



SEMICON[®]
TAIWAN



Academia Sinica Academicians

Dr. Jien-Wei Yeh

(中央研究院葉均蔚院士)

**Application of high entropy alloy
in the semiconductor processes**

PANEL SEMI

PanelSemi Corporation

Hybrid Substrate

**TECHNOLOGY
SOURCE**



UNITED RESEARCH DESIGN

TECHNOLOGY CO.,LTD.

System Design / Vacuum Heating (IH)

**SMART IMAGING SENSOR
TECHNOLOGY INC.**

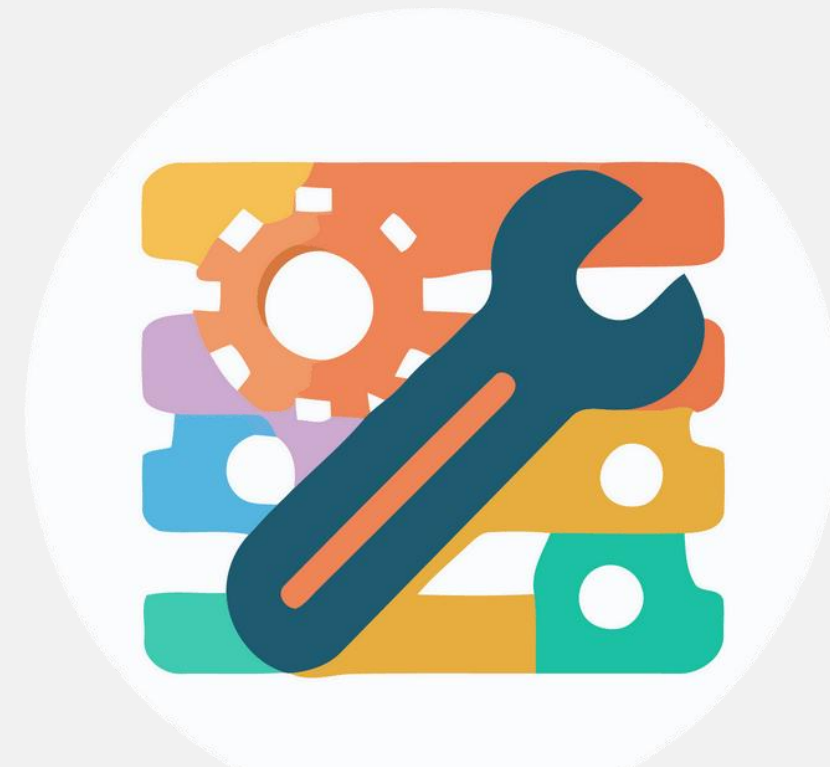
System Design / IC Design

Glass Substrate Advantage

- Important parts of the **Hybrid substrate**



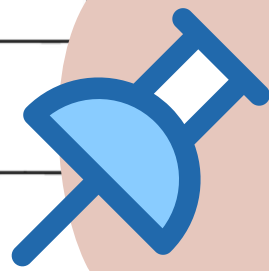
**Environmentally
Friendly**



**Better Physical
Properties**

PROCESS COLLABORATION PARTNER

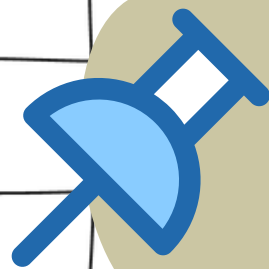




Capcon Limited Co., LTD.

-Bonder (Die 、 Ball 、 Pin)

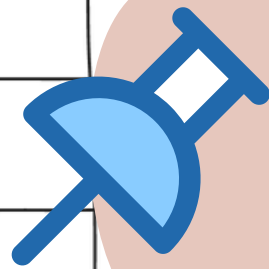
Booth: I2407



LeadinWay Co., Ltd / IRray Technology CO., LTD.

-Vacuum Heating (IR)

Booth: N0981



HAO QI INTERNATIONAL CO., LTD.

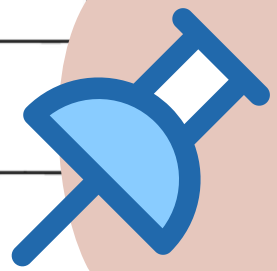
-Sputter (UBM / Dielectric)



REDEFINE INNOVATION LTD.

- AI + AOI

**REDEFINE
INNOVATION**



SUPERBIN COMPANY LTD.

-LDI

Booth: Q5930

SUPERBIN

Your best partner in laser processing

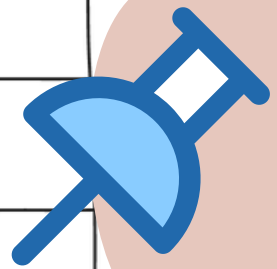


Altix

-DI



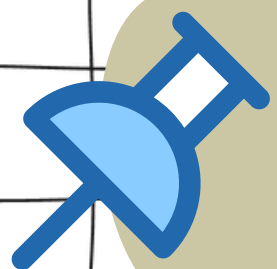
ALTIX



Capcon Motzen.

Booth: I2407

-Shot Peening/ Sandblasting



USUN TECHNOLOGY CO.,LTD.

-Slit Coating / Paste Filling

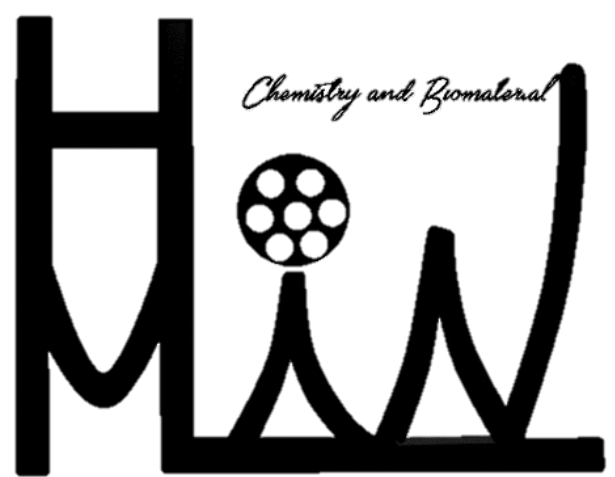
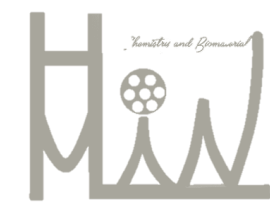


陽程科技股份有限公司

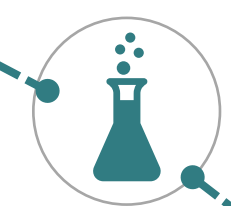
USUN TECHNOLOGY CO., LTD.



