

AMOLED Manufacturing Process Report

Ver. 3

2020



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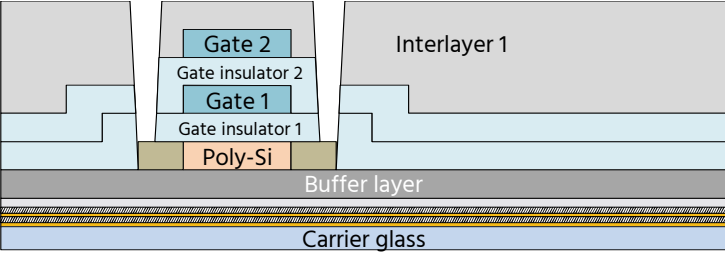
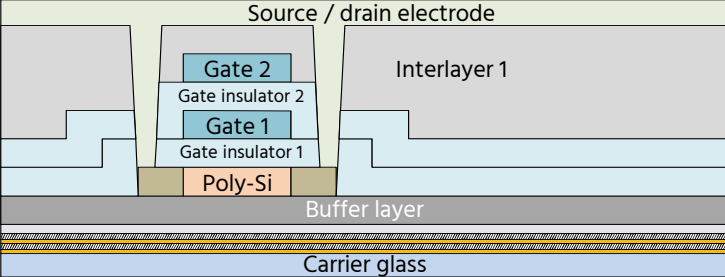
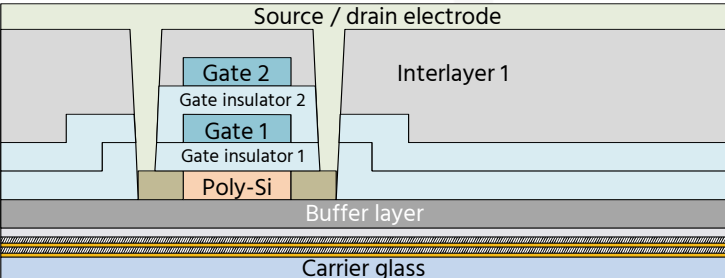
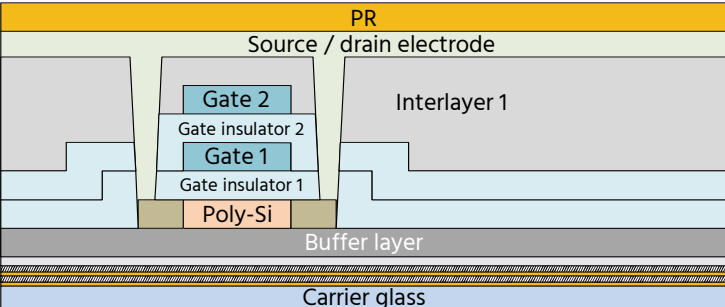
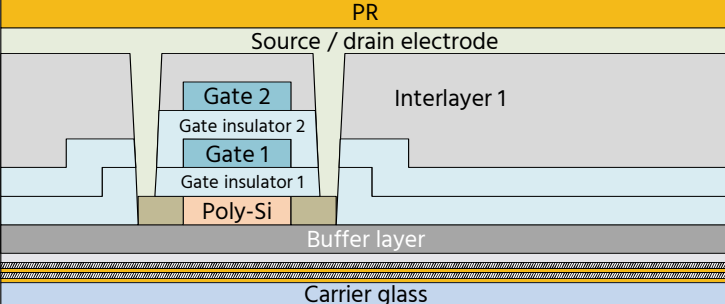
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2. TFT Manufacturing Process

2.3 Galaxy S20's LTPS TFT Manufacturing Process

- Source/drain electrode 1 deposition

LTPS TFT manufacturing process and equipment

Process	Materials	Equipment
	EUV, DI water	Cleaner
	Ti/Al/Ti	Sputter
	EUV	Cleaner
	Positive PR	Coater
	-	Oven

