# XINXIN GEM TECHNOLOGY GROUP LLC

## O&E PACKAGE SOLUTION

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# Ceramic Products Introduction

## ❖ Ceramic components

Heat Sink, Submount, Metalization pattern, Prefabricated Gold -Tin products.
We are developing the capability of Capacitor, Thin film resistor, Thin film inductors

## ❖ DPC Components

## ❖ Ceramic substrate material

Aluminum oxide (99 porcelain, 96 porcelain), Aluminum nitride (170W/mK, 200W/mk), Diamond, Beryllium oxide, Ferrite, Microwave substrates, Sapphire, Quartz

# Thin Film Metallization

- Film structure: two metalized film series

  Cr/Ni/Au=100~150nm/300~400nm/500~600nm, 1200~1300nm, 2800~3000nm

  Ti/Pt/Au=100~150nm/200~300nm/500~600nm, 1200~1300nm, 2800~3000nm

- Film forming method

  Ion sputtering, ion assisted evaporation deposition

- Substrate thickness

  0.127, 0.254, 0.38, 0.5, 0.8, 1.0mm, etc.

# Graphic , Pattern

- The smallest strip width is 15um, the smallest spacing is 12um, and the accuracy is ±2um
- The minimum size is 0.2mm×0.2mm, and the accuracy is ±0.02mm
- Semiconductor photolithography technology + etching technology; Nano mask + photoresist technology
- Patterning technology: etching technology and lift-off technology Lift-off technology is used often

# DPC Components

Electroplating copper (50~120um) on the ceramic surface,
Electroplating nickel, gold and prefabricating gold tin solder

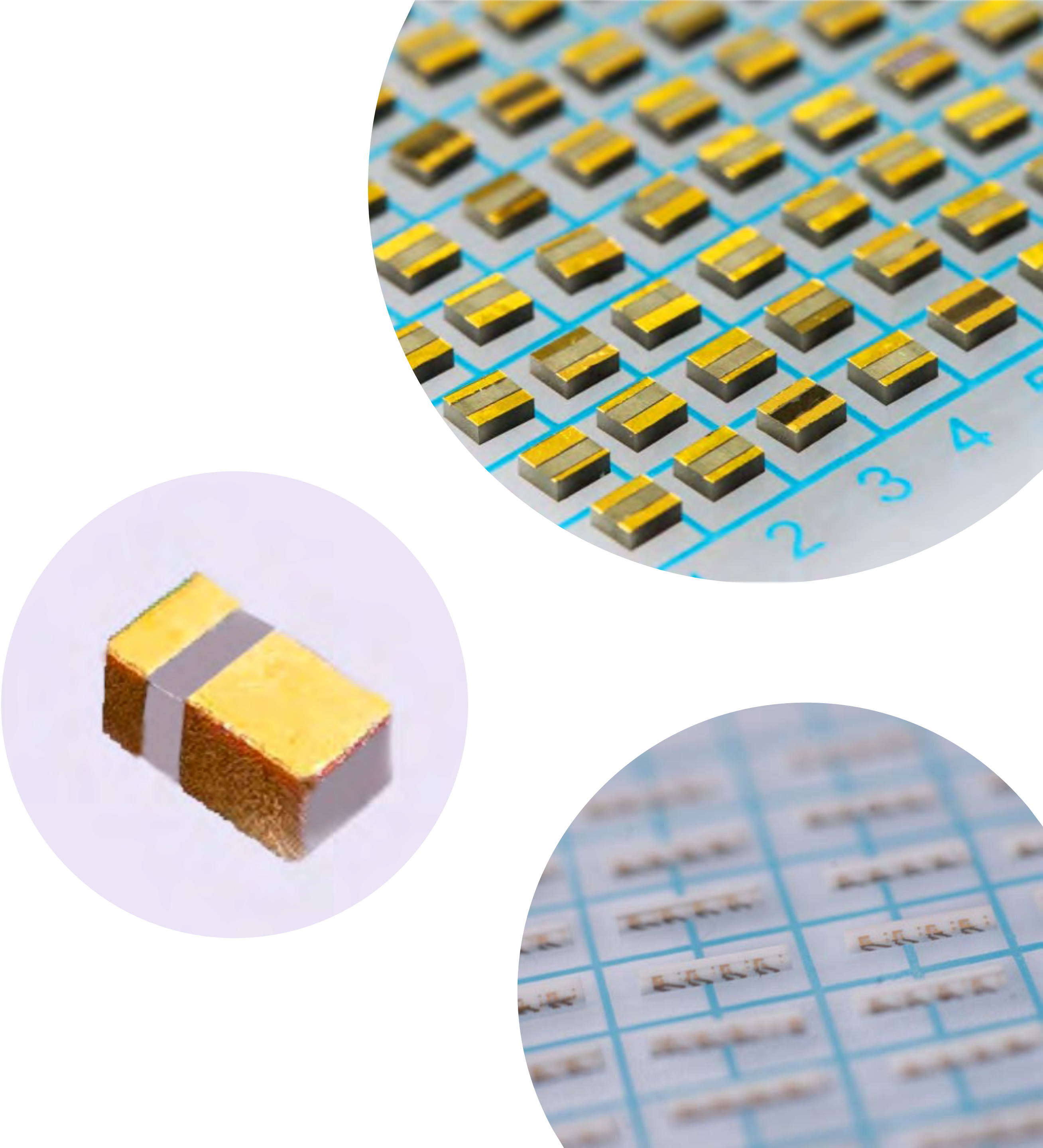
- Cu / Ni / Au (75±15μm/1.0μm min/0.5μm min ); Ti / Cu / Ni / Au
- Cu/Ni/Au （5μm Normal/1.0μm min/0.5μm min）
- Pt （0.25μm min） / AuSn:Au75±5wt% （5.0±1.0μm） /Au Flush （0.04μm Typ.）