NTOU Hsiu-Mei Lin Lab



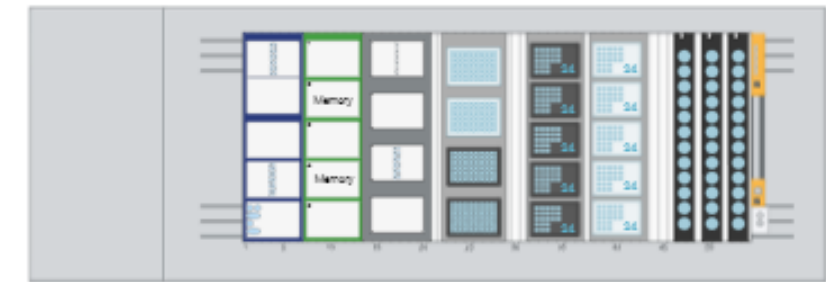
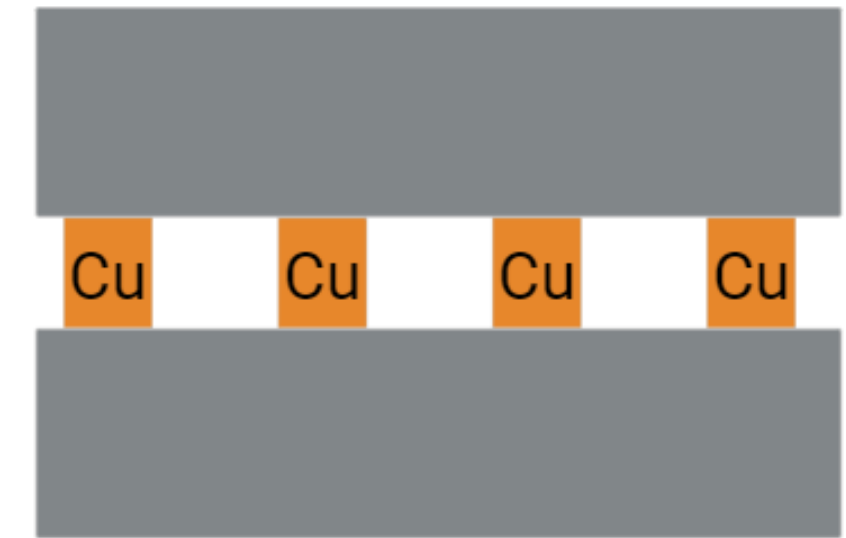
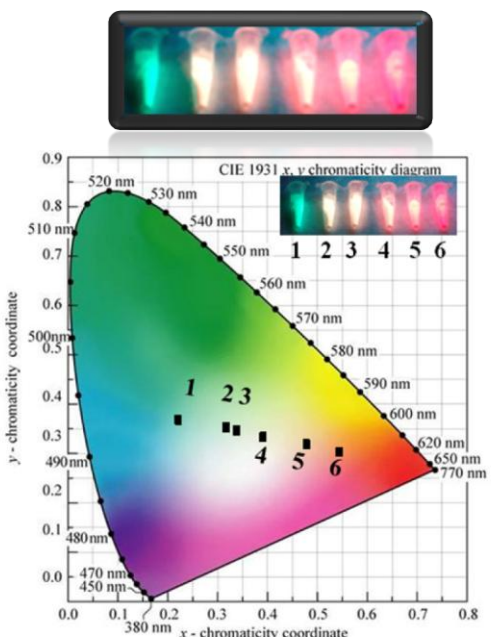
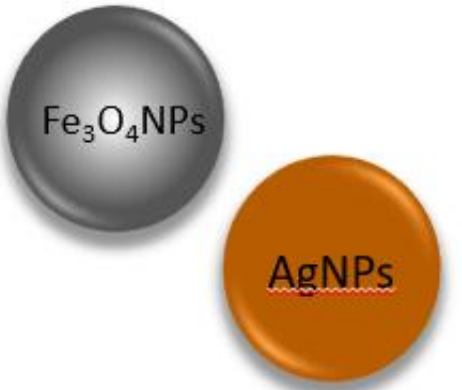
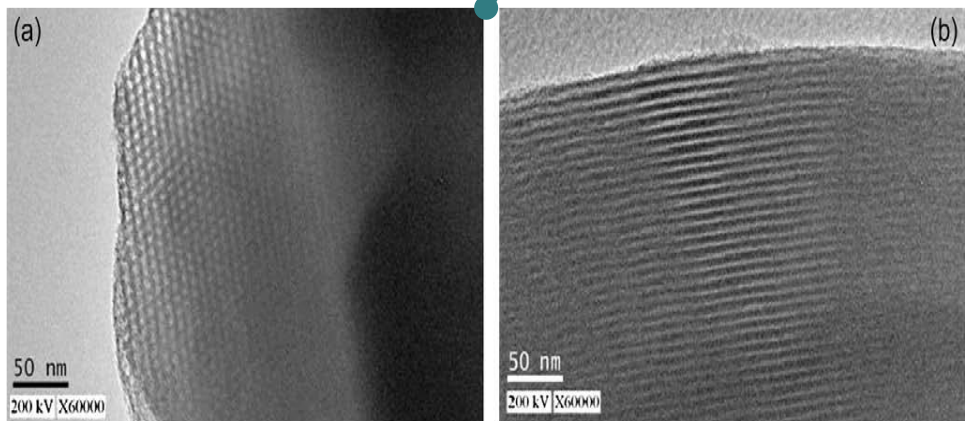
Advanced
Semiconductor
Packaging



