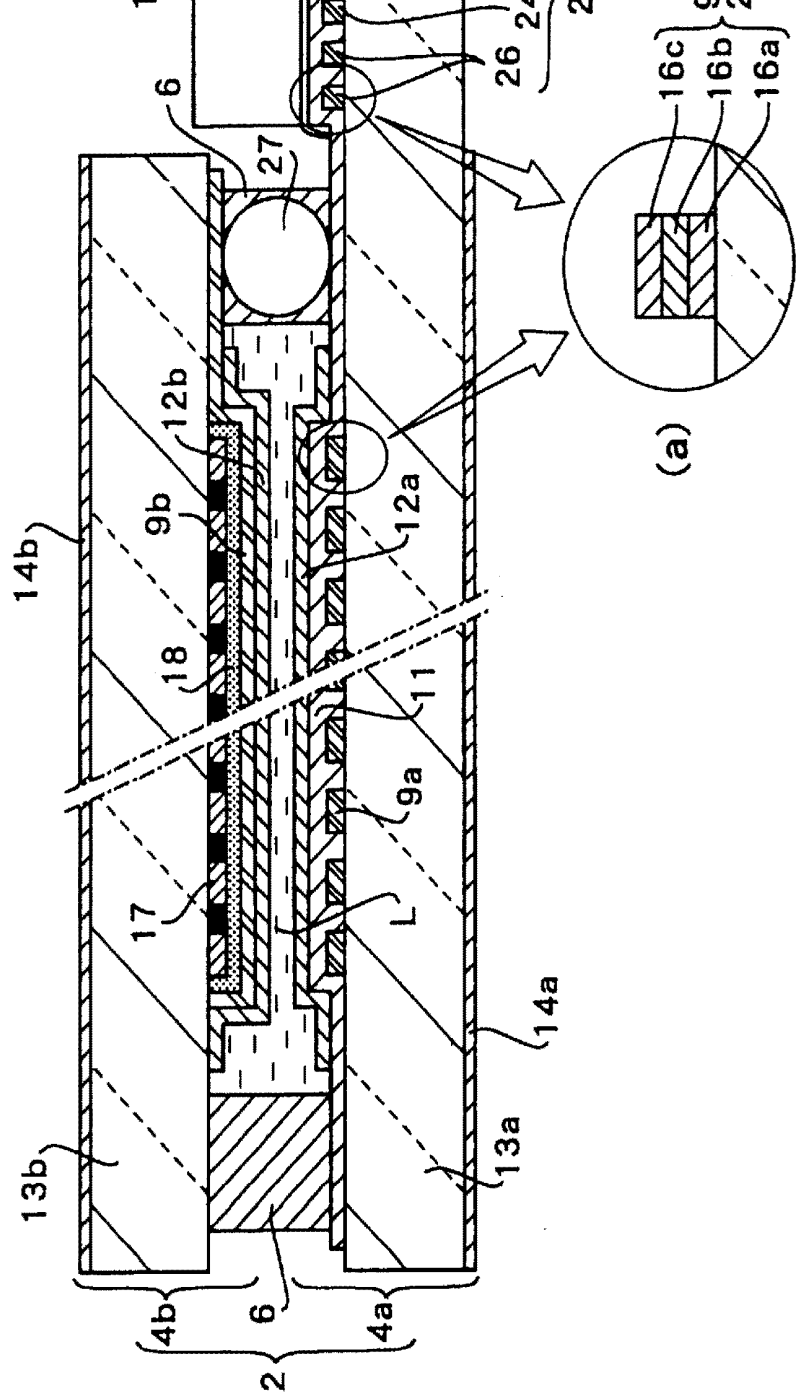


FIG. 3

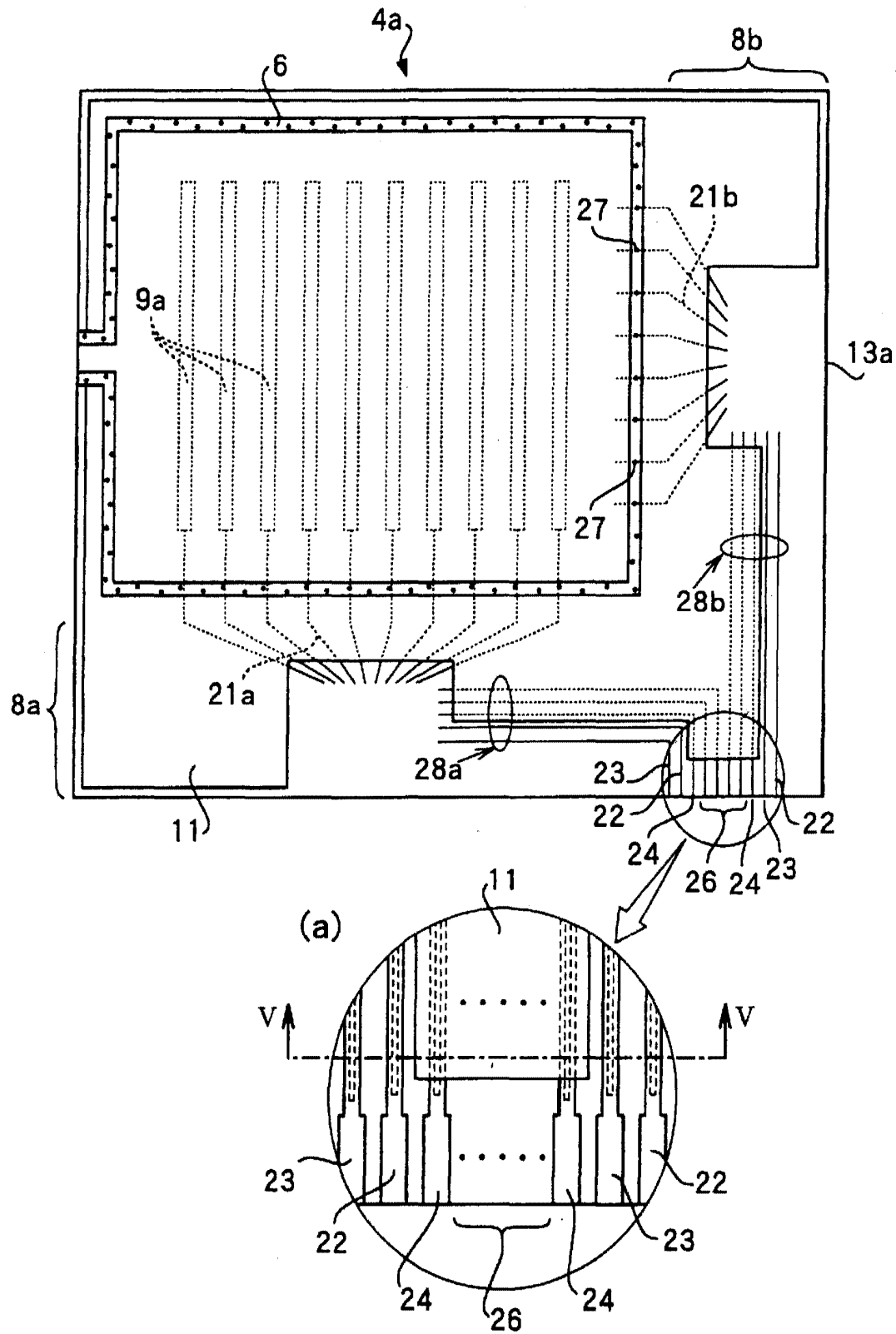