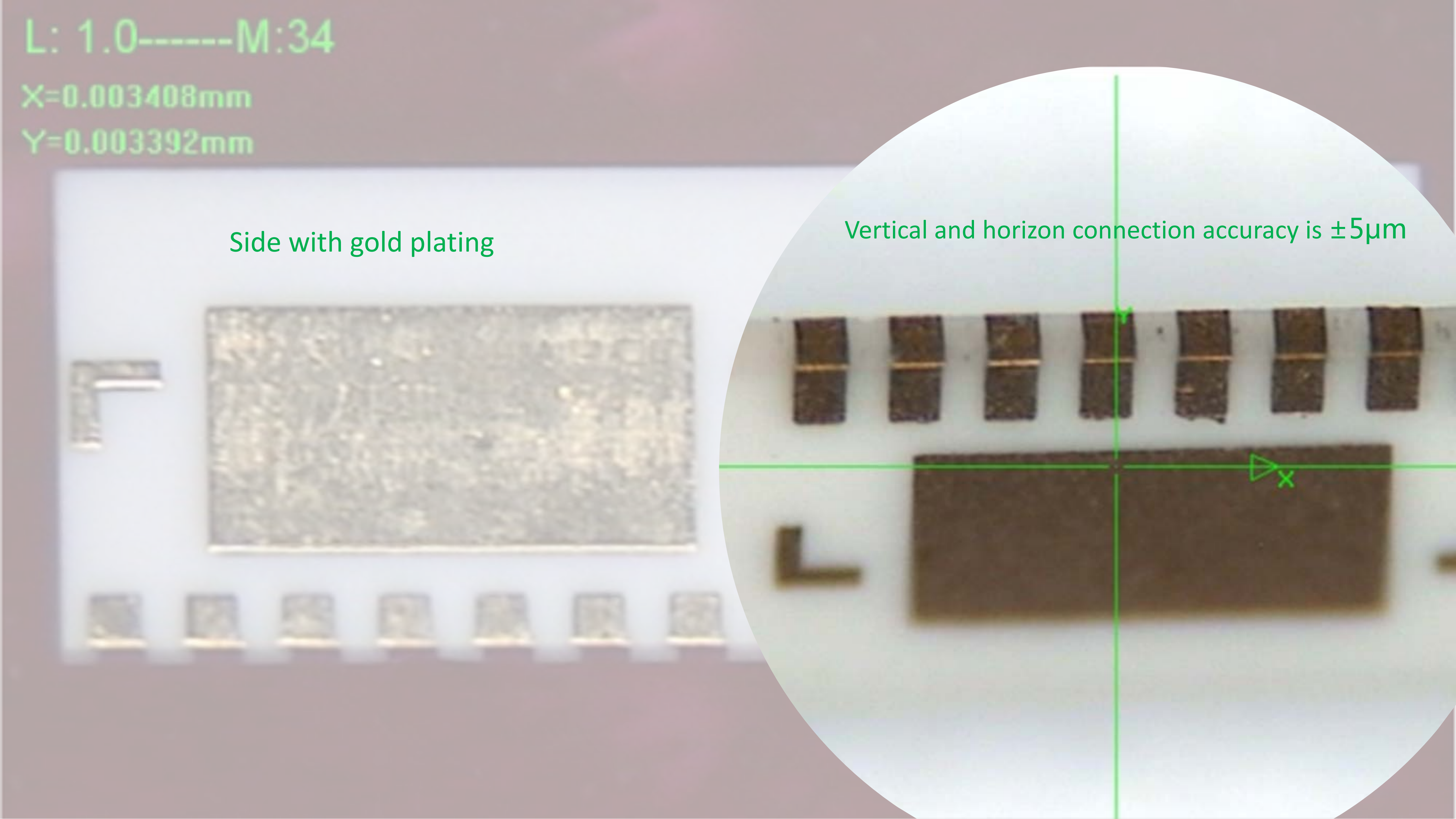
# Getter, Gold-tin Film

- Gold-tin thin film solder: Au/Sn=70~80/30~20;
- Film thickness: 3um, 5um
- Welding temperature: 290~320℃, which can reach 5 minutes
- Ceramic half-cutting: cutting of ultra-thin ceramic products
- Ceramic film getter: getter materials deposited on the ceramic surface, such as Ti, Zr, V, Fe, Re, Co and other materials

# Ceramic  Components

- We can use Au, AuSn, etc to mentalization the surface.  The thickness and materials could be customized according to the demands.