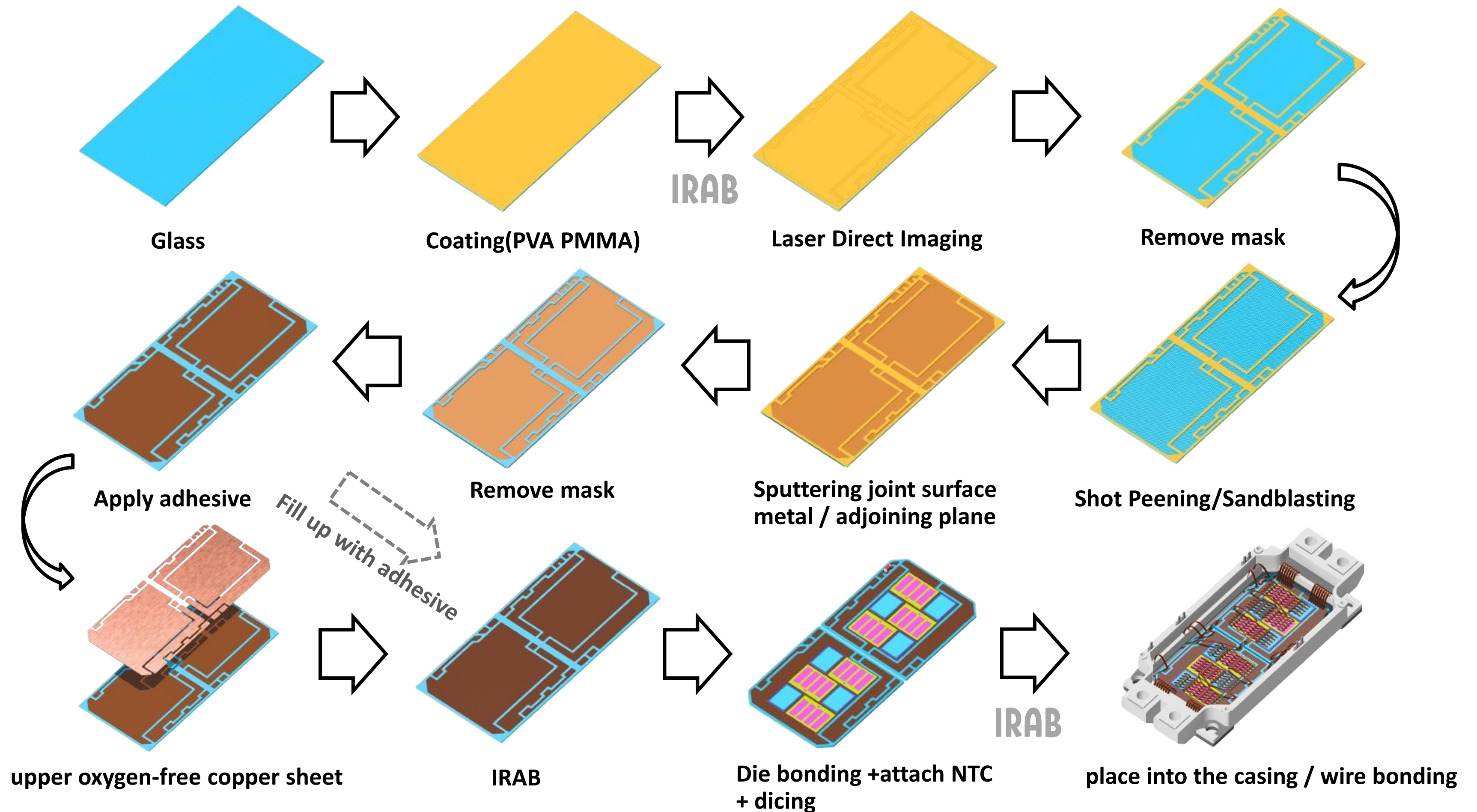
Ceramic
Materials

Metal
Nanomaterials

Fluorescent
Powder

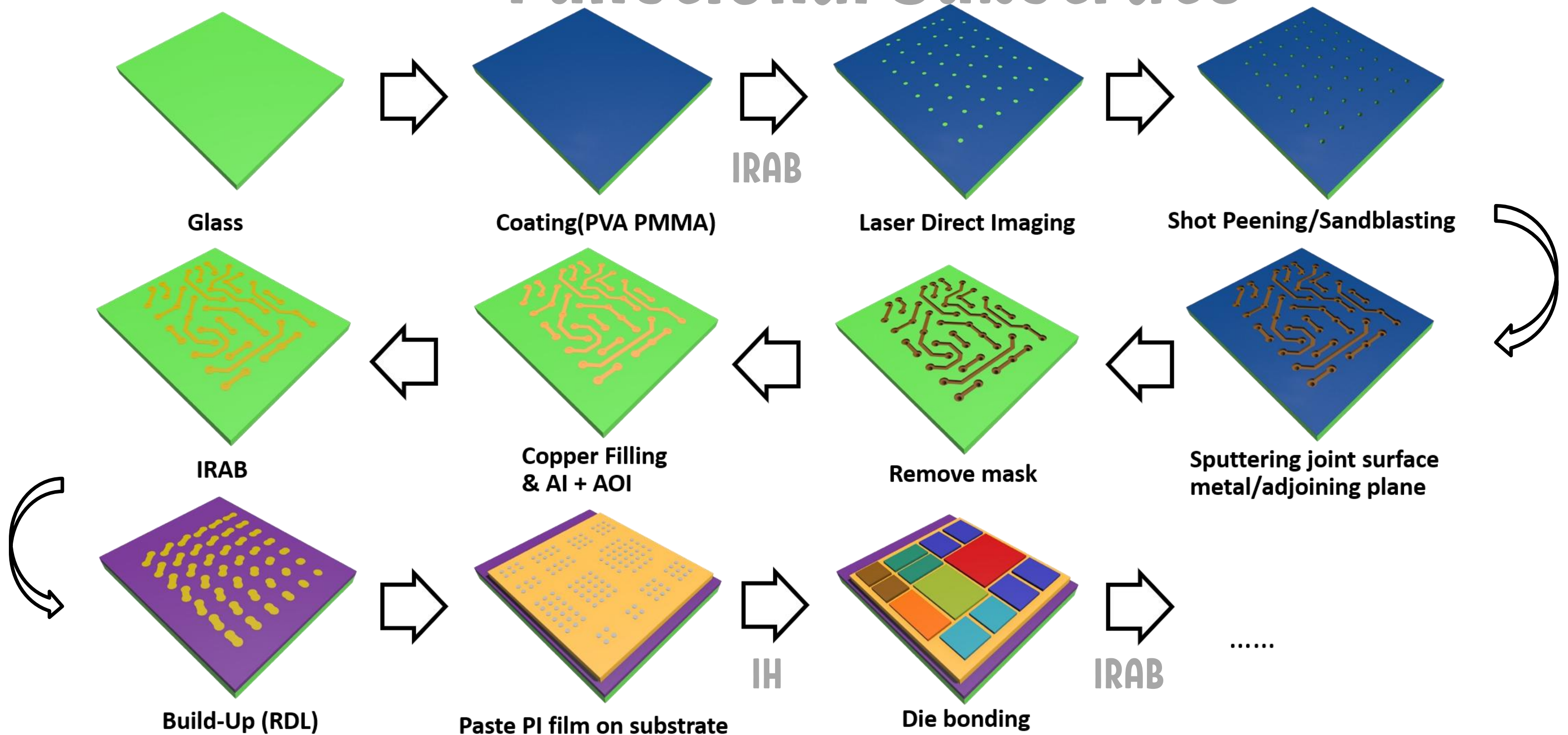


Glass Substrate process- IGBT



Glass Substrate process

- Functional Substrate



Disruptive Innovation for Display, Antenna & PKG

Display Revolution



Gen-1 : CRT



Gen-2 : LCD/OLED

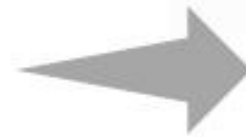


Gen-3 : Flexible LED

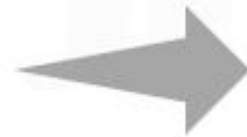
Antenna Revolution



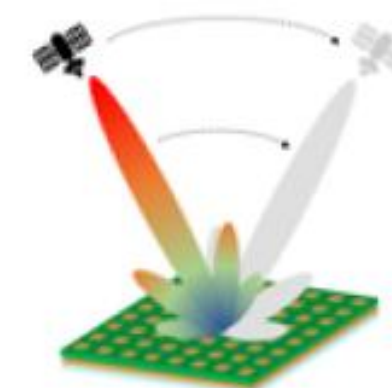
Dish Antenna



Starlink®



KYMETA®
(metasurface LC antenna)

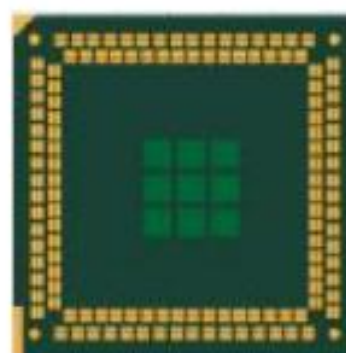


Panel Antenna

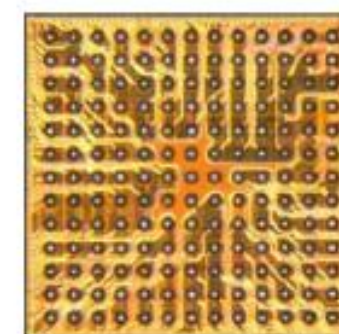
Semiconductor Package Revolution



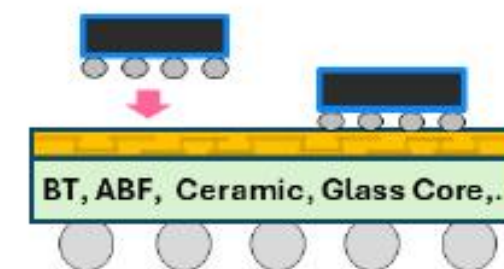
Leadframe



BGA
(Ball Grid Array)



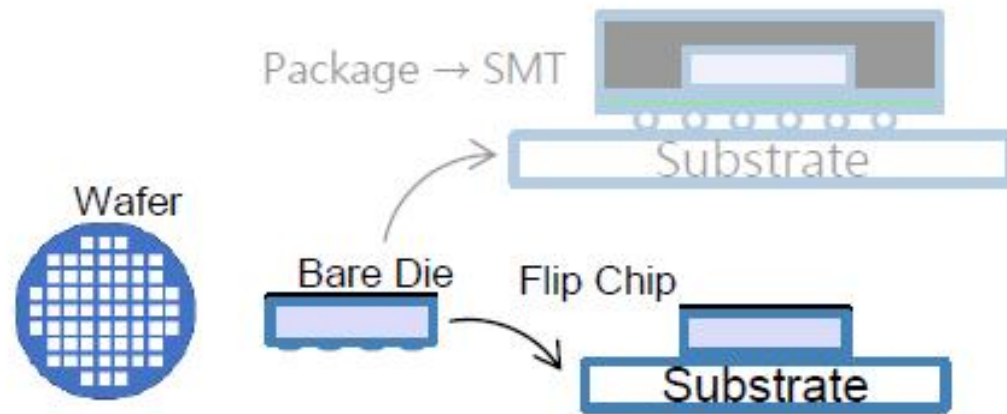
WLP/PLP
(Wafer Level Package
Panel Level Package)



