Small Sized AMOLED Manufacturing Process Report

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- 5.6 Module process equipment layout



1. AMOLED structure

1.2 Foldable OLED panel structure

Small Foldable OLED Panel _Galaxy Z Fold5

- From 'Galaxy Z Fold 3' to 'Galaxy Z Fold 5', two digitizers are placed on the left and right for use with the touch pen, and carbon fiber reinforced plastic (CFRP) is used to protect the digitizers.
- Until 'Galaxy Z Fold2', a polarizer was used to prevent reflection, but from 'Galaxy Z Fold3', color filter on encapsulation (COE) technology is being applied.
- \cdot UTG and PET were used for the cover window and back film, respectively.

Foldable OLED structure for 'Galaxy Z Fold5'



1. AMOLED structure

1.2 Foldable OLED panel structure

Medium to large size Foldable OLED panel _ThinkPad X1 Fold

- The cover window material of the foldable OLED laptop 'ThinkPad X1 Fold' is colorless PI, and a hard coating layer on the top and bottom protects the cover window.
- The add-on method was applied to the touch, and PI was used as the back film.
- The bottom of the back film is lined with metal foil and metal for shock prevention and heat dissipation. Plate is attached.

Foldable OLED structure for 'ThinkPad X1 Fold'



2. TFT manufacturing process

2.1 LTPS TFT basic manufacturing process

Flexible 7 Mask LTPS TFT manufacturing process

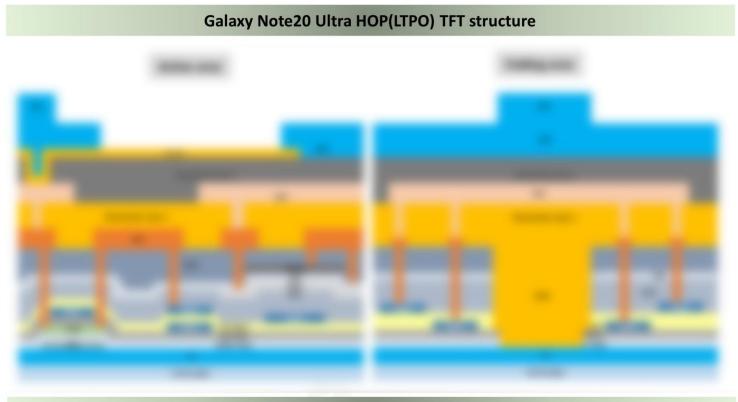


2. TFT manufacturing process

2.4 Galaxy Note20 Ultra HOP(LTPO) TFT manufacturing process

 \cdot Analyzed the basic structure and process of the LTPO TFT applied to the Galaxy Note20 Ultra .

 \cdot Because the process was analyzed by decapturing the actual structure , there may be differences from the actual process .



HOP(LTPO) TFT pixel circuit



3. OLED pixel and encapsulation manufacturing proces

3.3 Photolithography OLED (Applied Materials, eLEAP , VIP) Manufacturing Process

OLED pixel and encapsulation process



3.3 Photolithography OLED (Applied Materials, eLEAP , VIP) Manufacturing Process

OLED pixel and encapsulation process



3. OLED pixel and encapsulation manufacturing proces

3.4 Photolithography OLED (Semiconductor Energy Laboratory) Manufacturing Process

OLED pixel and encapsulation process



3. OLED pixel and encapsulation manufacturing proces

3.4 Photolithography OLED (Semiconductor Energy Laboratory) Manufacturing Process

OLED pixel process



4. Cell manufacturing process

4.4 Color Filter on Encapsulation manufacturing process

· Black matrix coating and patterning



5. Module manufacturing process

5.4 Foldable OLED manufacturing process

Foldable Module manufacturing process