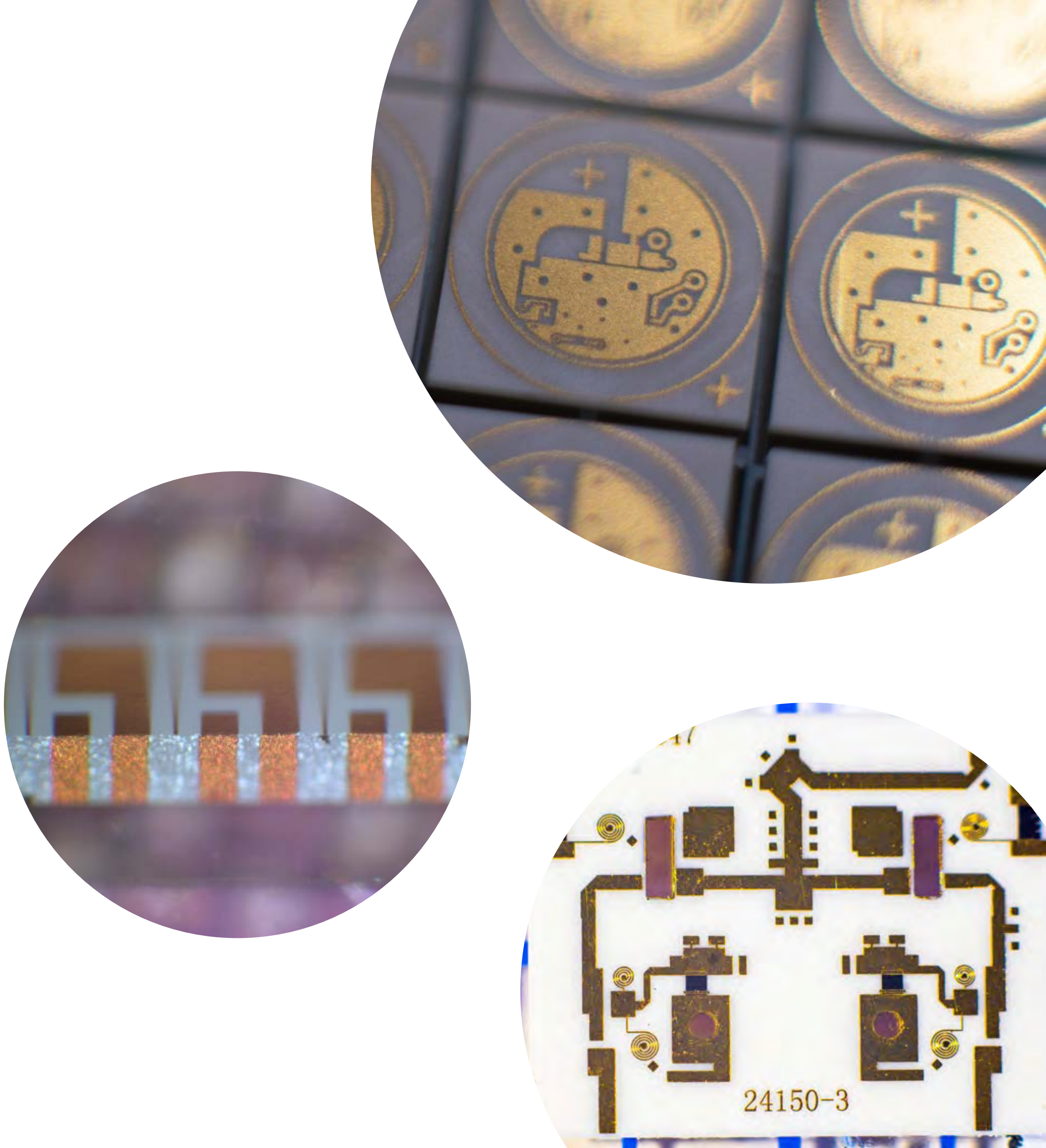
Side with gold plating