Hybrid Substrate (HBS)

Hybrid Substrate (HBS)

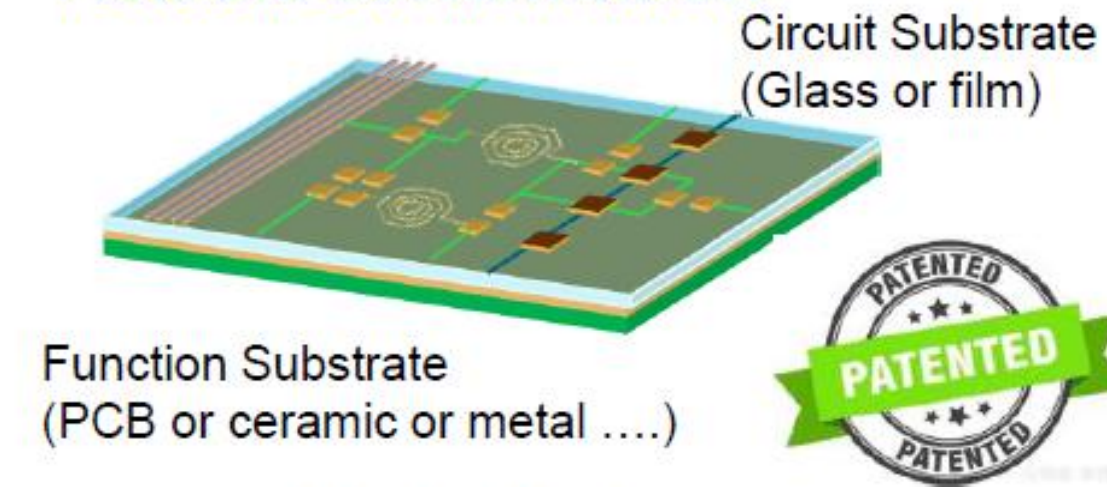
Small device size



Flip Chip (COB)

Chip Size Reduction (IC Package → Bare Die)

Flexible combination



Hybrid Substrate

Connecting the circuit substrate and function substrate

Better system performance



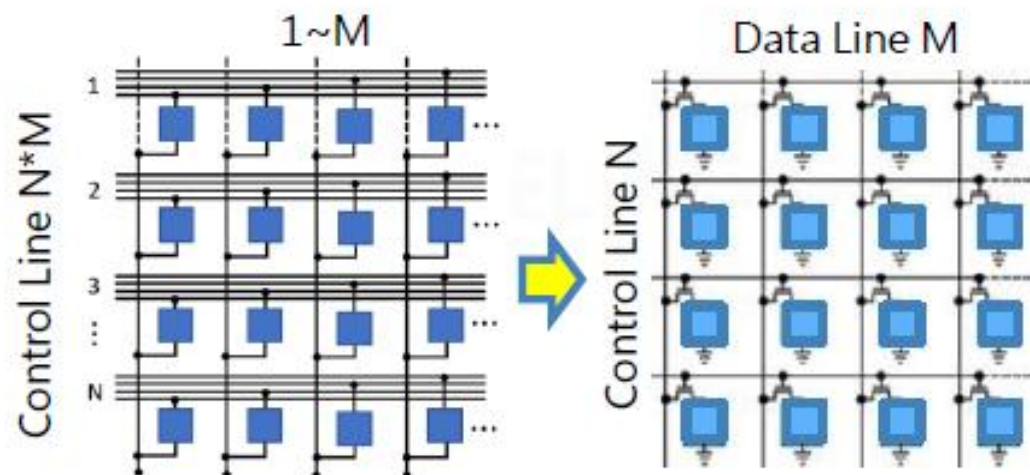
SOF

System on film

Heterogeneous Device Integration



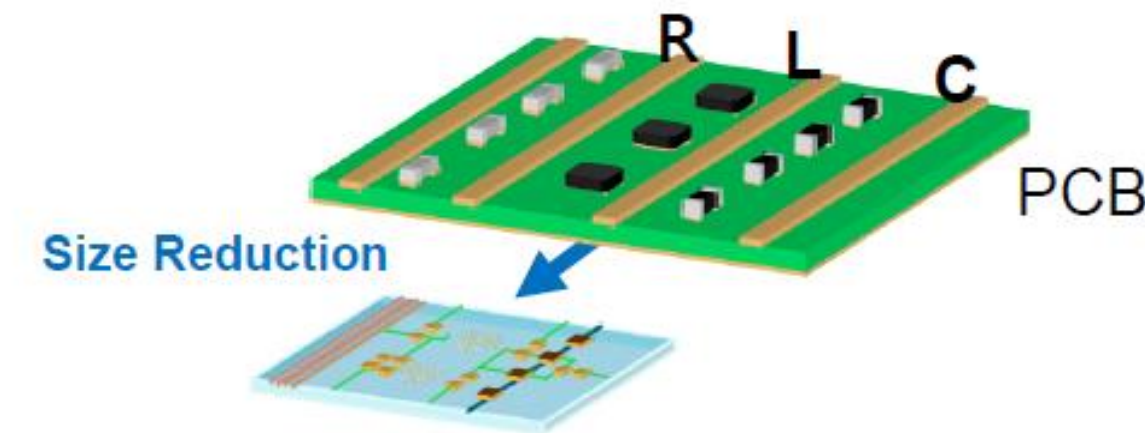
Low driving cost



Active Matrix

Trace number reduction $M*N \rightarrow M+N$

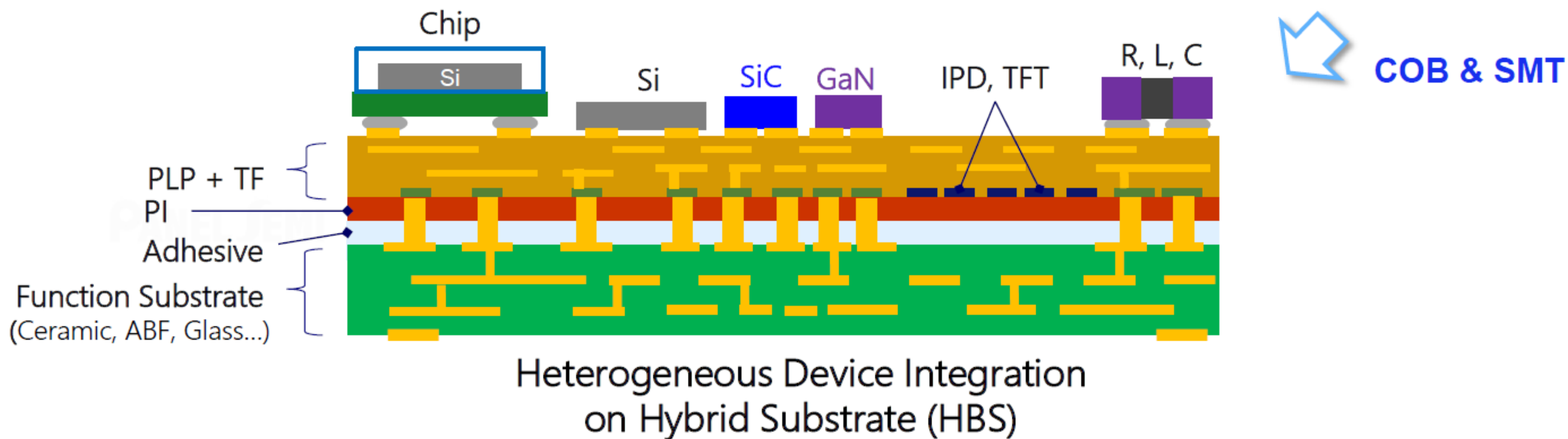
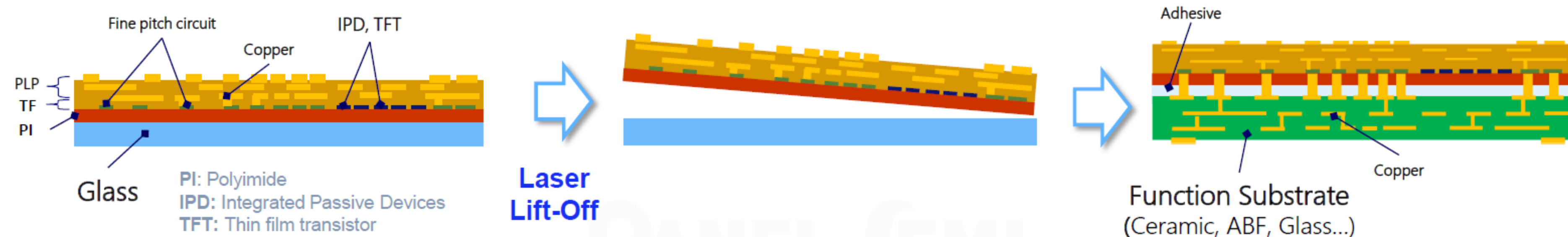
Passive device integration