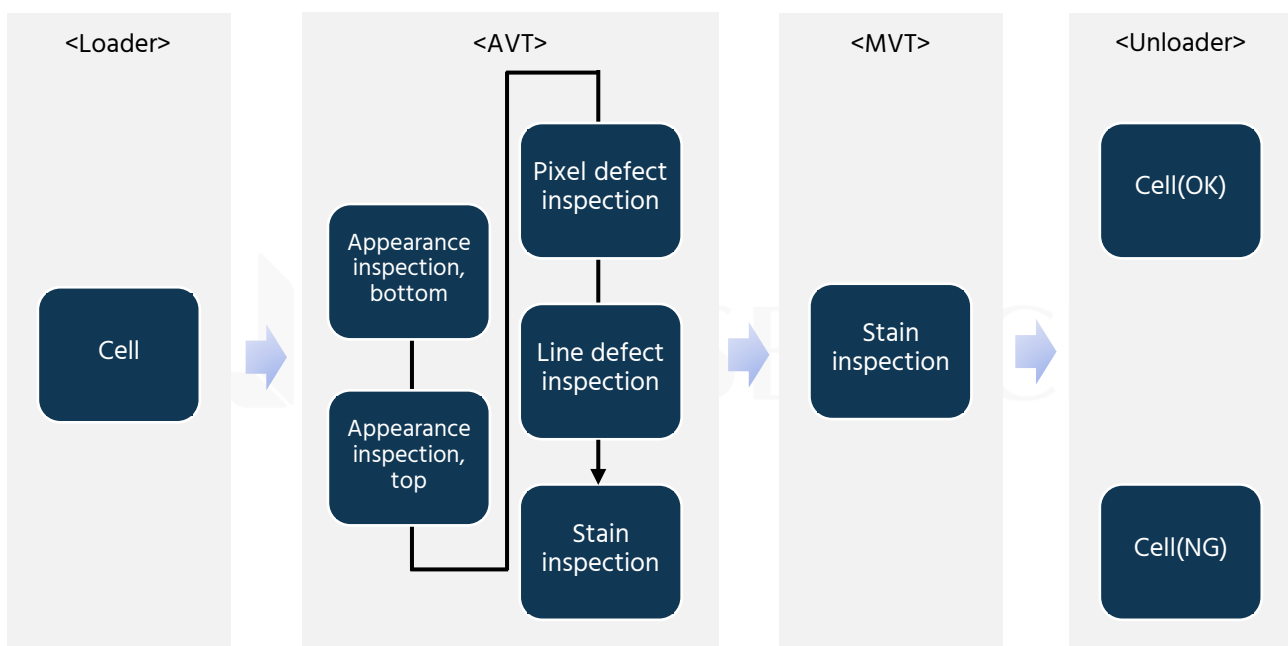
4. Cell Manufacturing Process

4.5 Cell Inspection and Measurement Process

AVT/MVT equipment

- AVT(auto vision tester) equipment is used to inspect the top and bottom of the OLED cell to check for defects such as scratches and cracks, and then to check for stain, pixel defect, line defect, etc.
- MVT(manual vision tester) equipment is used to inspect OLED cell to check for defects such as stains after AVT process.