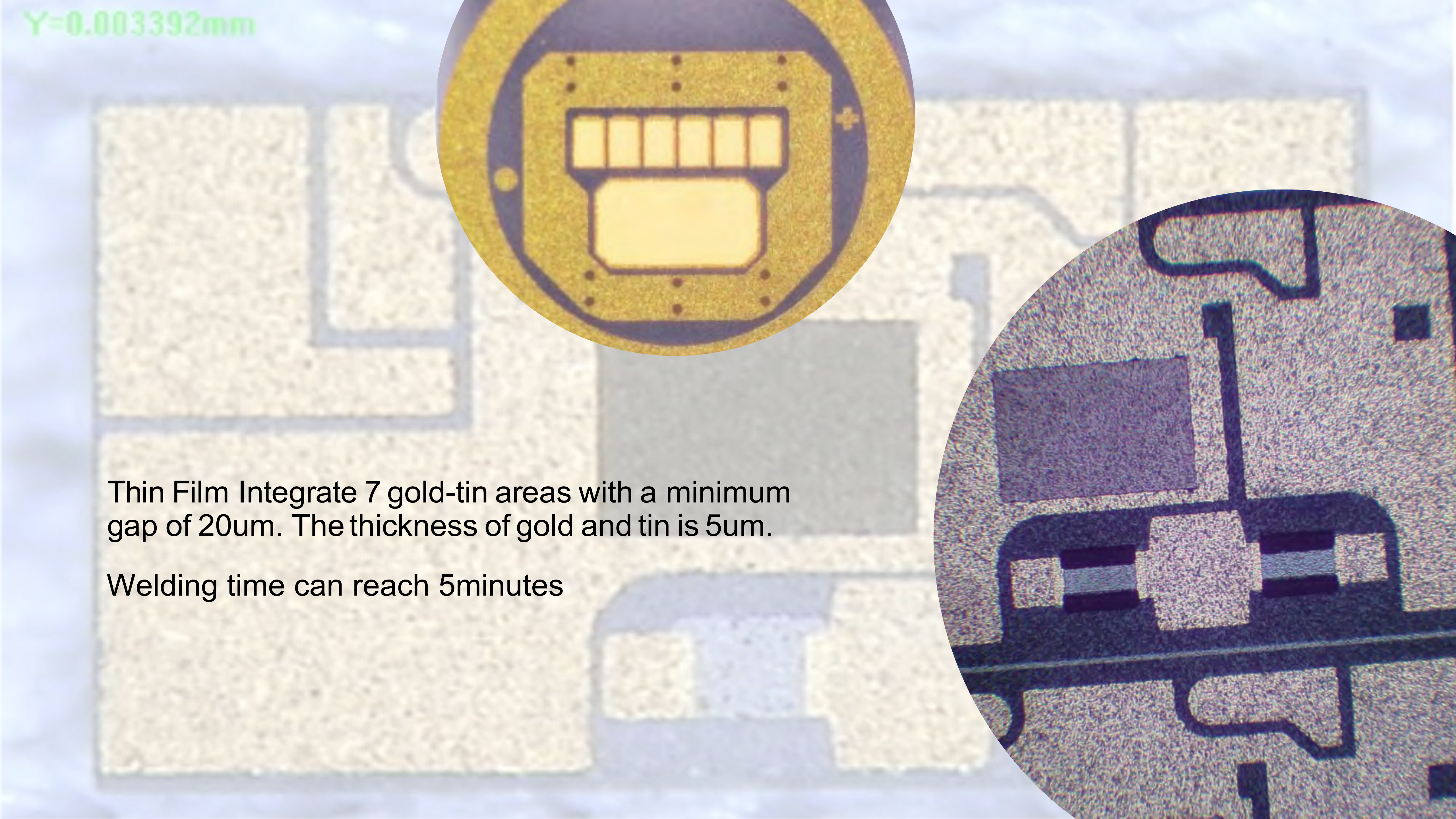
Vertical and horizon connection accuracy is ±5μm