IPD by TFT Process

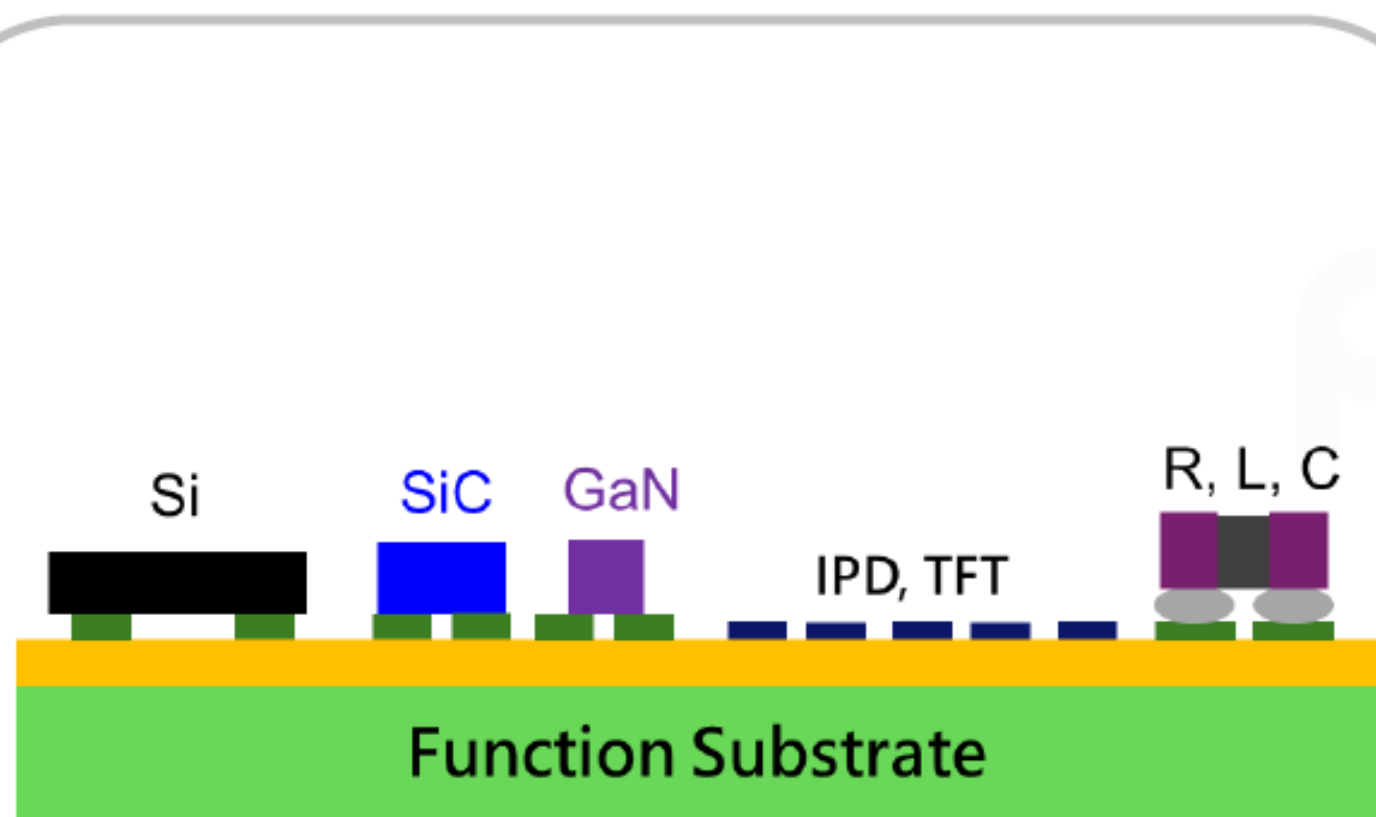
Integrated passive devices made by Thin-Film process with fine resolution

Hybrid Substrate Process



Hybrid Substrate Applications

- Hybrid Substrate can provide a new architecture for various applications, combining different components to achieve diverse uses.



