



US 20240215291A1

(19) **United States**

(12) **Patent Application Publication**
SASAGAWA et al.

(10) **Pub. No.: US 2024/0215291 A1**

(43) **Pub. Date: Jun. 27, 2024**

(54) **DISPLAY DEVICE AND METHOD FOR
MANUFACTURING THE DISPLAY DEVICE**

Publication Classification

(71) Applicant: **SEMICONDUCTOR ENERGY
LABORATORY CO., LTD.**,
Atsugi-shi, Kanagawa-Ken (JP)

(72) Inventors: **Shinya SASAGAWA**, Chigasaki,
Kanagawa (JP); **Ryota HODO**, Atsugi,
Kanagawa (JP); **Hiroaki HONDA**,
Odawara, Kanagawa (JP); **Yasunori
SASAMURA**, Hiratsuka, Kanagawa
(JP)

(21) Appl. No.: **18/555,927**

(22) PCT Filed: **Apr. 11, 2022**

(86) PCT No.: **PCT/IB2022/053349**

§ 371 (c)(1),

(2) Date: **Oct. 18, 2023**

(30) **Foreign Application Priority Data**

Apr. 23, 2021 (JP) 2021-073256

(51) **Int. Cl.**

H10K 50/13 (2006.01)

H10K 59/131 (2006.01)

H10K 71/00 (2006.01)

H10K 71/40 (2006.01)

H10K 71/60 (2006.01)

(52) **U.S. Cl.**

CPC **H10K 50/13** (2023.02); **H10K 59/131**

(2023.02); **H10K 71/40** (2023.02); **H10K**

71/60 (2023.02); **H10K 71/621** (2023.02)

(57)

ABSTRACT

Provided is a display device with high display quality. The display device includes a first pixel and a second pixel provided to be adjacent to the first pixel. The first pixel includes a first pixel electrode, a first EL layer over the first pixel electrode, and a common electrode over the first EL layer; the second pixel includes a second pixel electrode, a second EL layer over the second pixel electrode, and the common electrode over the second EL layer; each of the first pixel electrode and the second pixel electrode has a tapered shape on a side surface; a taper angle of the tapered shape is smaller than 90 degrees; and the display device includes a region where the distance between the first pixel electrode and the second pixel electrode is less than or equal to one micrometer.