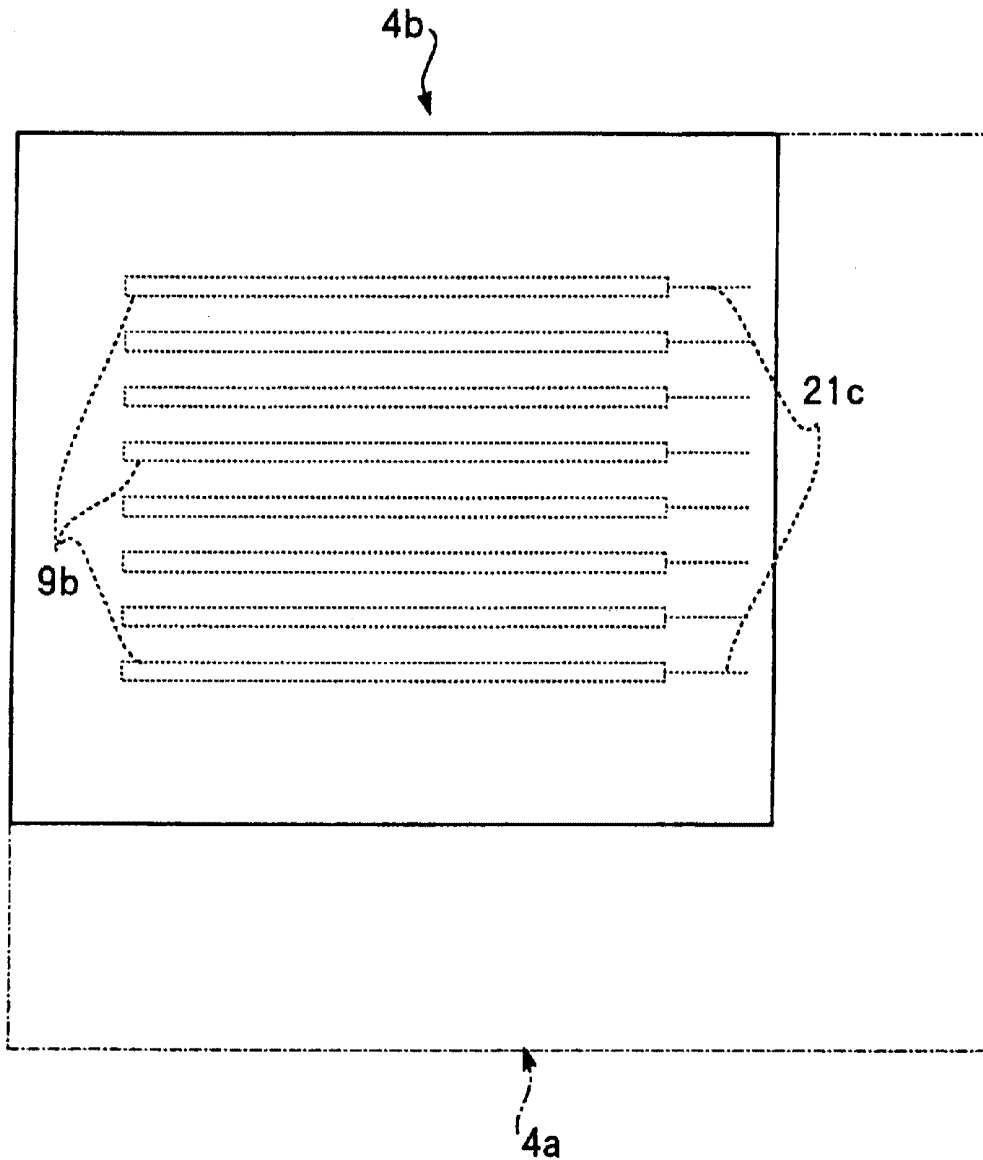


FIG. 4



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.