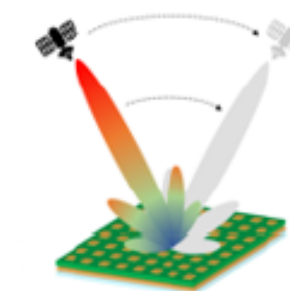
Hybrid Substrate Technology

+ LED Chips



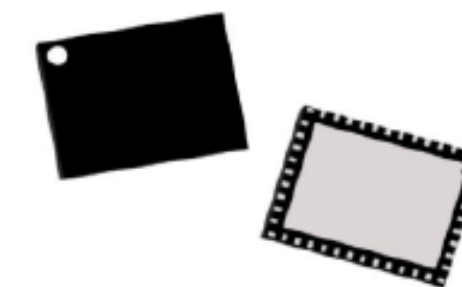
Mini LED Display

+ RF Devices



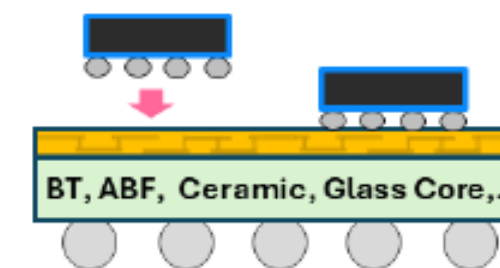
Panel Antenna

+ GaAs/GaN



RF Power Amplifier

+ IC Chips



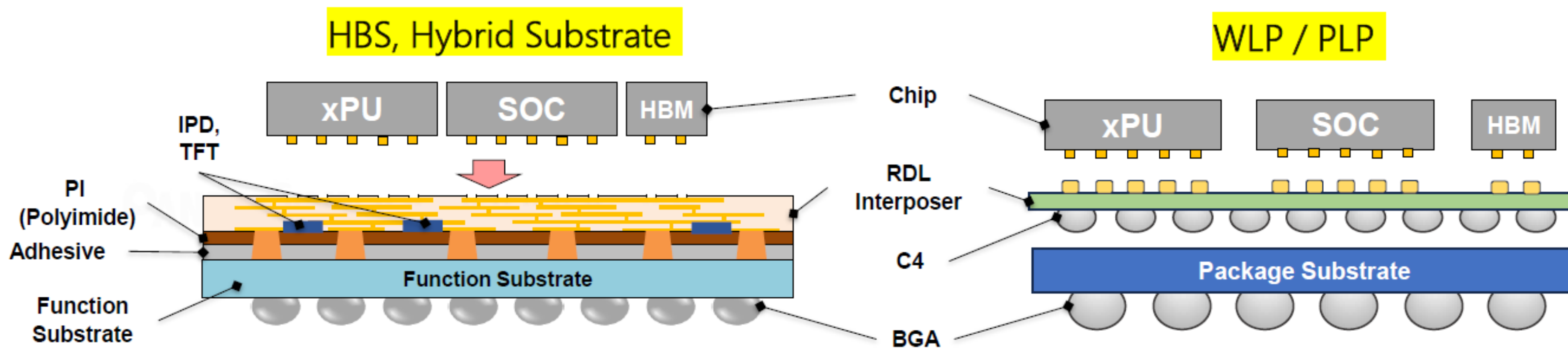
Advanced Packaging

Hybrid Substrate for Advanced Packaging

- Hybrid Substrate provides a powerful upgrade of Packaging Substrate by utilizing TFT infrastructure
- May become a solution to the severe shortage of Advanced Packaging for AI-HPC

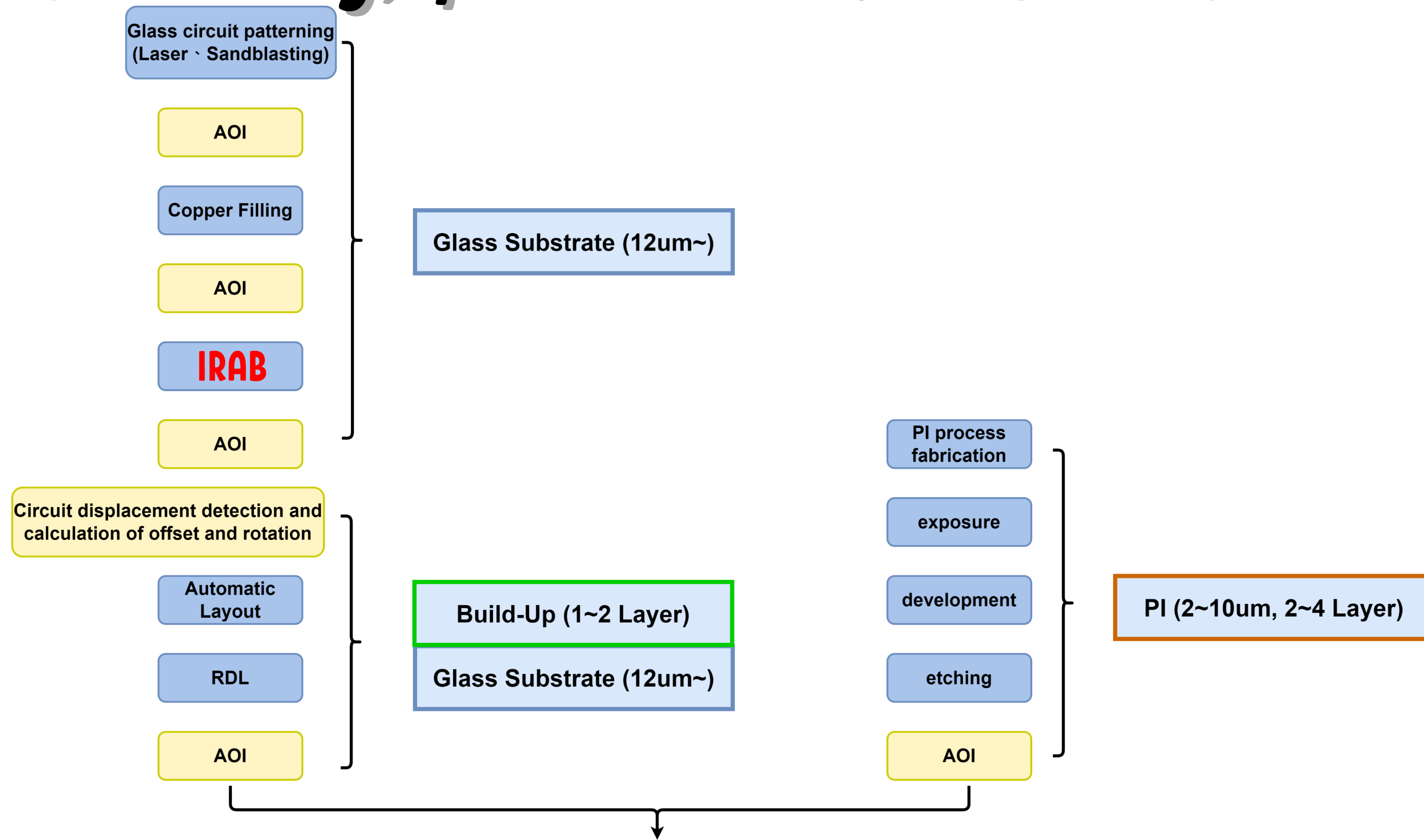
Comparison of different interconnection technologies

Item	HBS	PCB	PKG Sub.	Advanced Packaging
Line / Space	O	X	X	O
IPD (Integrated Passive Device)	O	X	X	O
Thin-Film Transistor	O	X	X	X
Substrate Size	O	O	△	X
Cost	O	O	O	X

