



US 20240179942A1

(19) **United States**
(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0179942 A1**
LEE et al. (43) **Pub. Date: May 30, 2024**

(54) **DISPLAY APPARATUS**

(71) Applicant: **SAMSUNG DISPLAY CO., LTD.**,
Yongin-si (KR)

(72) Inventors: **Sunhee LEE**, Yongin-si (KR); **Sunho KIM**, Yongin-si (KR); **Gunhee KIM**, Yongin-si (KR); **Donghwan SHIM**, Yongin-si (KR); **Taehoon YANG**, Yongin-si (KR)

(21) Appl. No.: **18/437,934**

(22) Filed: **Feb. 9, 2024**

Related U.S. Application Data

(63) Continuation of application No. 18/059,776, filed on Nov. 29, 2022, now Pat. No. 11,903,242, which is a continuation of application No. 17/024,110, filed on Sep. 17, 2020, now Pat. No. 11,515,506.

Foreign Application Priority Data

Oct. 29, 2019 (KR) 10-2019-0135588

Publication Classification

(51) **Int. Cl.**
H10K 50/844 (2006.01)
G02F 1/1333 (2006.01)
G06F 1/16 (2006.01)

G09F 9/30 (2006.01)

H01L 27/146 (2006.01)

H10K 59/124 (2006.01)

H10K 59/131 (2006.01)

H10K 59/35 (2006.01)

H10K 77/10 (2006.01)

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

CPC **H10K 50/8445** (2023.02); **H10K 59/124** (2023.02); **H10K 59/131** (2023.02); **H10K 77/111** (2023.02); **G02F 1/133305** (2013.01); **G06F 1/1652** (2013.01); **G09F 9/301** (2013.01); **G09G 2300/0408** (2013.01); **G09G 2300/0804** (2013.01); **G09G 2380/02** (2013.01); **H01L 27/14678** (2013.01); **H10K 59/35** (2023.02); **H10K 59/351** (2023.02)

ABSTRACT

A display apparatus includes: a substrate including a display area and a peripheral area around the display area, the substrate having a bent portion; a plurality of display elements in the display area; and a thin film encapsulation layer over the plurality of display elements and including a first encapsulation layer, a second encapsulation layer over the first encapsulation layer, and an organic encapsulation layer between the first encapsulation layer and the second encapsulation layer, wherein the second encapsulation layer includes a plurality of inorganic thin layers and a plurality of organic thin layers alternately arranged, and a thickness of the second encapsulation layer is equal to or less than a thickness of the first encapsulation layer.