# Thin Film

Sample

- Dimension: 2.825X1mm
- Thickness: 0.127mm
- The smallest: 0.3X0.1

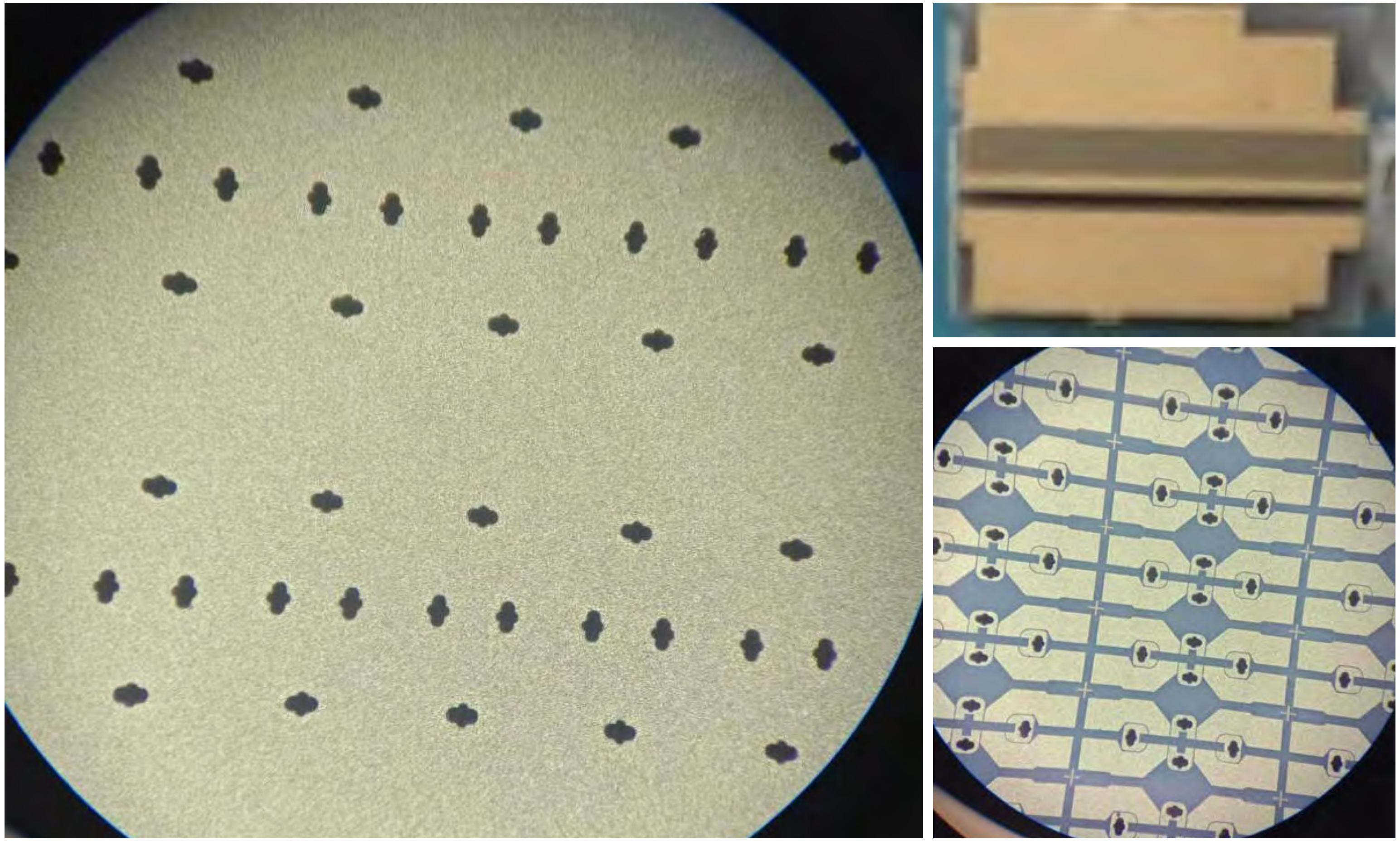




Thin Film Integrate 7 gold-tin areas with a minimum gap of 20um. The thickness of gold and tin is 5um.