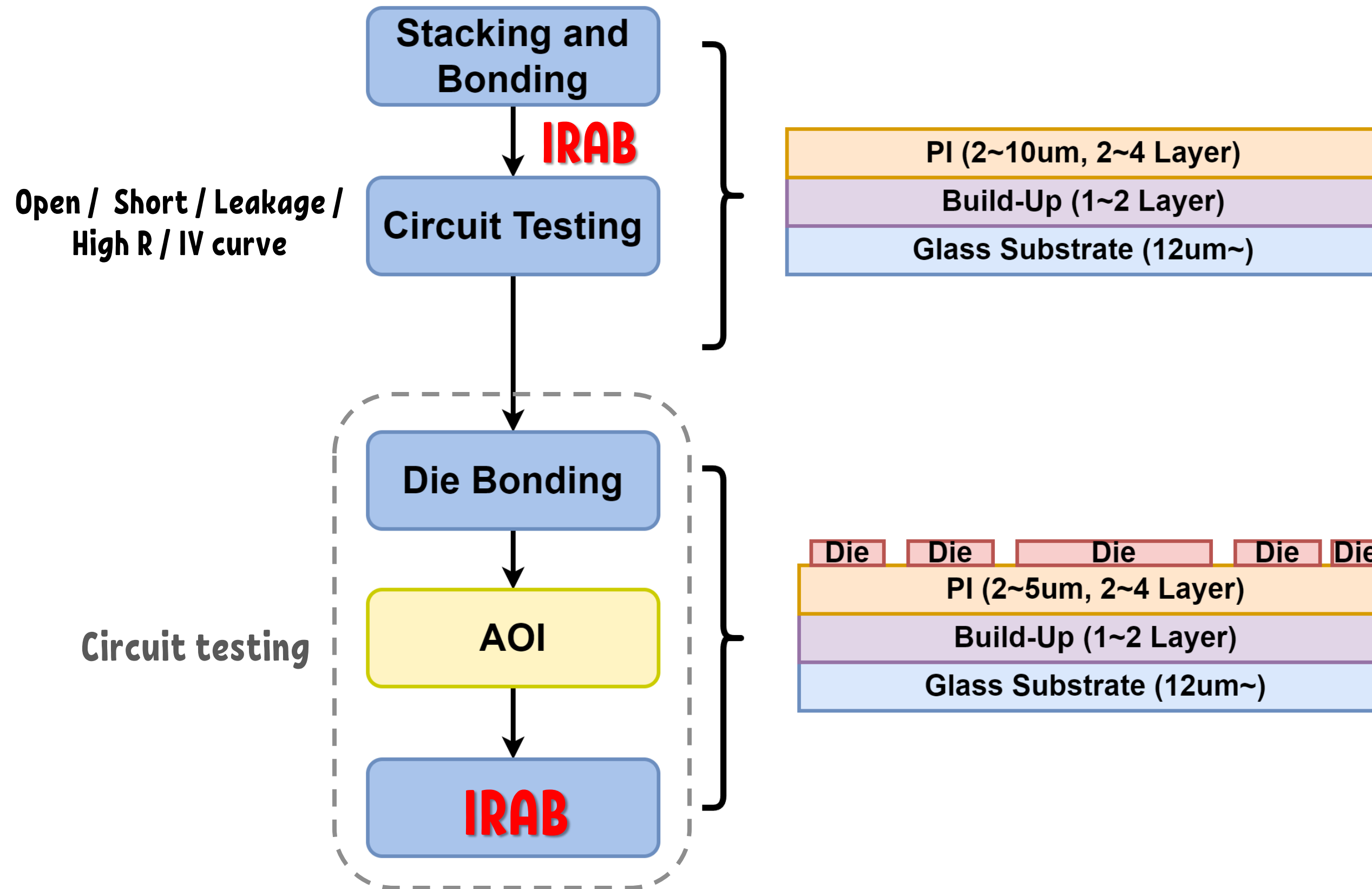


WLP/PLP : RDL on IC to match Packaging Substrate.
HBS : RDL on Packaging Substrate to match IC.

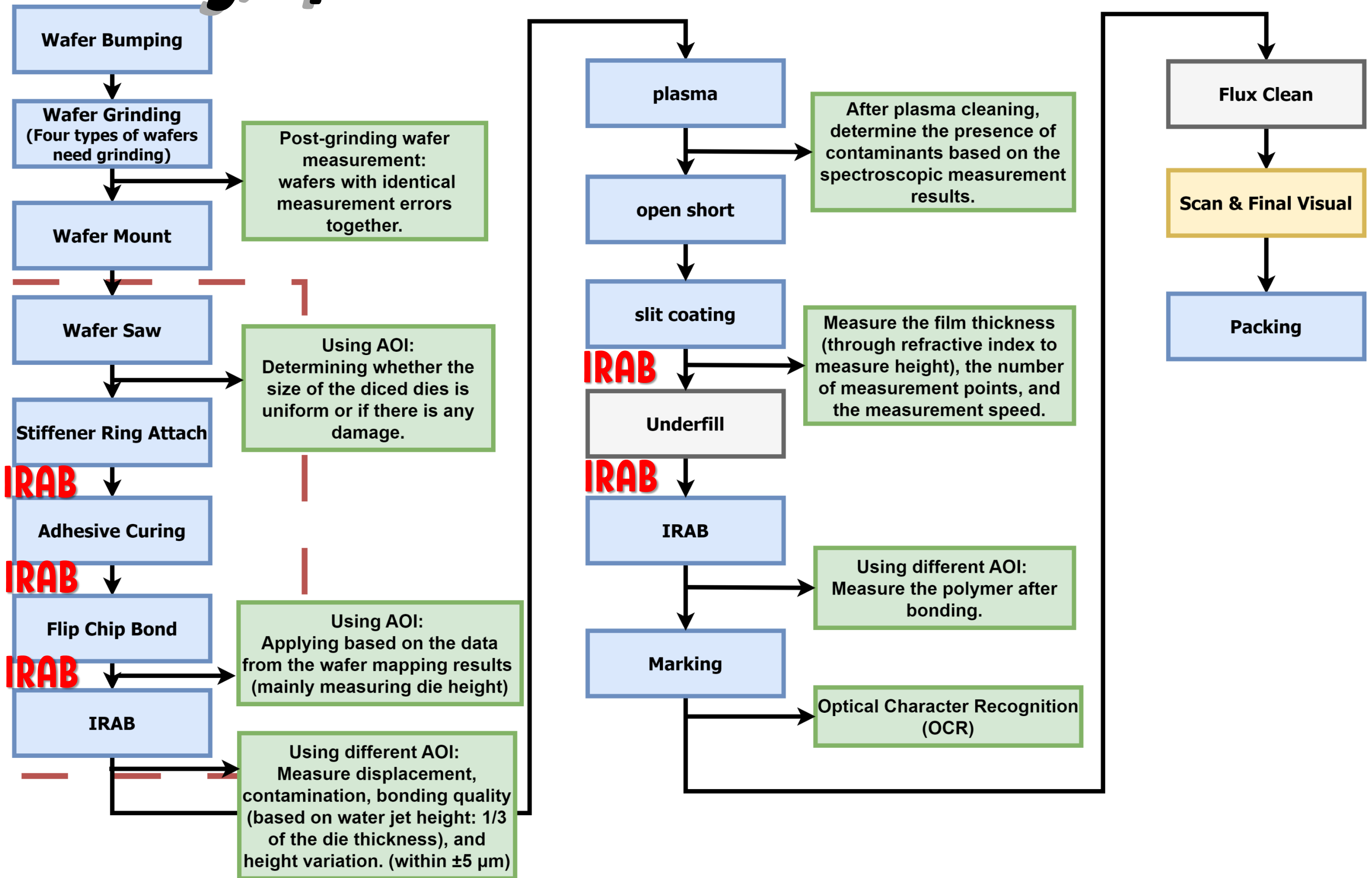
AI + (AOI+testing) / IRAB with Panel Semiconductor



AI + (AOI+testing) / IRAB with Panel Semiconductor



AI + (AOI+testing) / IRAB with Panel Semiconductor



A 、 B 、 C 、 D wafer



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Your best partner in laser processing