Process of AVI and MVI, details

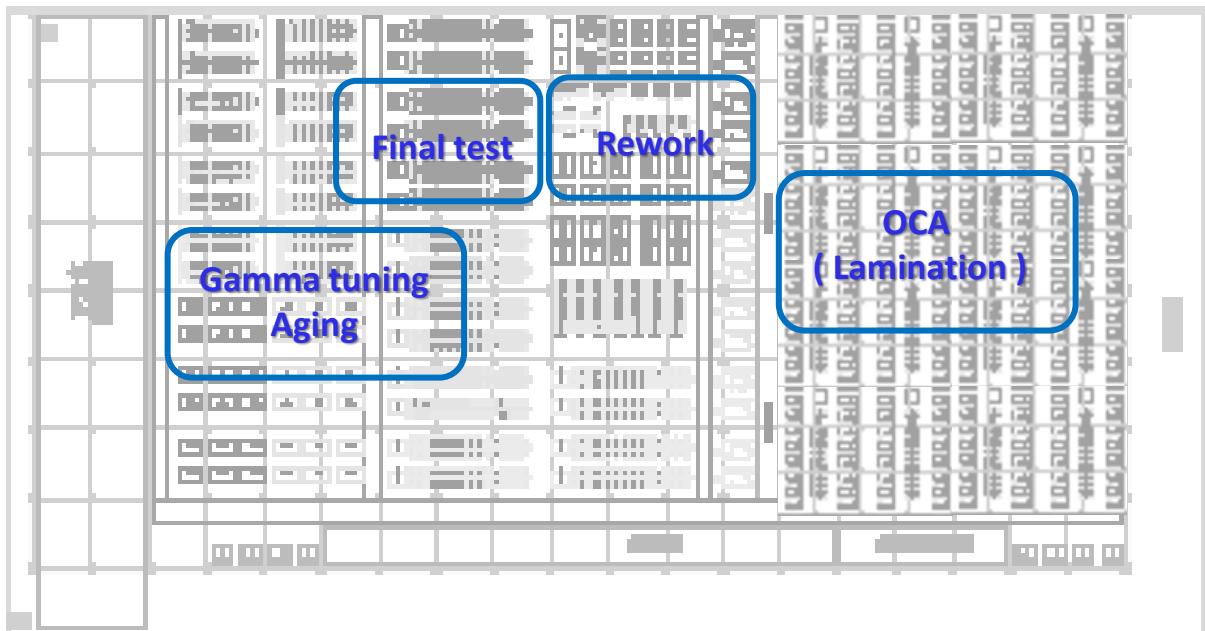
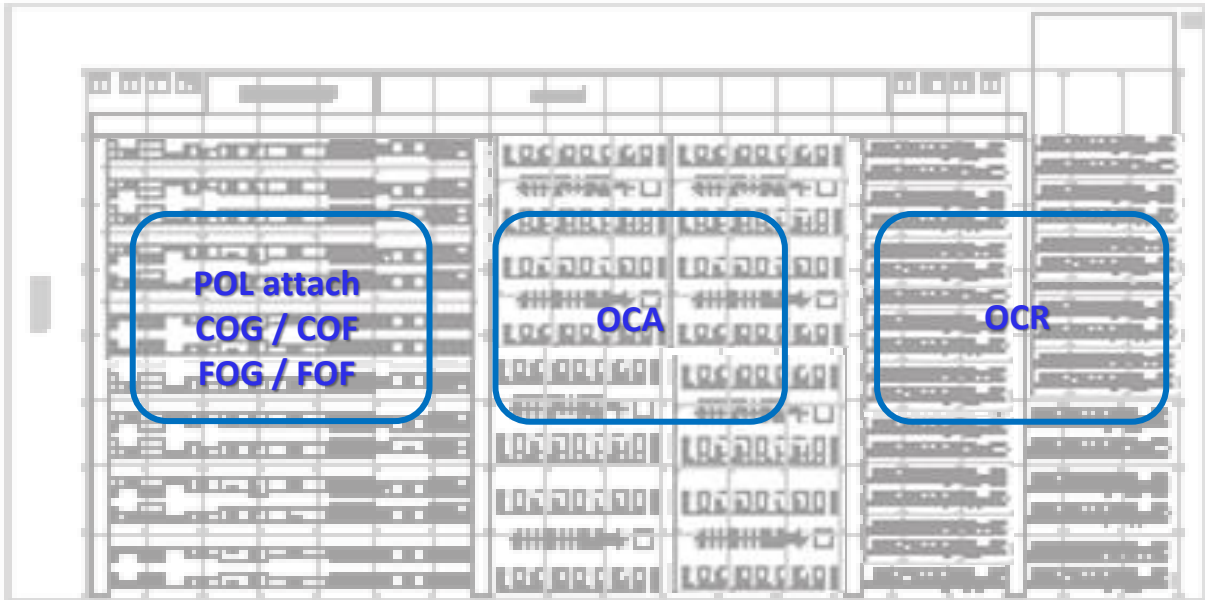


Equipment	Inspection	Details
AVT	Appearance inspection, bottom	Check for defects such as scratches and cracks
	Appearance inspection, top	
	Stain inspection	Automatic stain test
	Pixel defect inspection	Specific pixel defect test such as LD (line defect) and PD (point defect)
	Line defect inspection	Test for Line open/short
MVT	Stain inspection	Manual stain test

