

# (19) United States

## (12) Patent Application Publication (10) Pub. No.: US 2022/0377903 A1 ZHANG et al.

Nov. 24, 2022 (43) **Pub. Date:** 

### (54) **DISPLAY DEVICE**

(71) Applicants: Chengdu BOE Optoelectronics

Technology Co., Ltd., Chengdu, Sichuan (CN); BOE TECHNOLOGY GROUP CO., LTD., Beijing (CN)

(72) Inventors: Shuang ZHANG, Beijing (CN);

Xiaoxia HUANG, Beijing (CN); Jiangsheng WANG, Beijing (CN); Jianjun WU, Beijing (CN); Xuerui GONG, Beijing (CN); Bing JI, Beijing

(73) Assignees: Chengdu BOE Optoelectronics

Technology Co., Ltd., Chengdu, Sichuan (CN); BOE TECHNOLOGY GROUP CO., LTD., Beijing (CN)

(21) Appl. No.: 16/964,109

(22) PCT Filed: Oct. 31, 2019

(86) PCT No.: PCT/CN2019/114879

§ 371 (c)(1),

Jul. 22, 2020 (2) Date:

### **Publication Classification**

(51) Int. Cl.

H05K 1/18 (2006.01)H01L 51/52 (2006.01) H01L 25/18 (2006.01)H05K 1/02 (2006.01)G06F 3/041 (2006.01)

(52)U.S. Cl.

> CPC ...... H05K 1/189 (2013.01); H01L 51/529 (2013.01); H01L 25/18 (2013.01); H05K 1/0281 (2013.01); G06F 3/0412 (2013.01); H01L 2251/5338 (2013.01); H05K 2201/2009 (2013.01); H05K 2201/10128 (2013.01); H05K 2201/10537 (2013.01); H05K 2201/10151 (2013.01)

#### (57) ABSTRACT

A display device includes a display substrate, a touch module and a ring structure. The display substrate includes a first portion for display, a second portion located at a non-display side of the first portion of the display substrate, and a first bent portion for connecting the first portion and the second portion, and a first driver is provided at a side of the second portion away from the first portion. The touch module includes a touch layer and a touch flexible circuit board connected with the touch layer, the touch flexible circuit board includes a flat portion located at a side of the second portion away from the first portion and a second bent portion for connecting the touch layer and the flat portion. The ring structure is located between the flat portion of the touch flexible circuit board and the second portion of the display substrate.