PANEL SEMI

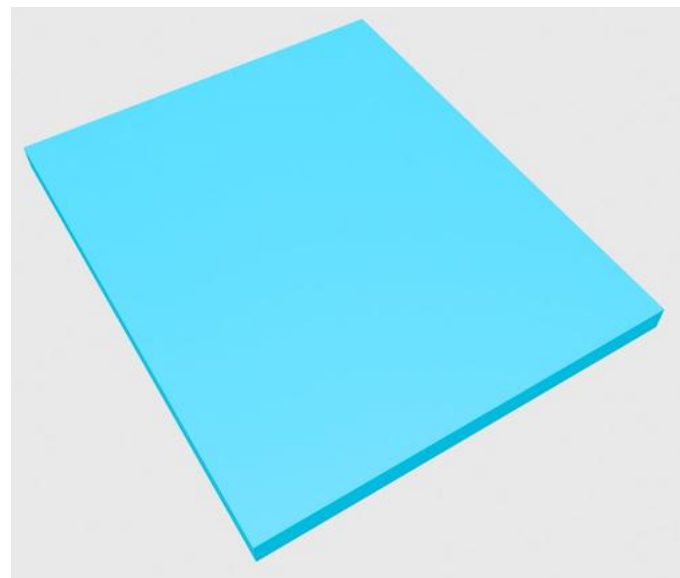
**COMPANY
ALLIANCE**

**REDEFINE
INNOVATION**

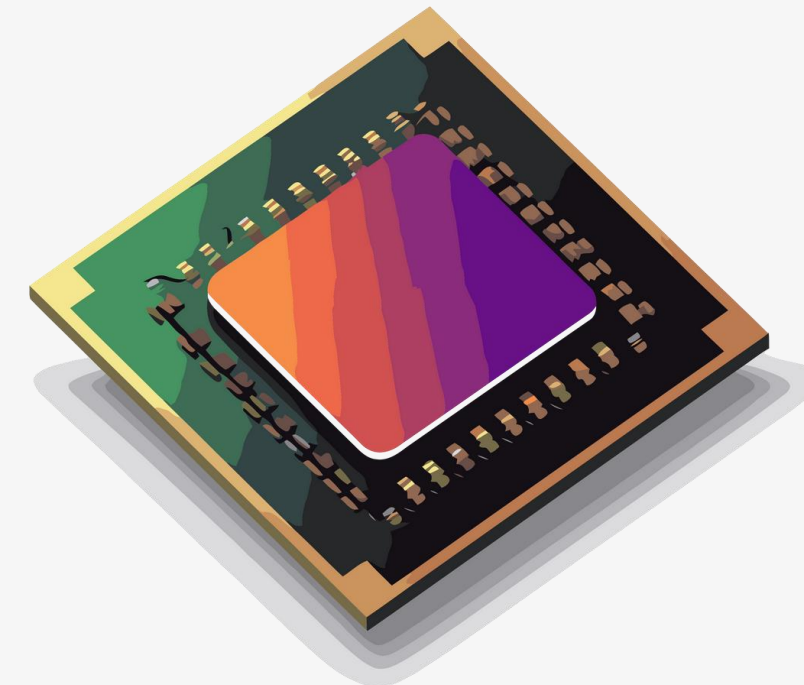


○ ○ ○ ○

CONCLUSION



Glass Substrate



Advanced Packaging

○ ○ ○ ○



Capcon Limited 華封科技有限公司



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**REDEFINE
INNOVATION**

REDEFINE INNOVATION

典範轉移有限公司

Contact

E-mail:info@redef.tech

SUPERBIN

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INVITATION SEMICON Taiwan 2024 SUPERBIN

上儀股份有限公司

活動時間：09/04(三)-09/06(五) 10:00-17:00

地點：115台北市南港區經貿二路1號 (南港展覽館二館1樓)

攤位號：Q5930



上儀公司本次參展 2024 SEMICON (攤位號碼：Q5930)

SEMICON Taiwan 展覽提供半導體各个方面技術服務

包括：半導體製程：清洗、蒸鍍、蝕刻、電鍍、封裝、雷射等設備

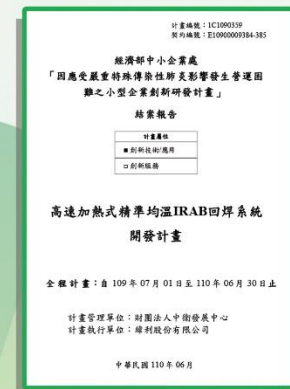


燁展科技股份有限公司
IRray Technology Co., Ltd.

A company of LeadinWay

Infrared Assisted Bonding

IRAB 300A



針對異質材料的IR專利型解決方案

- 1) 快速昇溫 ($>30^{\circ}\text{C}/\text{秒}$)
- 2) 精準控溫 (溫度控制精度 $\pm 5^{\circ}\text{C}$)
- 3) 穩定持溫 (PID穩定時間 $<1\text{秒}$ 、穩定性 $\pm 2^{\circ}\text{C}$)
- 4) 可適用於 $\varnothing 300\text{mm}$ wafer及 $300\text{mm} \times 300\text{mm}$ Panel

竹北
☎ 電話 03-6560883
☎ 傳真 03-6564486
📍 地址 新竹縣(302) 竹北市縣政五街46號

台南
☎ 電話 06-3316050
☎ 傳真 06-3316051
📍 地址 台南市(701) 東區裕信路306-3號



◆ Cluster真空系統
Cluster vacuum equipment

◆ 真空連續式高溫爐
High-temperature selenization equipment



◆ R to R 鍍膜系統
Roll to Roll coating equipment

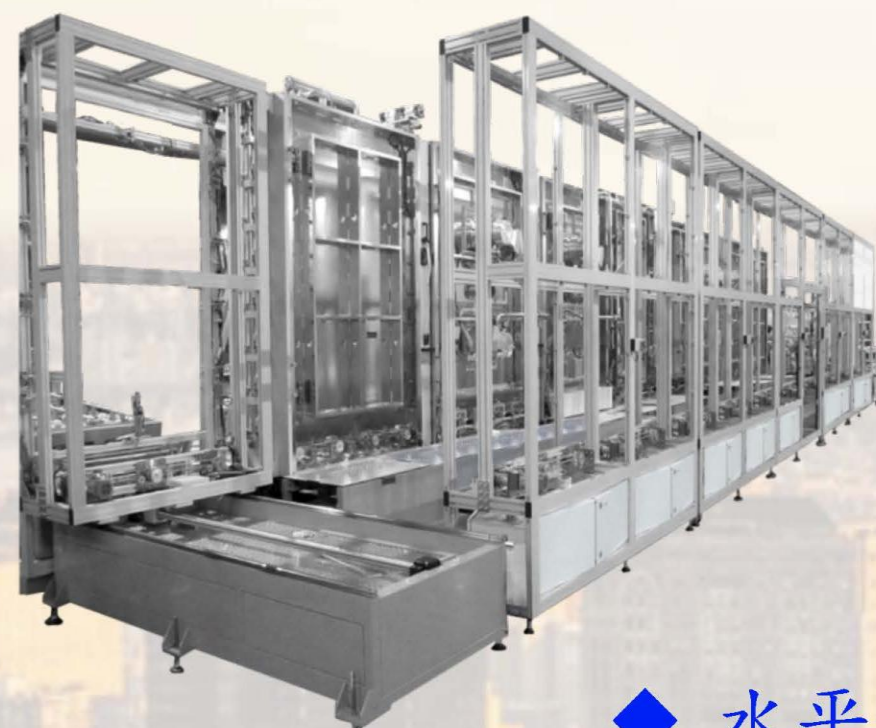
◆ 直立連續式濺鍍設系統
Vertical Type Inline sputtering system

◆ 整廠自動化
Total solution

◆ 水平連續式真空濺鍍系統
Horizontal Type Inline sputtering system

◆ 自動化物流系統
Automatic conveyor

◆ Batch式真空設備
Bath Type vacuum equipment





DIRECT IMAGING LITHOGRAPHY

FOR THE MOST ADVANCED FINELINE APPLICATIONS

2024



V1



Line / Space



8/12µm

Alignement

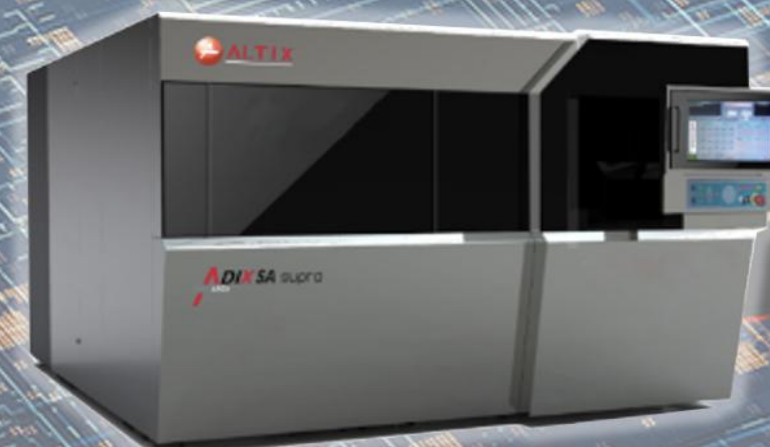


+/-6µm

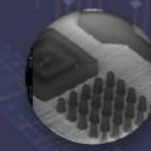
2026 - 2027



V2



Line / Space



2/2µm

Alignement



+/-1.5µm

Contact US



陽程科技股份有限公司

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Taiwan (R.O.C.)

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Nicols Huang
TEL : +886-3-3852628 #1208
FAX : +886-3-3854800



Collaboration



Innovation

win-win
situation