Welding time can reach 5minutes

# DPC Components



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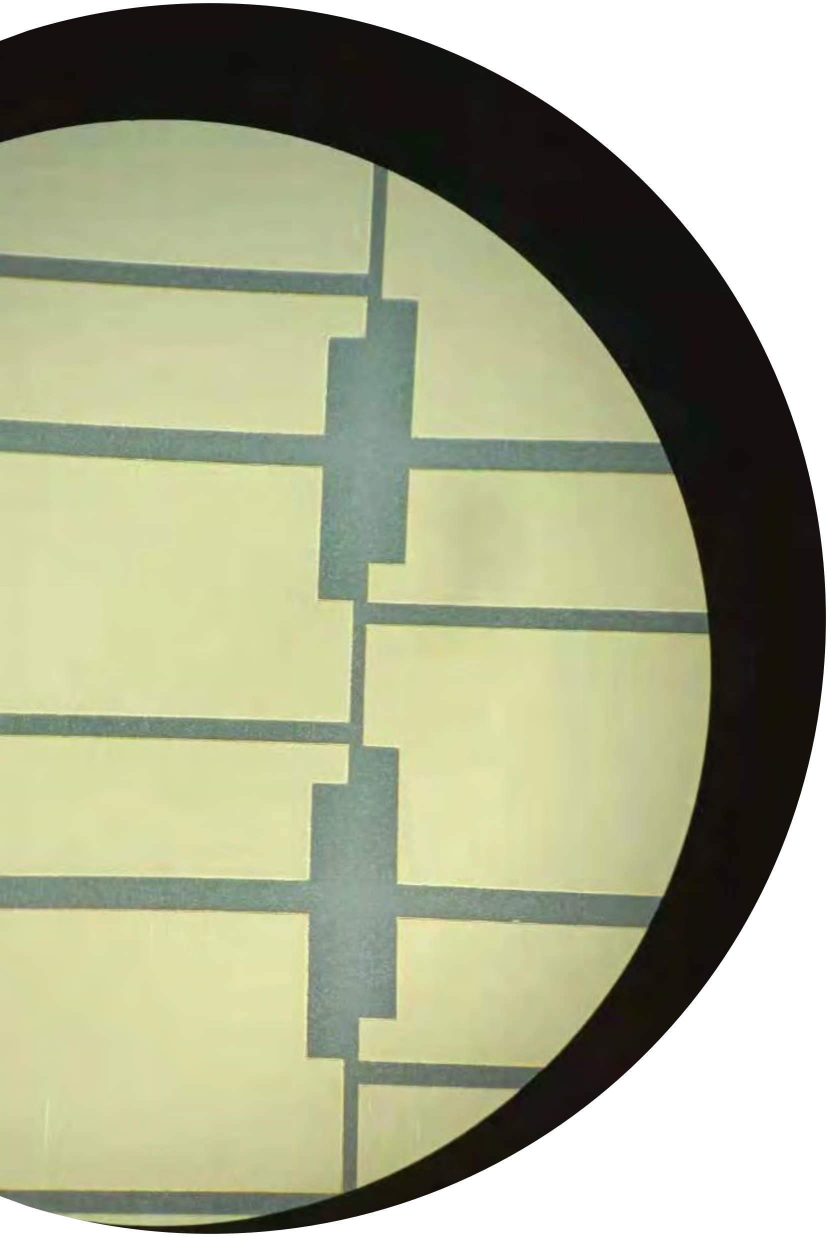