5. Module Manufacturing Process

5.1 Module Manufacturing Equipment Layout

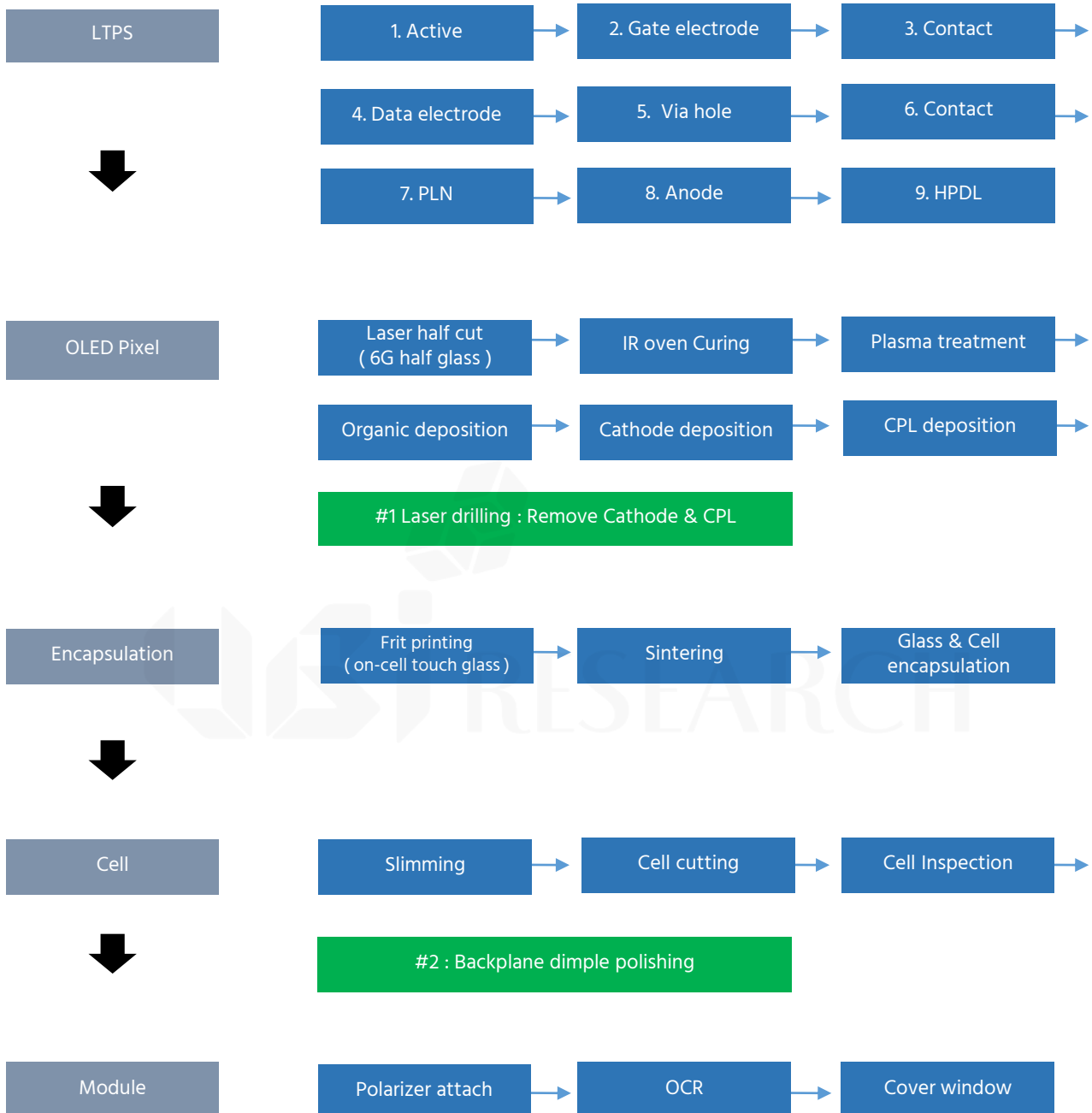
Module layout example



5. Module Manufacturing Process

5.4 Camera Punch Hole Manufacturing Process

Rigid type process



6. Apple Watch 5 LTPO TFT Manufacturing Process

6.2 Manufacturing Process

- IGZO patterning (mask #5)