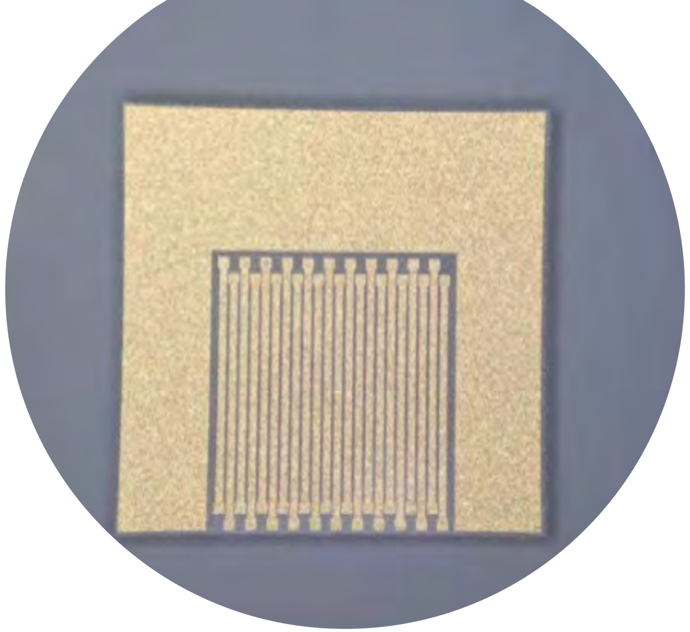

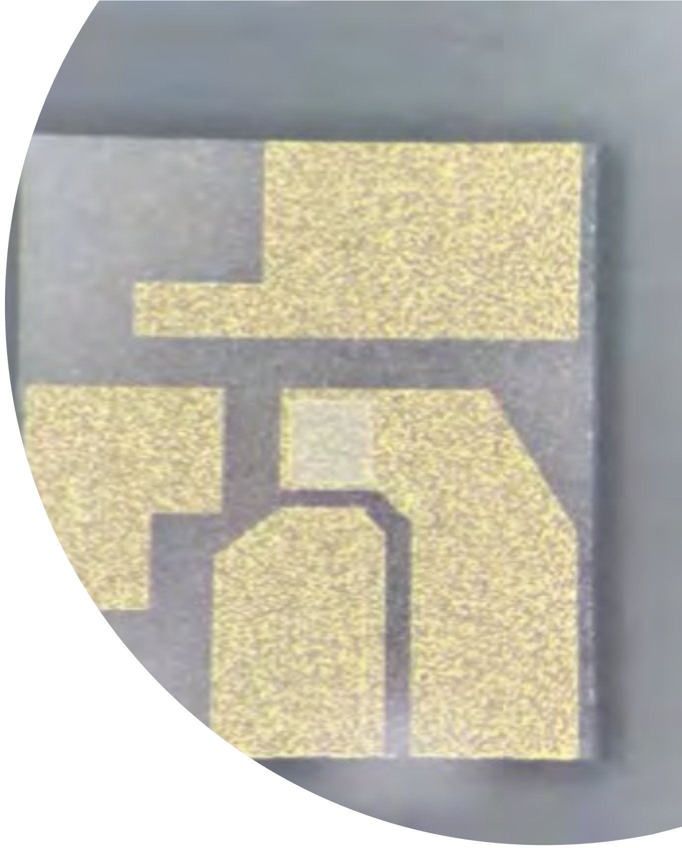

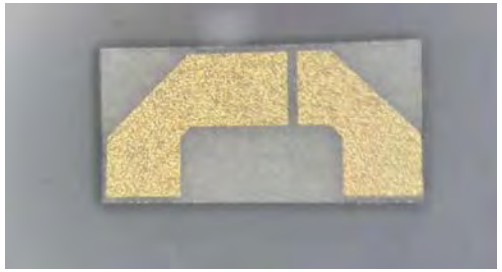

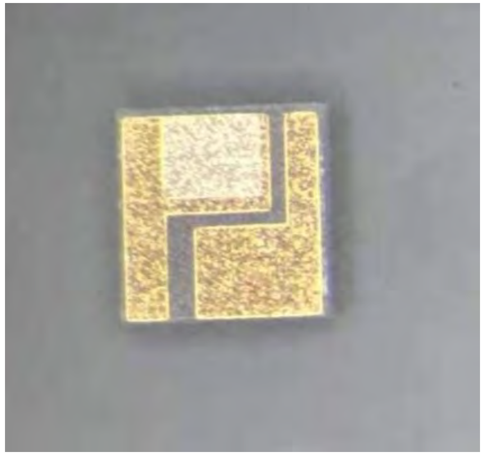

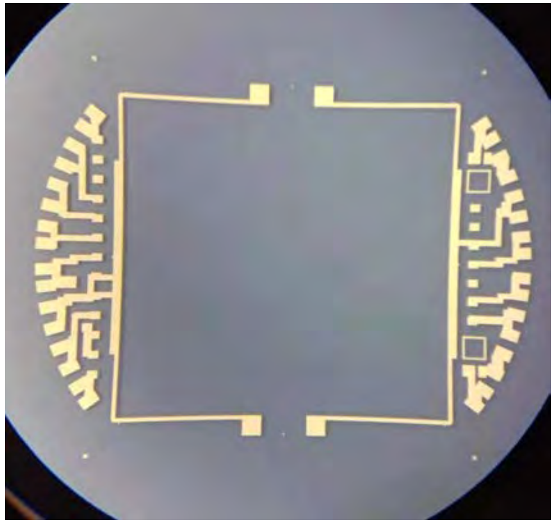

# DPC Components

# Thanks for Your Time

Innovation for Everyone

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