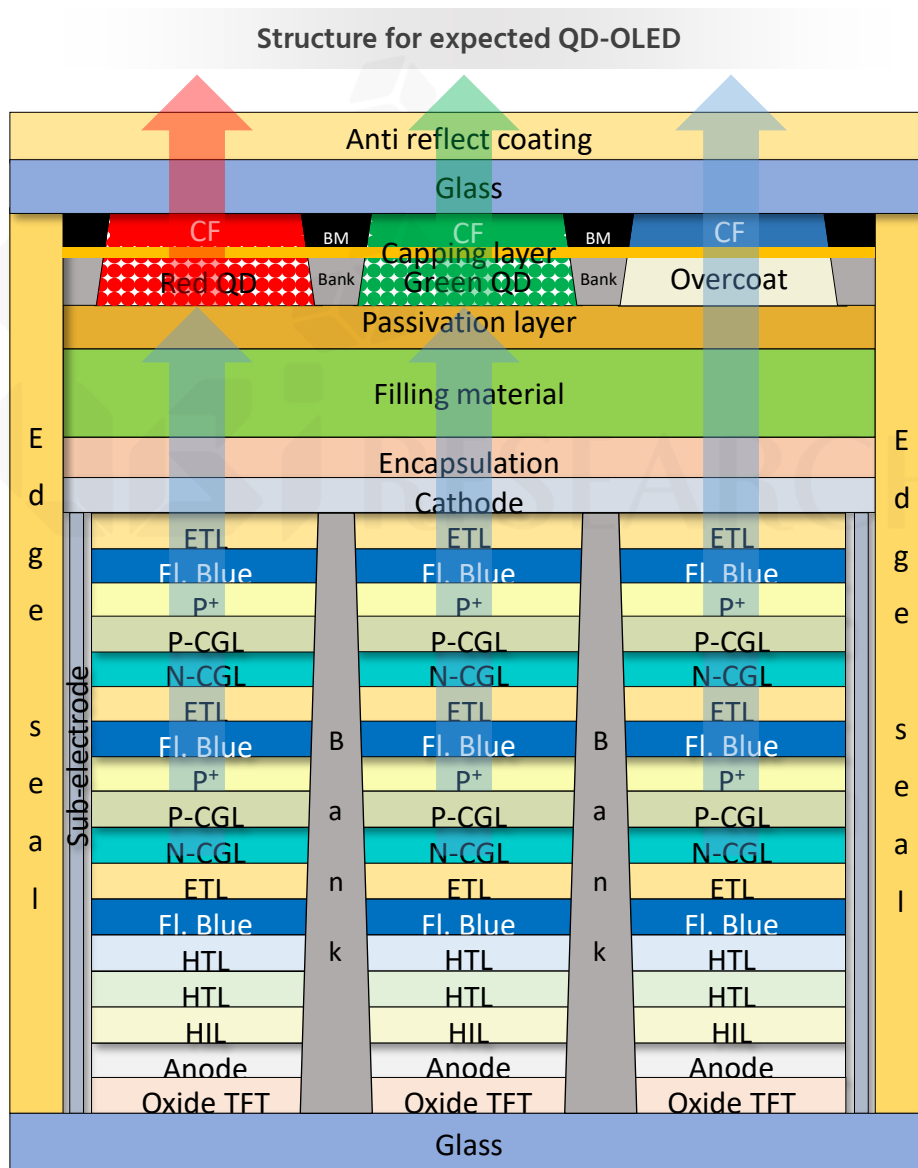
LTPO TFT manufacturing process and equipment

Process	Materials	Equipment
	-	Aligner
	TMAH	Developer
	-	Oven
	Wet chemical	Wet etcher
	Triethanol-amine	Stripper

7. QD-OLED Manufacturing Process

7.1 Expected Structure

- Oxide TFT is used, and OLED pixel is a 3 stack structure with top emission structure.
- It is expected that CF will be applied initially to prevent the emission of QD material caused by external incident light.
- It is expected that a capping layer will be added between the color filter and QD to improve light extraction.
- There is no polarizer, and anti-reflect coating is expected to be applied to the upper substrate to prevent reflection of external light.
- It is assumed that the inkjet process would be applied for QD layer.



Source: UBI Research DB